Meridian 1 and Succession Communication Server for Enterprise 1000

Features and Services

Book 2 of 3

Document Number: 553-3001-306
Document Release: Standard 10.00
Date: January 2002

Printed in Canada

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China – Attendant Monitor

Contents

The following are the topics in this section:

Feature description

Attendant Monitor Function

Attendant Monitor is a customer defined option which allows the attendant to monitor, in listen only mode, any established call involving a set or trunk on the customer's switch with or without the connected parties being aware that monitoring is taking place (depends on the configuration of the customer tone option).

The differences between the existing Busy Verify and Barge-In features and the Attendant Monitor feature are the following:

- Attendant Monitor provides a listen only path for the attendant.

- There is no click sound given to the connected parties upon attendant connection when the no tone option is configured.
- The tone to the connected parties may or may not be given depending on the new customer tone option for Attendant Monitor.
- The display (if there is one) on any parties involved in the call does not indicate that the attendant is monitoring.

Operating parameters

Since Attendant Monitor is based on Busy Verify and Barge-In, it has the same restrictions which apply to Busy Verify and Barge-in unless otherwise stated in this feature description.

This feature has been developed exclusively for use in China.

Attendant Monitor is strictly a standalone, same-customer feature which is not supported over networks. A customer equipped with the Attendant Monitor feature can only monitor a DN or trunk defined for that customer without going over the network.

The toggle function between having a one-way speechpath and a two-way speechpath during monitoring is not supported.

This feature is not supported for attendants monitoring other attendants.

Monitoring an M2216 or M5317 is not supported.

The attendant may be blocked from monitoring a DN or trunk due to a limit on the number of conference timeslots.

Feature interactions

Attendant Barge-In

When China (CHINA) package 285 is equipped, the normal operation of Barge-In changes slightly. The repeatable tone is now configurable with the (TOA)/TOD option in overlay 15.

If an attendant is monitoring a trunk, a second attendant defined at the same customer location is blocked from Barging In to any trunk involved in the monitored call.

If an attendant is Barged-In with a trunk, a second attendant defined at the same customer location will be blocked from monitoring any party involved in the monitored call.

Attendant Break-In

If an attendant is monitoring a DN, a second attendant defined at the same customer site will be blocked from Breaking In to any party involved in the monitored call.

If an attendant is in a Break-In situation with a DN, a second attendant defined at the same customer site will be blocked from monitoring any party involved in the monitored call.

Attendant Busy Verify

When China (CHINA) package 285 is equipped, the normal operation of Busy Verify changes. The repeatable tone is now configurable with the (TOA)/TOD option in overlay 15.

If an attendant is monitoring a DN, a second attendant defined for the same customer will be blocked from Busy Verifying any party involved in the monitored call.

If an attendant is Busy Verifying a DN, a second attendant defined for the same customer will be blocked from monitoring any party involved in the monitored call.

Automatic Call Distribution

The attendant cannot monitor a call in which an Automatic Call Distribution (ACD) DN is involved.

Call Forward All Calls
Call Forward Busy
Call Forward, Internal Calls
Call Forward No Answer

If an attendant attempts to monitor a DN which is Call Forwarded and is idle, idle DN treatment is given.

Call Hold, Permanent

Monitoring is not affected if anybody involved in the monitor's call activates hold, except for the case of a simple call. For a monitored simple call, activating hold deactivates monitoring. In all cases, activation of music on hold deactivates monitoring.

An attendant monitoring a call cannot put the monitored DN on hold. The attendant pressing the hold key has no effect while monitoring is enabled.

Call Park

If a DN being monitored becomes parked by another party, the Attendant Monitor feature is deactivated.

Call Trace

If a Call Trace is performed on the attendant, the output will consist of the existing Call Trace information elements for an attendant loop. In addition, "MON" will be printed immediately after "ATTN" to indicate that this attendant is monitoring.

If a Call Trace is performed on any other party involved in the monitored call, the output will consist of the existing information elements for a DN or trunk, as well as "MON" being printed immediately before "ACTIVE".

Call Transfer

If any party at the customer location involved in a monitored call attempts to activate call transfer, monitoring is immediately deactivated.

Centrex Switchhook Flash

If any set at the customer location involved in the monitored call switchhook flashes or performs a Centrex switchhook flash, Attendant Monitor is immediately deactivated.

Conference

If any party involved in a monitored call attempts to activate conference, monitoring is immediately deactivated.With Attendant Monitor active, the attendant cannot create a conference without first disabling the Attendant Monitor feature.

Do Not Disturb

If an attendant attempts to monitor a DN which has Do Not Disturb activated and is idle, idle DN treatment is given.

Make Set Busy

If an attendant attempts to monitor a DN which has Make Set Busy activated and is idle, idle DN treatment is given.

Malicious Call Trace

If a party involved in a monitored call activates the TRC key, monitoring is immediately deactivated.

Multiple Appearance DN

If Attendant Monitor is attempted on a Multiple Appearance DN, the Multiple Appearance Redirection Prime (MARP) TN becomes the desired party.

Override

A set may operate override to join into a desired call. If the desired call is being Attendant Monitored at the time, one of the following occurs:

- If the desired call is a conference call, the override attempt is blocked as per existing operation.
- If the call is a simple one with the Attendant Monitoring with no tone, the override attempt is successful and Attendant Monitor is deactivated.
- If the call is a simple one with the Attendant Monitoring with tone, the override attempt is blocked.

Override, Enhanced

A set may operate enhanced override on a desired call. If the desired call is being Attendant Monitored at the time, existing operation occurs for the first time the Enhanced Override key is pressed. The second time the key is pressed, the interaction with Attendant Monitor is the same as with regular override.

Privacy Release

If Privacy Release is activated on a set that is involved in a monitored call, Attendant Monitor is deactivated.

Private Line

Attendant Monitor is blocked from monitoring a Private DN.

Feature packaging

This feature is included in base X11 System Software.

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

1. LD 15 – Enable the Attendant Monitor option for a customer, and then either allow or deny the tone option.
2. LD 12 – Define the Barge-In/Attendant Monitor key and the Busy Verify/Attendant Monitor key on an Attendant Console.

LD 15 – Enable the Attendant Monitor option for a customer, and then either allow or deny the tone option.

Prompt	Response	Description
REQ:	NEW CHG	Add new data. Change existing data.
TYPE:	ATT	Gate opener.
- OPT	(AMD) AMA	(Deny) allow Attendant Monitor.
	(TOA) TOD	(Allow) deny Attendant Monitor Tone.

LD 12 – Define the Barge-In/Attendant Monitor key and the Busy Verify/Attendant Monitor key on an Attendant Console.

Prompt	Response	Description
REQ	NEW CHG	Add new data. Change existing data.
TYPE	ATT 1250 2250	Attendant Console type.
...		

KEY	00 BVR	Allow both Busy Verify and Attendant Monitor on key 00.
	01 BIN	Allow both Barge-In and Attendant Monitor on key 01.

Feature operation

Monitor a DN

1 Press an idle Loop key on the Attendant Console. The Loop indicator is lit.

2 Press the Busy Verify key. The Busy Verify lamp is lit.

3 Press the Busy Verify key again to enable Attendant Monitor. The Busy Verify lamp is in the flashing state indicating that the Attendant Monitor option is enabled.

4 Dial the extension desired to be monitored. One of the following happens:

— Attendant Monitor is blocked when the extension is maintenance busy or disabled.

— Attendant Monitor is blocked when the extension is vacant.

— Attendant Monitor is blocked when the extension is in some transient state (for example, Conference or Transfer)

— Attendant Monitor is blocked when the extension is idle, receiving busy tone, or receiving overflow tone.

— Attendant Monitor is blocked when the extension is involved with another attendant.

— Attendant Monitor is blocked when the extension has activated the Hold key.

— Attendant Monitor is blocked when the extension is already involved in a monitored call by another attendant.

— Attendant Monitor is active when the extension is busy. The attendant is able to listen to all connected parties. If the Attendant Monitor Customer tone is denied (TOD), there is no indication given to the connected parties that the attendant is monitoring. If the Attendant Monitor Customer Tone is allowed (TOA), a burst of tone is sent to the connected parties every 16 seconds. When the monitored DN disconnects from the call, Attendant Monitor is deactivated.

In all of the above situations, the display on the parties involved in the call does not indicate that the attendant has attempted to monitor. With TOD configured, upon the attendant successfully joining the connection there is no click sound given to the monitored parties that could indicate that the attendant has joined in.

5 When Attendant Monitor is deactivated, the attendant is released from monitoring and is free to process calls. Deactivation occurs due to the following:

— The RLS key on the Attendant Console is pressed.

— Any DN involved in the monitored call disconnects.

— Any DN involved in the monitored call at the customer location activates some form of call modification.

Monitor a Trunk

1 Press an idle Loop key on the Attendant Console. The Loop indicator is lit.

2 Press the Barge-In key. The Barge-In lamp is lit.

3 Press the Barge-In key again to enable Attendant Monitor. The Barge-In lamp is in the flashing state indicating that the Attendant Monitor option is enabled.

4 Dial the trunk access code and the route member number, then press "#". One of the following happens:

— Attendant Monitor is blocked when the trunk is disabled.

— Attendant Monitor is blocked when the trunk is idle.

— Attendant Monitor is blocked when the trunk is not assigned.

— Attendant Monitor is blocked when the trunk is already being monitored by another attendant.

— Attendant Monitor is active when the trunk is busy. The attendant is able to listen to all parties on the trunk. If the Attendant Monitor Customer tone is denied (TOD), there is no indication given to the connected parties that the attendant is monitoring. If the Attendant Monitor Customer tone is allowed (TOA), a burst of tone is sent every 16 seconds.

5 When Attendant Monitor is deactivated, the attendant is released from monitoring and is free to process calls. Deactivation occurs due to the following:

— The RLS key on the Attendant Console is pressed.

— The trunk disconnects.

— Any party at the customer location performs some form of call modification or activates hold.

— Any party at the customer location disconnects.

— Any trunk involved in the monitored call disconnects.

China – Busy Tone Detection

Contents

The following are the topics in this section:

Feature description

In many countries, loop start trunks are not supervised. Therefore, many Public Exchanges/Central Offices send a busy tone to the Meridian 1 when the external party has disconnected. A tone detector must be used to detect this tone.

The China – Busy Tone Detection (BTD) feature allows a technician to enter the characteristics of the busy tone to be detected in overlay 97. This information is downloaded to the Meridian 1 trunk for use during call processing. Once the busy tone is detected, the trunk sends a message to the Meridian 1 software, which then disconnects the call, and the trunk is free for other uses.

An option is provided to allow Busy Tone Disconnect to occur only for incoming calls. This option is also programmed in overlay 97. Cadence information is downloaded on a card basis.

Operating parameters

The Busy Tone Detection functionality is implemented on the Enhanced Extended Universal Trunk Card for China (NTRA10AA).

The Meridian 1 will disconnect any call once busy tone is detected on the incoming side of the trunk. If the user on the far end causes busy tone to be generated by any means, the call will be disconnected whether or not that was the intention.

The BTD characteristics are downloaded on a card basis only (not on a unit basis) and thus all units on the trunk card must go to Public Exchanges that produce the same busy tone cadence.

Busy Tone Detection may not work with conference bridges in certain situations. This is due to the nature of conference bridges in such that all of the trunks are incoming. In the situation where two or more loop start trunks with BTD disconnect simultaneously, the resulting busy tone from each trunk may be detected by the BTD inhibitors of the other trunks. The result would be a stalemate where all trunks remain connected.

If a trunk card is not designed to support the Busy Tone Detection feature (for example, for future BTD hardware implementation), the functionality can still be configured in software.

To change Busy Tone Detection assigned to a trunk card, all trunks on the card must first be removed using overlay 14.

Feature interactions

Loop Start Supervisory Trunks

The interaction with Intelligent Peripheral Equipment (IPE) trunks occurs because Busy Tone Supervision (BTS) can be configured in conjunction with any existing supervision type. For the EXUT, BTS can now be configured with a supervision type of BST (both incoming and outgoing battery reversal) and Polarity Insensitive (PIP). These supervision type's call processing methods are not changed, except that now the first type of supervision received is the one acted upon.

Feature packaging

China - Busy Tone Detection requires Busy Tone Detection (BTD) package 294, which depends upon Meridian 1 Extended Peripheral Equipment (XPE) package 203.

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

1 LD 97 – Busy Tone table configuration.

2 LD 14 – Busy Tone Detection Table and Busy Tone Supervision assignment.

For China, the BTD table and its assignment to the various routes is automatic and does not require configuration in LD 97 or LD 14, as long as the BTD package is equipped. Only the configuration of Busy Tone Supervision in LD 14 is required.

LD 97 need only be changed if the values other than the default are required. If table 0 is modified, rather than creating a new one, the assignment to the trunk in LD 14 is not required. After the BTD table is created, or changed, the data must be dumped and the system reloaded in order for the information to be downloaded.

LD 97 – Busy Tone table configuration.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	BTD	Busy Tone Detection.
BTDT	(0)-7 X1-X7	Busy Tone Detection Table.
BCAD	Ph1 Ph2 (350 350)	Busy Tone Cadence. The input values are rounded to the nearest multiple of 25 ms.
BTDD	(BOTH) INC	Busy Tone Detection allowed on both incoming and outgoing calls. Busy Tone Detection allowed on incoming calls only.

LD 14 – Busy Tone Detection Table and Busy Tone Supervision assignment.

Prompt	Response	Description
REQ	NEW	Create or change a route.
TYPE	COT	Central Office trunk.
TN	l s c u c u	Trunk Terminal Number. Terminal Number for the Option 11C.
XTRK	EXUT	Extended Universal Trunk.
...		
SIGL	LOP	Loop Start signaling.
...		
SUPN	(NO) YES	Supervision.
STYP		Supervision type, where:
	(PIP) BTS BST PIP BTS BST BTS	PIP = Polarity Insensitive BTS = Busy Tone Supervision BST = Both way Supervision Trunk (BST) (i.e., PIP on both incoming and outgoing calls) PIP BTS = PIP and BTS, and BST BTS = BST and BTS.
BTDT	(0)-7	Busy Tone Detection Table number.

Feature operation

No specific operating procedures are required to use this feature.

China – Flexible Feature Codes

Contents

The following are the topics in this section:

Feature description

Three Flexible Feature Code (FFC) features have been developed to meet the requirements of the Chinese Ministry of Posts and Telecommunications for the rural switch market in China, these features can be used in other markets. The three features are Busy Number Redial (BNR), Customer Call Forward (CCFW), and Outgoing Call Barring (OCB). With all three of these features, there is an option to provide a confirmation tone upon feature activation.

Busy Number Redial

Busy Number Redial enables a user of an analog (500/2500 type) telephone encountering a busy condition to automatically redial the busy number by performing a switchhook flash and dialing the Busy Number Redial FFC. When the user goes off-hook next without dialing any digit, the busy number is automatically redialed. This feature remains in effect until the desired Directory Number (DN) is reached, up to a maximum of 20 minutes.

Customer Call Forward

Customer Call Forward allows users of analog (500/2500 type) telephones to forward their telephones to a central answering position by dialing the Customer Call Forward FFC. This feature activates the Call Forward All Calls function without having to specify the forward DN.

Outgoing Call Barring

Outgoing Call Barring allows a set to be blocked from making some or all outgoing calls. Three levels of barring are available which can be selected by dialing the Outgoing Call Barring FFC, the barring level desired, and the Station Control Password (SCPW).

The three levels are each associated with a New Flexible Code Restriction (NFCR) tree in the Customer Data Block. When a DN is dialed, the digits dialed are compared to the associated NFCR tree and busy tone is given if the call is barred. An FFC is also available to verify that the feature is active.

The active level cannot be changed without first deactivating the feature and reactivating it with a new level.

Operating parameters

Although designed for China, the China – Flexible Feature Codes feature can be used in other markets.

Busy Number Redial is only available for internal calls and for trunk calls that provide a busy signal when busy tone is given.

Busy Number Redial and Customer Call Forward are only available for analog (500/2500 type) telephones.

Outgoing Call Barring does not apply to BRI sets.

The Reply DN for CCFW is limited to 16 digits.

OCB will only process “*” and “#” according to the active NFCR tree if the digits are to be outpulsed on a route with OPR active (including all necessary conditions for OPR). If they are dialed as part of an FFC, the call is allowed; otherwise, an octothorpe will cause the call to be blocked. An “*” will be ignored, except during digit counting. Thus, FFCs containing a “*” or an “#” cannot be blocked by this feature.

OCB will not prevent calls from terminating when there are too few dialed digits to traverse the full NCFR tree (for example, if the active tree is set up to bar 2001, but a DN of 200 exists, calls to 200 will be allowed with no error message).

The maximum number of digits that will be processed by OCB is 32. If the call is not allowed or denied by that point, the call is barred.

OCB can bar feature access codes such as Special Prefix (SPRE) codes and numeric FFCs. It will not bar the digits dialed after a feature access code.

Feature interactions

Busy Number Redial

Autodial

Activation of Busy Number Redial changes the activation of Autodial. The DN that is autodialed becomes the DN that was busy. When the BNR activation timer expires or the busy DN is redialed when it is idle, the autodial capability is deactivated, but the number saved is not cleared. If Autodial is then activated without entering a DN, the number used is the formerly busy DN.

Activation of Autodial when BNR is active deactivates BNR.

Automatic Set Relocation

Busy Number Redial is deactivated when a set is relocated.

Deactivate Feature FFC

The Deactivate Feature (DEAF) FFC deactivates Busy Number Redial.

Hot Line

Busy Number Redial cannot be used on Flexible Hot Line or Enhanced Hot Line sets.

Off-Hook Alarm Security

Busy Number Redial cannot be used on a set with Off-Hook Alarm Security Allowed, since autodial cannot be configured on these sets.

16-Button Dual-tone Multifrequency (DTMF) Sets

Busy Number Redial (BNR) activate can be a postdial function, and BNR deactivate can be a predial function. Both FFCs may be dialed normally from a 16-button DTMF telephone.

Customer Call Forward

Customer Call Forward (CCFW) is another way of activating Call Forward All Calls (CFWAC), therefore all interactions with CCFW not specified below are the same as with CFWAC.

Call Forward All Calls

When CCFW is active Call Forward All Calls (CFWAC) cannot be activated by Flexible Feature Code, but can be activated by SPRE. When CFWAC is active, CCFW cannot be activated.

CCFW can be deactivated by deactivating CFWAC. CFWAC can only be deactivated by the CCFD FFC if the current CFW DN is the same as the current CCFW DN.

Deactivate Feature FFC

The Deactivate Feature FFC deactivates Customer Call Forward.

Make Set Busy

Customer Call Forward takes precedence over Make Set Busy if both are active.

16-Button Dual-tone Multifrequency (DTMF) Sets

CCFA and CCFD are allowed as predial ABCD functions. They may also be dialed normally from 16-Button DTMF telephones.

Outgoing Call Barring

Outgoing Call Barring is an additional feature that may block a call. All other call blocking features still apply as usual.

Authorization Code Security Enhancement

Digits dialed after an Authorization Code are checked against the active OCB level.

Call Forward All Calls

When a set with Outgoing Call Barring active activates CFWAC with a new CFW DN, the CFW DN is checked against the current barring level. If the DN is not allowed to be dialed, it can also not be used as a Call Forward DN. This is to prevent a set from forwarding to a barred DN and then dialing its own DN to bypass the restrictions.

Charge Account and Calling Party Number

Digits dialed after a charge account are checked against the active OCB level.

Digit Display

Meridian 1 proprietary telephones with displays do not display the OCB level and the Station Control Password (SCPW) when OCB FFCs are dialed. This protects the security of the SCPW.

Flexible Feature Codes

Flexible Feature Codes containing a "*" or an "#" will always be allowed by OCB. Therefore, FFCs which can be used to make a call should be entirely numeric if barring of them is required.

Some FFCs are equivalent to Special Prefix functions and these will be subject to barring based on the equivalent Special Prefix codes, even if the FFC is entirely numeric.

Last Number Redial

Barred DNs will be stored by Last Number Redial (LNR). DNs redialed using LNR are checked against the active OCB level.

OCB Flexible Feature Codes are not stored as the last number dialed.

Network Alternate Route Selection (NARS)/Basic Alternate Route Selection (BARS)

Calls made through NARS or BARS that result in local termination may not be barred based on the full dialed digits. They will be barred based on the resulting local digits. Calls to a Local Steering Code will use the full dialed digits, as well as the resulting termination. Calls to the Home Location Code (HLOC) will be barred based on the AC1 and HLOC, and then barred separately based on the local DN. Other local terminations include calls to an Numbering Plan Area (NPA) or Home Numbering Plan Area (HNPA) that use Supplemental Digit Restriction and Recognition to recognize a Local Direct Inward Dialing (DID) number, and calls using a Route List Block which terminate using the LTER option.

New Flexible Code Restriction

Outgoing Call Barring uses New Flexible Code Restriction (NFCR) trees to define the digit sequences that are not allowed for each level of barring. However, OCB analyses all dialed digits, whereas NFCR only analyses digits outpulsed on trunks. This means that the same tree will not normally be usable for both features, unless only Coordinated Dialing Plan trunk calls are to be blocked for both features and no digit manipulation is done.

Outpulsing of Asterisks and Octothorpes

The NFCR trees used for Outgoing Call Barring are allowed to contain asterisks and octothorpes when the Outpulsing of Asterisk and Octothorpe (OPAO) package 104 is equipped. These special digits will only be used for processing dialed digits on routes with OPAO allowed.

Remote Call Forward

Activation of CFW to a barred DN by Remote Call Forward will be permitted, since the user has had to dial the Station Control Password, which could also have been used to deactivate OCB.

Ring Again

Ring Again cannot be activated after a call is barred by Outgoing Call Barring. Sets with display will not offer Ring Again.

Saved Number Redial

DNs redialed using Saved Number Redial (SNR) are checked against the active OCB level.

M2317 sets will offer a “Save #” after a call to a barred DN.

Speed Call

Digits dialed using Speed Call are checked against the active OCB level. This includes calls made using the Dial Access to Speed Call feature (that is, using Pilot DNs).

Speed Call, System

Digits dialed using System Speed Call are checked against the active OCB level.

16-Button Dual-tone Multifrequency (DTMF) Sets

The Outgoing Call Barring FFCs are not allowed as ABCD functions. They may be dialed normally from 16-Button DTMF telephones.

Feature packaging

China – Flexible Feature Codes is contained in base X11 system software. The following packages are required for feature activation:

- Flexible Feature Codes (FFC) package 139
- Busy Number Redial also requires the Autodial functionality that is contained in Optional Features (OPT) package 1
- Customer Call Forward also requires the Call Forward All Calls functionality contained in Optional Features (OPT) package 1 and Special Service for 2500 Sets (SS25) package 18
- Outgoing Call Barring also requires the New Flexible Feature Code Restriction (NFCR) package 49

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

1 LD 15 – Define the basic setup for all three of the FFC-based features.

2 LD 56 – Define Confirmation Tone.

LD 15 – Define the basic setup for all three of the FFC-based features.

Prompt	Response	Description
REQ:	CHG	Change existing data.
TYPE:	FFC	Gate opener.
CUST	xx	Customer number.
- FFCS	(NO) YES	(Do not) change Flexible Feature Code end-of-dialing indicator.
- STRL	1-3	String Length of end-of-dial indicator.
- STRG	xxx	String to indicate end-of-dialing. Up to three digits as defined by STRL. Digits 0-9 and “#” are valid entries.
REQ	CHG	Change.

TYPE	FTR	Features and options.
- SPRE	nnnn	Special Function Prefix (required for FFCs to operate).

LD 56 – Define Confirmation Tone.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	FTC	Flexible Tones and Cadences.
TABL	0-31	FTC Table Number.
HCCT	YES	Hardware controlled cadences and tones.
...		
- FFCT		Configure Confirmation Tone.
- - XTON	0-(4)-255	XCT (NT8D17 Conference/TDS) Tone code.
- - XCAD	(0)-255	XCT (NT8D17 Conference/TDS) Cadence number (FCAD cadence number).

Busy Number Redial

Task Summary List

Complete the following steps to configure the Busy Number Redial feature:

1 LD 57 – Configure Flexible Feature Codes for Busy Number Redial.

2 LD 15 – Set the Autodial Delay time used by Busy Number Redial.

3 LD 10 – Allow Busy Number Redial for analog (500/2500 type) telephones.

LD 57 – Configure Flexible Feature Codes for Busy Number Redial.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	FFC	Flexible Feature Codes.
CUST	xx	Customer number.
FFCT	(NO) YES	Flexible Feature Confirmation Tone.
CODE		Change code.
- DEAF	xxxx	Deactivate Feature.
- BNRA	xxxx	Busy Number Redial activation code.
- BNRD	xxxx	Busy Number Redial deactivation code.

LD 15 – Set the Autodial Delay time used by Busy Number Redial.

Prompt	Response	Description
REQ:	CHG	Change existing data.
TYPE:	FFC	Gate opener.
CUST	xx	Customer number.
- ADLD	(0)-20	Number of seconds to delay before autodialing the saved busy number (0 will make the feature unavailable). Odd entries are rounded up to the next even number.

LD 10 – Allow Busy Number Redial for analog (500/2500 type) telephones.

Prompt	Response	Description
REQ:	CHG	Change existing data.
TYPE:	500	Telephone type.
TN	l s c u c u	Terminal Number. Terminal Number for the Option 11C.
CLS	(BNRD) BNRA	(Deny) allow Busy Number Redial for this telephone.
FTR	ADL xx	Autodial, where: xx = the maximum number of digits that can be stored.

Customer Call Forward

Task summary list

The following is a summary of the tasks in this section:

1 LD 57 – Configure Flexible Feature Codes for Customer Call Forward.

2 LD 15 – Add or change the Reply DN for Customer Call Forward.

3 LD 10 – Configure the Call Forward feature to allow Customer Call Forward for analog (500/2500 type) telephones.

LD 57 – Configure Flexible Feature Codes for Customer Call Forward.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	FFC	Flexible Feature Codes.
CUST	xx	Customer number.
FFCT	(NO) YES	Flexible Feature Confirmation Tone.
CODE		Change code.
- DEAF	xxxx	Deactivate Feature.

- CCFA	xxxx	Customer Call Forward activation code.
- CCFD	xxxx	Customer Call Forward deactivation code.

LD 15 – Add or change the Reply DN for Customer Call Forward.

Prompt	Response	Description
REQ:	CHG	Change existing data.
TYPE:	RDR	Gate opener.
CUST	xx	Customer number.
- CCFWDN	dd..dd X	Customer Call Forward DN (maximum of 16 digits). X to delete.

LD 10 – Configure the Call Forward feature to allow Customer Call Forward for analog (500/2500 type) telephones.

Prompt	Response	Description
REQ:	CHG	Change existing data.
TYPE:	500	Telephone type.
TN	l s c u c u	Terminal Number. Terminal Number for the Option 11C.
FTR	CFW nn	Call Forward (nn must be the same number of digits as the CCFW DN).

Outgoing Call Barring

Task summary list

The following is a summary of the tasks in this section:

1. LD 57 – Configure the Flexible Feature Codes for Outgoing Call Barring.
2. LD 15 – Specify NFCR trees and Station Control Password length for Outgoing Call Barring.

3 LD 49 – Create NFCR trees for Outgoing Call Barring.

4 LD 10 – Allow Outgoing Call Barring for analog (500/2500 type) telephones.

5 LD 11 – Allow Outgoing Call Barring for Meridian 1 proprietary telephones.

LD 57 – Configure the Flexible Feature Codes for Outgoing Call Barring.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	FFC	Flexible Feature Codes.
CUST	xx	Customer number.
FFCT	(NO) YES	Flexible Feature Confirmation Tone.
CODE		Change code
- OCBA	xxxx	Outgoing Call Barring activation code.
- OCBD	xxxx	Outgoing Call Barring deactivation code.
- OCBV	xxxx	Outgoing Call Barring verification code.

LD 15 – Specify NFCR trees and Station Control Password length for Outgoing Call Barring.

Prompt	Response	Description
REQ:	CHG	Change existing data.
TYPE:	FCR	Gate opener.
NFCR	(NO) YES	(Disable) enable New Flexible Code Restriction.
- MAXT	1-255	Maximum number of NFCR trees.
- OCB1	0-MAXT	NFCR tree for Outgoing Call Barring level 1. Enter 255 to deactivate.

- OCB2	0-MAXT	NFCR tree for Outgoing Call Barring level 2. Enter 255 to deactivate.
- OCB3	0-MAXT	NFCR tree for Outgoing Call Barring level 3. Enter 255 to deactivate.
TYPE	FFC	Gate opener.
CUST	0-99	Customer number.
- SCPL	0-8	Station Control Password Length.

LD 49 – Create NFCR trees for Outgoing Call Barring.

Prompt	Response	Description
REQ	NEW	Add new data.
TYPE	FCR	Flexible Code Restriction.
CUST	xx	Customer number.
CRNO	(0)-254	New Flexible Code Restriction tree number.
INIT	ALOW DENY	Allow or deny digit strings not in tree.
ALOW	xxxx	Digit sequence to be allowed unconditionally.
	xxxx y...y	Digit sequence to be conditionally allowed and maximum number of digits that can follow.
UPDT	(YES), NO	Data is correct and NFCR tree can be updated.
DENY	xxxx	Digit sequence to be denied unconditionally.
	xxxx y...y	Digit sequence to be conditionally denied and maximum number of digits that can follow.
UPDT	(YES) NO	Data is correct and NFCR tree can be updated.

LD 10 – Allow Outgoing Call Barring for analog (500/2500 type) telephones.

Prompt	Response	Description
REQ:	CHG	Change existing data.
TYPE:	500	Telephone type.
TN	l s c u c u	Terminal Number. Terminal Number for the Option 11C.
SCPW	xxxx	Station Control Password. Length must match SCPL in LD 15.
CLS	(OCBD) OCBA	(Deny) allow Outgoing Call Barring.

LD 11 – Allow Outgoing Call Barring for Meridian 1 proprietary telephones.

Prompt	Response	Description
REQ:	CHG	Change existing data.
TYPE:	xxxx	Telephone type, where: xxxx = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, or 3000.
TN	l s c u c u	Terminal Number. Terminal Number for the Option 11C.
SCPW	xxxx	Station Control Password. Length must match SCPL in LD 15.
CLS	(OCBD) OCBA	(Deny) allow Outgoing Call Barring.

Feature operation

Busy Number Redial

To activate Busy Number Redial, a switchhook flash is done, and the BNRA FFC is dialed. The number to be redialed is stored in the set's storage area for Autodial. Confirmation tone is given if configured.

When the user goes off-hook and does not dial within the number of seconds configured for the Autodial Delay timer (ADLD) the busy number is automatically redialed. If the DN is idle when redialed, the feature is deactivated, otherwise it remains available for 20 minutes. The feature can be deactivated manually by dialing the BNRD FFC, or the Deactivate Feature FFC. The user again hears confirmation tone. Deactivating the feature when it is not active will still cause confirmation tone to be heard, since the feature may have just timed out when going off-hook to dial the deactivation code.

Customer Call Forward

Customer Call Forward is activated by dialing the CCFA FFC. Confirmation tone is given if activation is successful. When Customer Call Forward is activated, the CFWAC feature is activated with the CFW DN set to the Reply DN.

CCFW is deactivated by dialing the Customer Call Forward Deactivate FFC, or the Deactivate Feature FFC (it will also be deactivated by the activation of certain other features, see the Feature interactions section of this description).

Outgoing Call Barring

Outgoing Call Barring can be activated from a set with OCBA Class of Service. To activate OCB, the subscriber dials the OCBA FFC, the barring level desired, and the Station Control Password. An octothorpe must also be dialed from Meridian 1 proprietary telephones and analog (500/2500 type) telephones. If activation is successful confirmation tone is given. If the feature is not activated overflow tone is given.

The feature is deactivated by dialing the OCBD FFC, then the active level, and the Station Control Password. An octothorpe must also be dialed from Meridian 1 proprietary telephones and analog (500/2500 type) telephones. The subscriber may dial the OCBV FFC to verify that OCB is active. Confirmation tone is heard if OCB is active, otherwise overflow tone is heard.

China – Supervised Analog Lines

Contents

The following are the topics in this section:

Feature description

The China – Supervised Analog Lines feature provides two types of call supervision signaling capabilities: battery reversal answer/disconnect supervision and hook flash disconnect supervision. These forms of supervision are provided to terminal devices connected to analog ports in the Meridian 1 system.

Battery Reversal Supervision

Battery reversal answer and disconnect supervision signaling is used for calls originating from the terminal device. It provides both far-end (the called party) answer supervision and far-end disconnect supervision signals to the terminal device. It does not apply to incoming calls terminating at the terminal device.

In the idle state, the analog port in the Meridian 1 provides ground signal on the tip lead and battery on the ring lead. This polarity is maintained during dialing and ringing at the far end. When the far end answers, the battery and ground connections are reversed. The reverse battery is maintained while the call is established. When the far end disconnects, the battery and ground connections are reverted to the idle state to signal that the far end has disconnected. If the terminal device disconnects first, the Meridian 1 sends the Deactivate Battery Reversal Scan Signal Distribution (SSD) message to the firmware after receiving the on-hook status to revert the polarity to its idle state.

Two types of battery reversal are supported. Battery Reversal for Absolute Answer Only provides an answer supervision signal to the terminal device only when the Meridian 1 detects an absolute answer. Battery Reversal for Absolute and Assumed Answer provides an answer supervision signal to the terminal device even when an assumed answer is detected and the far end is not capable of indicating definite answer (for example, an outgoing call on an unsupervised loop start trunk).

Hook Flash Disconnect Supervision

Hook flash disconnect supervision is used for incoming calls terminating at the terminal device. The disconnect signal is indicated by the removal of the ground connection to the tip lead for a specific period of time, which is provided by firmware ranging from a minimum of 10 milliseconds to a maximum of 2.55 seconds. The analog port is held busy for incoming calls while hook flash is in progress.

Operating parameters

This feature applies to Intelligent Peripheral Equipment that support the Supervised Analog Line feature only.

Disconnect supervision is not provided to the terminal device if the Meridian 1 does not receive any indication of the far end releasing.

If the Meridian 1 does not receive any answer indication, and answer supervision is not extended to the terminal device following an assumed answer condition, disconnect supervision cannot be extended when the far end disconnects.

If the Battery Reversal Supervision feature is configured for an analog line on an analog card that does not support battery reversal, the battery reversal SSD messages from the Meridian 1 software are ignored by the analog card firmware. In this case, no battery reversal signal is extended to the terminal device.

If the Hook Flash Disconnect Supervision feature is configured for an analog line on an analog card that does not support hook flash, the hook flash SSD messages from the Meridian 1 software are ignored by the analog line card firmware. In this case, no hook flash signal is extended to the terminal device.

If the system initializes while an outgoing call originating from an analog line is established and battery reversal is activated, unprotected data for the call is lost. In this case, battery reversal remains activated when the call is cleared down by either party. However, the line status is reverted to normal when the next outgoing call is answered and then cleared down.

If the hook flash timer is set equal to or greater than the on-hook timer, activation of the hook flash disconnect signal also causes the card to send an on-hook message and then an off-hook message to the Meridian 1. In this case, if the user remains off-hook after the far end disconnects, dial tone is received and an outgoing call can be initiated.

Battery reversal supervision is supported on the following cards:

- The Enhanced Extended Analog Line Card for China NTRA08AA or later vintage.

- The Off-Premise Station Line Card NT1R20AB or later vintage, and
- The Off-Premise Station Line Card for China NTRA06AB or later vintage.

Hook flash disconnect supervision is supported on the following cards:

- The Off-Premise Station Line Card NT1R20AB or later vintage, and
- The Off-Premise Station Line Card for China NTRA06AB or later vintage.

Feature interactions

Call Transfer

If more than one active call is extended to an analog line, the call type associated with an analog line is determined by the first active call. The call type is assumed to be incoming and hook flash supervision applies if a terminal device answers an incoming call from an idle state. If the terminal device performs a switch hook flash to put the first party on hold and initiates a consultation call, the Battery Reversal feature is not supported; no battery reversal answer signal is extended to the terminal device when the second party answers.

If the first party disconnects while the terminal device is connected to the second party, no disconnect supervision is extended to the terminal device. However, hook flash disconnect supervision is extended to the terminal device when the second party disconnects (i.e., a disconnect supervision signal is sent only when the last party connected to the terminal disconnects).

If a terminal device originates an outgoing call, battery reversal answer supervision is extended when the called party answers. The polarity of the line remains reversed when the terminal device performs a switch hook flash and then initiates a consultation call to a second party. The analog line is reverted to normal polarity when the terminal device completes the transfer and drops out or when the last of either the held party or the consultation party disconnects.

Conference

If a terminal device answers an incoming call and then initiates a conference, no battery reversal answer supervision signal is extended to the terminal device when new parties of the conference answer. However, a hook flash disconnect supervision signal is extended to the terminal device when the last party in the conference disconnects.

If a terminal device initiates a conference, battery reversal answer supervision is extended to the terminal device when the first party answers. No polarity change is made when additional parties are added to the conference. The polarity is reverted to normal when the terminal device disconnects or when the last party in the conference disconnects.

Multi-Party Operations

As in the cases with Call Transfer and Conference, the call type of the first active call determines whether battery reversal or hook flash supervision applies. Also, supervision signaling is not supported for the second call. A disconnect supervision signal is extended only when the last party disconnects.

Feature packaging

This feature is included in base X11 System Software

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

1 LD 10 – Enable battery reversal supervision.

2 LD 10 – Enable hook flash disconnect supervision..

LD 10 – Enable battery reversal supervision.

Prompt	Response	Description
REQ:	NEW CHG	Add, or change.
TYPE:	500	Telephone type.
TN	l s c u c u	Terminal Number. Terminal Number for the Option 11C.
...		
FTR	OSP (1)	Outgoing call supervision. Answer and disconnect supervision for outgoing calls with absolute and assumed answer indication. If the numeric parameter is not entered and the saved value is null, it is defaulted to 1. Otherwise it remains unchanged.
	OSP 2	Answer and disconnect supervision for outgoing calls with absolute answer supervision only.
	XOSP	Enter XOSP to disable battery reversal answer and disconnect supervision.

LD 10 – Enable hook flash disconnect supervision.

Prompt	Response	Description
REQ:	NEW CHG	Add, or change.
TYPE:	500	Telephone type.
TN	l s c u c u	Terminal Number. Terminal Number for the Option 11.
...		
FTR	ISP 1...(75)...255	Enable hook flash disconnect supervision with flash timer in 10 millisecond units. If the numeric parameter is not entered and the saved value is null, it is defaulted to 75. Otherwise it remains unchanged.
	XISP	Enter XISP to disable hook flash disconnect supervision.

Note: Respond to the FTR prompt in LD 10 with OSP 1, and then with ISP 1...(75)...255 to enable both battery reversal supervision and hook flash disconnect supervision.

Feature operation

No specific operating procedures are required to use this feature.

China – Toll Call Loss Plan

Contents

The following are the topics in this section:

Feature description

The China – Toll Call Loss Plan feature provides the requirement of 7 dB loss for 2.0 Mbps Digital Trunk Interface (DTI2) toll calls from a Meridian 1, acting as a Class 5 (C5) office. It is only applicable for a DTI2 trunk connection using MFC signaling to an analog (500/2500 type) telephone.

Feature specific losses on the DTI2 card and 500/2500 line card are provided if the call is recognized as a toll call and the local party is using an analog (500/2500 type) telephone. The loss levels for toll calls are configured in LD 73 by using the TOLT and TOLL prompts.

With this feature, when a toll condition is detected, loss levels are sent to the ONS line card. When the call is terminated, the original loss levels are sent to the ONS line card.

The outgoing toll call is recognized by defining the toll digits as a Special Service List number in overlay 18 and specifying it in the DTI2 Route Data Block. For incoming calls, the toll status is provided by the Multifrequency Compelled (MFC) signaling. When the toll status is determined, the appropriate pad values are used on the DTI2 card and 500/2500 line card.

Operating parameters

The Toll Loss Plan is only supported when a pure Intelligent Peripheral Equipment (IPE) Loss Plan for China is used. Existing pad levels for DTI2 toll calls with Hybrid Loss Plan for China are unchanged.

This feature is only supported for a Class 5 Meridian 1 switch.

The Toll Loss Plan is only supported on DTI2 MFC trunks.

If an initialization occurs, the toll call stays connected, but the toll status is lost. The pad levels are reinserted as if it is for a non-toll call.

The Toll Loss Plan is not supported when a conference call is in progress.

China specific IPE 500/2500, DTI2, and MFC line cards are required.

Feature interactions

Call Diversion (Call Transfer, Call Forward All Calls, Call Forward Busy, Call Forward, Internal Calls, Call Forward No Answer, Hunting)

Toll pad switching is also provided after call diversion has been completed. When the toll call is diverted, the diverted party's pad level is switched back to its original value (unless it is an OPS station using dynamic switching). The Toll Loss Plan is applied again for the new call as if it is a direct call. For Call Transfer, it is provided after the transferring party completes the transfer and drops out. For Call Forward or Hunting, it is provided when the forwarding or hunting call is answered.

Conference

Toll Loss Plan is not supported when a conference is in progress. When a local party connecting to a toll call makes a conference call, the pad levels on the ONS line card are switched back to their original (non-toll call) values. Then, the existing Conference algorithm takes care of the necessary pad switching. This would not alter the existing conference call in terms of loss levels.

When a conference call joins in a toll call, the Toll Loss Plan is not effective.

When a conference call involving a toll call becomes a two-party call, the Toll Loss Plan is applied on the set and DTI2 trunk.

The conference pad switching algorithm is not changed for the Toll Loss Plan, since the 7 db requirement does not apply to a Conference call.

Digitone Receiver Pads

When a Digitone Receiver (DTR) is connected to the DTI2 call (receive only), the pad value to be used on the DTI2 pack is defined in overlay 73. There is no interaction with this since the Toll Loss Plan is only supported on a DTI2 trunk with MFC signaling.

Multifrequency Compelled Signaling Pads

There is no interaction with this operation, since the Toll pad switching is only performed when the call is established and the Multifrequency Compelled signaling has terminated.

Multi-Party Operations

When a user toggles between one party and another, the Toll Loss Plan is inserted on the active call if it is a toll call. If the user toggles to a non-toll call, the Toll Loss Plan is removed.

Feature packaging

The China Toll (CHTL) package 292 must be provisioned to activate this feature.

In addition the China – Toll Call Loss Plan feature requires:

- Multifrequency Compelled Signaling (MFC) package 128
- 2 Mbps Digital Trunk Interface (DTI2) package 129
- International Supplementary Features (SUPP) package 131 for the Special Service List functionality.

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

1 LD 18 – Define toll digits for China. 1028.

2 LD 16 – Enter the SSL number (defined in LD 18) in the Route Data Block of the DTI2 trunk. 1029

3 LD 73 – Enter the pad codes for a toll call on DTI2.

LD 18 – Define toll digits for China.

Prompt	Response	Description
REQ	NEW CHG	Add, or change.
TYPE	SSL	Special Service List.
SSL	1-15	Enter Special Service List number.
SSDG	0	China national toll call.
- TOLL	YES	The SSDG entry is a toll number.
...		
SSDG	00	China international toll call.
- TOLL N	YES	The SSDG entry is a toll number.
...		
SSDG	<CR>	End entry.

LD 16 – Enter the SSL number (defined in LD 18) in the Route Data Block of the DTI2 trunk.

Prompt	Response	Description
REQ	NEW CHG	Add, or change.
TYPE	RDB	Route Data Block
...		
SSL	1-15	Enter the SSL number defined in LD 18.

LD 73 – Enter the pad codes for a toll call on DTI2.

Prompt	Response	Description
REQ	NEW CHG PRT	Add, change, or print.
TYPE	DTI2	2.0 Mbps DTI data block.
FEAT	PAD	Pad category.
PDCA	1-16	Pad category table.
TNLS	(NO) YES	Terminal Number list.
DFLT	(1)-16	Default table.
...		
TOLT	Rx Tx (0) (0)	Toll call pad data on DTI2 card, where: Rx = Receive, and Tx = Transmit. The default values are 0 dB receive, and 0 dB transmit.
TOLL	Rx Tx (16) (30)	Toll call pad data on line card, where: Rx = Receive, and Tx = Transmit. The default values are 0 dB receive, and 7 dB transmit.

Feature operation

No specific operating procedures are required to use this feature.

CIS ANI Digits Manipulation and Gateways Enhancements

Contents

The following are the topics in this section:

Feature description

This document covers the Commonwealth of Independent States (CIS) Automatic Number Identification (ANI) Digits Manipulation and Gateways Enhancements features. It describes pre-release 24 operation and explains how each feature is enhanced in Release 24. The features are presented together because they share many common characteristics.

CIS ANI Digits Manipulation and Gateways Enhancements features allow the ANI to be built in a more flexible way when the call is originated from a set and from a route.

ANI Definition

The Automatic Number Identification (ANI) information is a string of digits sent to the Central Office (CO), which it uses to identify the calling subscriber for billing purposes, Malicious Call Trace (MCT) purposes, and for immediate information about the subscriber when reaching some vital service such as fire brigade, emergency medical care, or law enforcement officials. The ANI information is sent over the speech path whenever the CO requests it.

On Meridian 1, ANI is sent on the following CIS trunks:

- CIS three-wire analog trunk
- CIS digital trunk interface Dial Pulse (DP) and Multi-Frequency Shuttle (MFS)
- Before Release 24, the ANI is a sequence of eight digits composed of:
- The number the user will be billed to. It consists of three digits for the CO local exchange code (LEC) to which the PBX is connected + four digits for the subscriber number (ANI DN).
- The 1-digit-long subscriber category (CAC), which gives the level of services the user can obtain.

Pre-release 24 functionality

Pre-release 24 common operation

The ANI DN is:

- the primary DN if originator is a set with Class of Service DNAA.
- the LDN0 if originator is an attendant with Class of Service DNAA.
- the ANDN configured on outgoing route if the originator is a set or an attendant with Class of Service DNAD.
- part of CLID/OLI determined by RDNL (least significant digits), if originator is an ISDN route (MCDN, QSIG, DPNSS, BRIT) and if RDNL (Remote DN Length) not set to 0.
- the ANDN configured on incoming ISDN route if originator is an ISDN route if RDNL set to 0 but ANDN configured.
- the ANDN configured on incoming non ISDN route (ANDN configured)
- the ANDN configured on outgoing route if originator is an ISDN route with RDNL set to 0 and ANDN not configured.
- the ANDN configured on outgoing route if originator is a non-ISDN route with ANDN not configured.

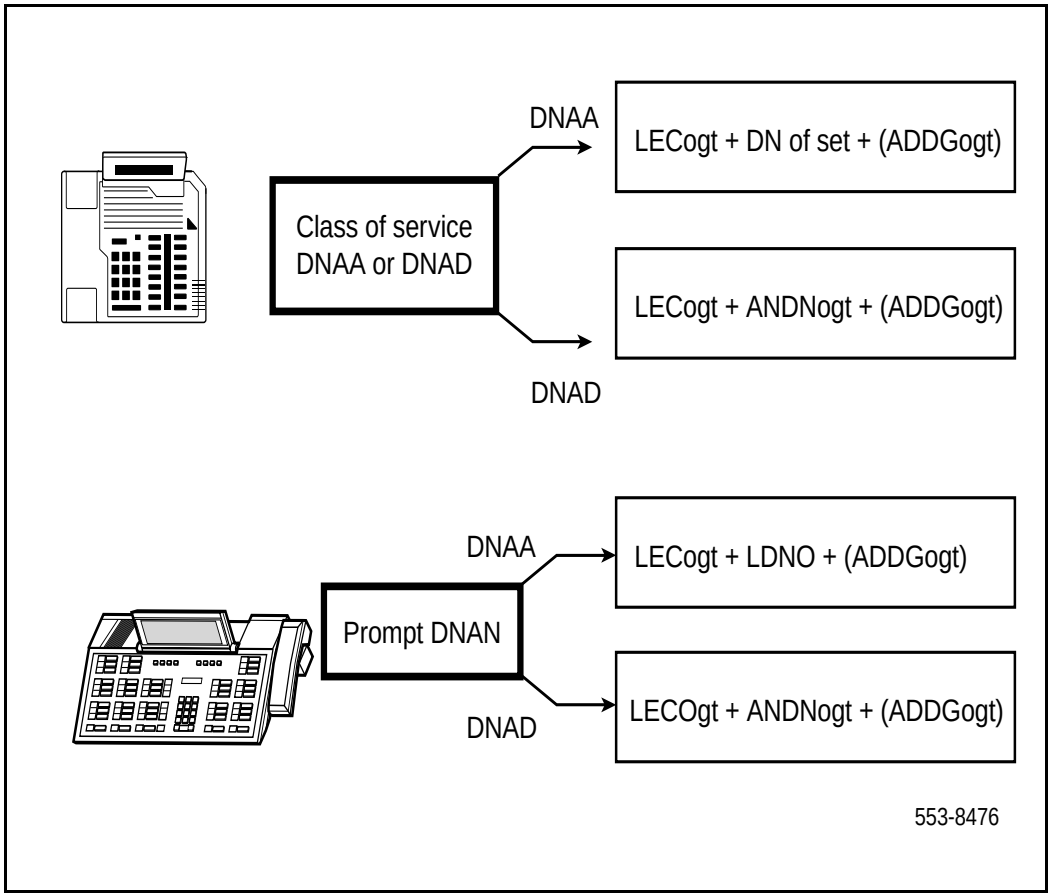
The ANI DN together with the local exchange code (LEC) shall always comprise 7 digits. If it is less, additional digit(s), defined by the prompt ADDG in Overlay 16 for the outgoing trunk route, is (are) inserted between the subscriber category and the least significant digit of the extension number. (see Figure 16.) The LEC sent to the CO is always the LEC programmed in the CIS outgoing route.

If ANI DN + LEC together comprise more than seven digits, then the least significant of the ANI DN digits are not used and are omitted.

CIS ANI Digits Manipulation Pre-Release 24 operation

Figure 16 shows a diagram for calls originating from a set or attendant console using the pre-Release 24 feature.

Figure 16
Example of ANI built from a set or an attendant console (pre-release 24)



CIS Gateways Enhancements Pre-Release 24 operation

ANI sent in gateway case is built as follows in pre-release 24 operation (see Figure 17).

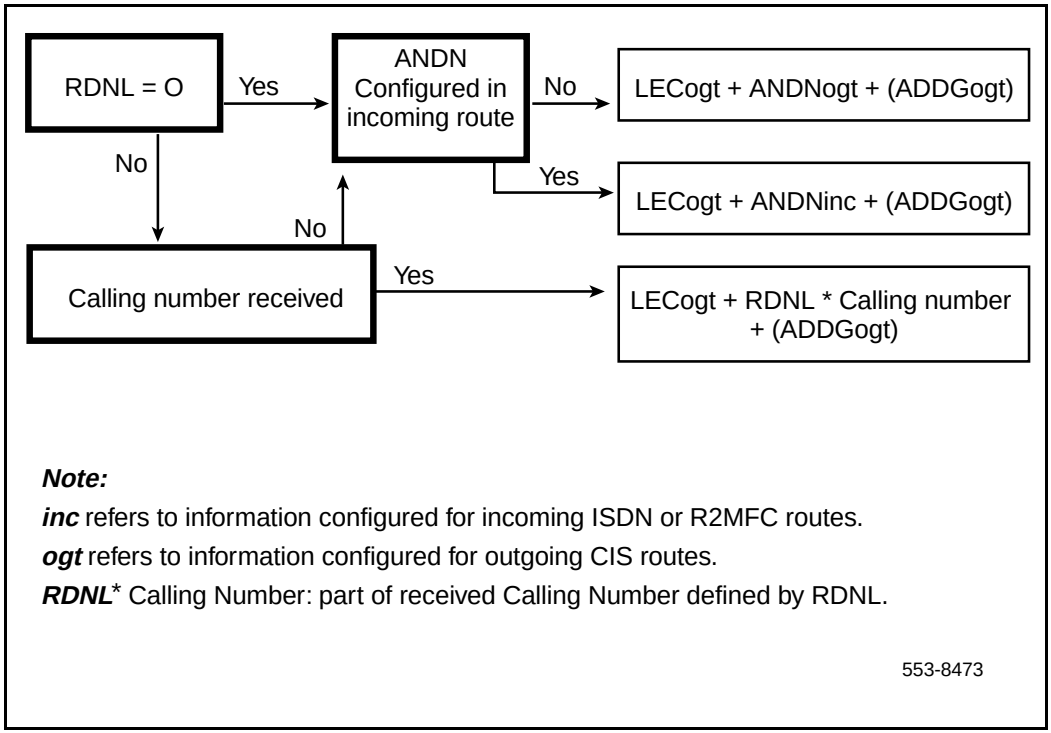
1 LEC ogt route + ADDG ogt route + part of received Calling Number or, when Calling number not available (see Note)

2 LEC ogt route + ADDG ogt route + ANDN inc. route or, when ANDN of incoming route not available

3 LEC ogt route + ADDG ogt route + ANDN ogt route.

Note: Currently, "part of received calling Number" indicates N least significant digits of received Calling Number, where N is the value configured against prompt RDNL in incoming Route Data Block.

Figure 17
Example of how ANI is built for a call originated from a route (pre-release 24)



Release 24 enhancements

Shared functionality

When configuring outgoing CIS routes, the feature is activated using the prompt ANIC to enable composition of a new ANI.

Two similar ANI tables are configured in the customer data block. One is used when call is originated from a set. The second table is used when call is originated from a route.

Up to 2000 entries can be configured in the ANI table for sets. Up to 512 entries can be configured in the ANI table for routes.

An ANI entry contains the following data:

- DNLG (DN Length): it gives the number of digits of the calling number that will be used for building the ANI DN (e.g. calling party DN = 342390 and DNLG = 4 will give an ANI DN = 2390).
- LEC: Local Exchange Code.
- ANDN: used as ANI DN if DNLG=0.
- ADDG: additional digits.

CIS ANI Digits Manipulation introduction

The CIS ANI Digits Manipulation feature enhances the Meridian 1 CIS ANI digits manipulation capabilities by increasing flexibility and ensuring greater accuracy. The feature modifies the length of outgoing ANI and it allows the building of outgoing ANI using the table configured in customer data block.

CIS Gateway Enhancements introduction

The purpose of the gateways enhancement feature is to enhance several gateways with Commonwealth of Independent States (CIS) trunks.

CIS gateways considered are with all route types with an emphasis on connectivities that can receive a Calling Number: R2MFC, ISDN interfaces and incoming CIS DTI2.

ANI Digits Manipulation feature functionality (Release 24)

The ANI may be built in two ways with the enhancements introduced by the CIS ANI Digits Manipulation feature as described in the list below (see Figure 18):

1 The ANI may be built the same manner as it was before Release 24, with some modifications listed below.

- The length of the ANI information built by the software is configurable on a per route basis and may reach 15 digits (for LEC+ANI DN).
- The part of the ANI DN to be truncated (in case the truncation can't be avoided) is the beginning (i.e. the most significant digits).
- The system has the option to work without LEC, i.e. the response to the prompt LEC in Overlay 16 is not mandatory anymore.
- In the case of LEC+ANI DN smaller than the programmed length, additional digit(s) (ADDG) is (are) added at the beginning of the ANI DN (between the ANI DN and the LEC), in compliance with the CIS standards. ADDG can be more than one digit long.

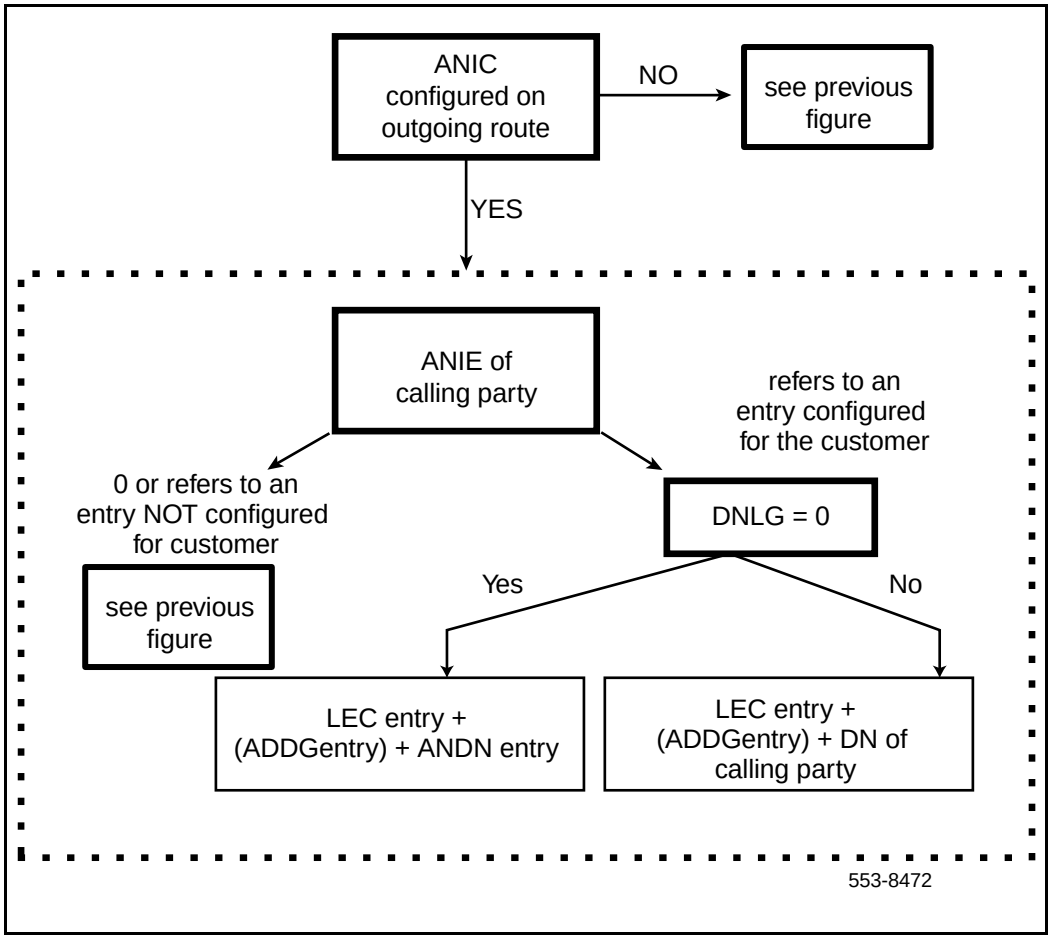
2 Optionally, the ANI data may be retrieved from entries configured in Overlay 15. This is the same type of enhancements provided for the ISDN CLID by the Release 22 feature ISDN CLID enhancements. It provides much more flexibility in building the ANI. An ANI entry number can be assigned to each PBX set, BRI set and BCS DN key.

Note: To maintain pre-release 24 functionality for calls originating from specific sets, set the ANIE prompt in LD10, 11, 27 to zero for those sets.

CIS ANI Digits Manipulation examples

This section provides diagrams and tables that show how CIS ANI Digits Manipulation feature operates in Release 24. Example 1 is presented in Table 31. Example 2 is shown in Table 32.

Figure 18
Example of how ANI is built in call originating from a set (using enhanced functionality)



Example 1 - DN on key 1 is to be used in ANI

Table 31
DN on key 1 is to be used in ANI

ANI entry	Entry X	Entry Y
DNLG, length of DN to use in ANI	4	0
LEC, Local Exchange Code	940	940
ADDG, additional digits	89	8
ANDN, used as ANI DN if DNLG is 0		7676

Example 2 - DN on key 1 is not to be used in ANI

Table 32
DN on key 1 is not to be used in ANI

ANI entry	Entry X	Entry Y
DNLG, length of DN to use in ANI	4	0
LEC, Local Exchange Code	940	940
ADDG, additional digits	89	8
ANDN, used as ANI DN if DNLG is 0		7676

Gateways Enhancement feature functionality (Release 24)

The gateway enhancements are composed of the following ~~new~~ functionalities, which are described in this section:

- Mapping of the received calling number to ANI:
  - — Mapping CNI to ANI, ANI to CNI
  - — Mapping CLID to ANI and OLI to ANI
  - — Mapping ANI to ANI in gateway CIS to CIS
- Building ANI for interfaces without calling number

Mapping of the received calling number to ANI

To map any Calling number to ANI the idea is to be able to manipulate the received Calling Number when tandeming it into ANI. In a gateway situation the incoming trunk is the originator of the outgoing call. So the Calling Number is manipulated by assigning an ANI table entry to the incoming route. An ANI table entry is also assigned to route types whose connectivity does not give the possibility to receive a Calling Number. For these routes, the ANI table entry allows to build the outgoing ANI using only information pertaining to the incoming route.

CIS Gateway Enhancement introduces a list of ANI entries applicable to incoming route considered for the gateway with CIS, or incoming and outgoing route. When package CIST is equipped, an ANI entry is attached to each applicable route. An entry for routes is configured with prompt: R_ENTRY.

Some of the fields defined in ANI table entry were already existing in route configuration. ANI table entry fields that were already existing on route (RDNL, ANDN) are suppressed from the route. It must be noticed that prompt RDNL of Route Data Block is replaced by prompt DNLG in ANI table entry. A new prompt is added on Route data configuration to defined ANI table entry: ANIE. During upgrade to Release 24, former Route Data Block prompt values are moved into a ANI table entry and this table entry is assigned to the route.

Several routes can have the same tandeming information configured. The data has been moved from Route Data Block to Customer Data Block. In case no ANI table entry is configured, the default table entry (0) is used.

With Release 24 implementation, ANI is built as follows:

If outgoing route does not allow use of ANI table entry assigned on incoming route (ANIC prompt of outgoing CIS route is set to NO), Calling number is built as before. Notice that part of the received Calling Number (DNLG) and ANDN INC route are configured in ANI table entry of the incoming route.

1 If outgoing route allows to use ANI table entry assigned on incoming route (ANIC is set to yes on CIS outgoing route), ANI is built as LEC inc route + ADDG inc route + (part of) received Calling Number or, when calling Number not available.

Note: With new implementation "part of received calling Number" indicates N least significant digits of received Calling Number, where N is the value configured against prompt DNLG in the ANI table entry associated to the incoming Route Data Block.

2 LEC inc route + ADDG inc route +ANDN inc. route

ANI has a predetermined size, configured on outgoing CIS route. It can happen that ANI built is smaller or longer than the ANI configured size. This is handled the same way as for ANI built when call originator is a set.

When the ANIC of the outgoing route is set to yes, data from the ANI table entry configured for the incoming route is used, even if empty. Thus it is up to the craftsman to ensure that the ANI built using the ANI table entry is correct.

Mapping CNI to ANI, ANI to CNI

On MFC routes, prompt ANDN is currently defined. This prompt is removed and replaced by prompt ANIE which allows configuring the ANI table entry number.

Both CNI and ANI contain a CAC field. The value and meaning of the field in both cases are not the same.

On the gateway side of the R2MFC to CIS, the purpose of this mapping is to convert the 10 MFC CAC meanings into CIS CAC meanings, or to define a default CIS CAC value. For this, a conversion table is defined. Conversion tables are defined in overlay 15. Up to 32 tables can be configured. A conversion table can be assigned on each MFC route. For this, the prompt CAC_CONV is added to the MFC incoming route configuration. If no CAC conversion table is configured on the MFC route, default table (number 0) will apply to the MFC incoming route.

A CAC conversion entry contains the following data:

- CAC0 to CAC9: against CAC0 prompt is configured the CIS CAC value to be sent if an R2MFC CAC of value 0 has been received.
- DFLT: against this prompt is configured the CIS CAC value to be sent if the R2MFC CAC has not been received or is not in the correct range.

When CNI has not been received at the time ANI is built, a default value must also be used. This default value is defined in the CAC Conversion table. On CIS trunks, 10 CAC values can be sent, from 0 to 9. Each one has a particular meaning (see Table 33).

Default table is number zero and is configurable. After upgrade this table is defined in memory as shown in table below. The craftsman must be aware that modifying this default table after conversion will modify the CAC generated for all gateway cases where the incoming route had a CAC set to three (before upgrade).

In this default table all fields are set to three, as it is the current CIS CAC default value. A value of three for CIS Category Code means the caller is residential, business or hotel subset with the access to local network and without access to automatic regional, toll, international network and to chargeable service numbers.

Table 33
CAC conversion table entry 0 for R2MFC route

MFC CAC	CIS CAC	CIS CAC description
CAC0	3	CIS value corresponding to MFC CAC DGT0
CAC1	3	CIS value corresponding to MFC CAC DGT1
....	3	
CAC8	3	CIS value corresponding to MFC CAC DGT8
CAC9	3	CIS value corresponding to MFC CAC DGT9
Default	3	CIS value used when MFC CAC has not been received, or MFC CAC received is not in the MFC CAC list of this table

MFC routes were given a CAC prompt on which was configured the CAC value of incoming route when tandeming to CIS. This data has no more utility on incoming MFC route as a CAC conversion table is configured against prompt CAC_CONV. Thus, CAC prompt is removed from MFC incoming routes. On upgrade from Release 24 with new release, former CAC prompt value is moved into a CAC conversion table, and this table is assigned to the route.

In the gateway side CIS to R2MFC, the purpose of this mapping is to convert the 10 CIS CAC meanings into R2MFC CAC value. For this, a conversion table is defined.

Before Release 24, the CAC sent was defined in the R2MFC table (Overlay 94). In this R2MFC table, it is the same value for all non-tie incoming trunks. In Overlay 15, for CAC conversion table, the same range (1-10) and default value (6) than in Overlay 94 are used. The value 0 is also allowed, it means that the value defined in R2MFC table for incoming non-Tie trunk has to be used.

CAC conversion tables must be defined by the craftsperson in overlay 15. Up to 32 tables can be configured. Then a configured conversion table entry can be assigned on each incoming DTI2 CIS route. For this, new prompt CAC_CONV is added to the CIS incoming route configuration. If no CAC conversion table is configured on the CIS route, the default table entry number 0 will apply on CIS incoming routes.

Default table entry is number 0 and is configurable. During upgrade from pre-release 24, this table is defined in memory as shown in Table 34. As all values of default tables are set to 0, the R2MFC table will be used until default table number 0 is configured.

Table 34
CAC Conversion table entry 0 for CIS incoming DTI2 route (Part 1 of 2)

CIS CAC	MFC CAC	Description and CIS CAC meaning
CAC0	0	MFC value corresponding to CIS CAC 0 "Reserved"
CAC1	0	MFC value corresponding to CIS CAC 1 "Residential or business subset with the access to automatic regional, toll and international network"
CAC2	0	MFC value corresponding to CIS CAC 2 "Hotel subset with the access to automatic regional, toll international network"
CAC3	0	MFC value corresponding to CIS CAC 3 "Residential, business or Hotel subset with the access to local network only"
CAC4	0	MFC value corresponding to CIS CAC 4 "Business subset with the access to regional, toll, international network and to special service numbers; preferential access to regional and toll network"

Table 34
CAC Conversion table entry 0 for CIS incoming DTI2 route (Part 2 of 2)

CIS CAC	MFC CAC	Description and CIS CAC meaning
CAC5	0	MFC value corresponding to CIS CAC 5 "Business subset of telecommunications administration with the access to automatic regional, toll, international network and to special service numbers free of charge"
CAC6	0	MFC value corresponding to CIS CAC 6 "Toll Coin box and public call paystation with the access to automatic regional and toll network also the general purpose coin box with the access to local and toll network (paying in cash) and the coin box with access to special services only"
CAC7	0	MFC value corresponding to CIS CAC 7 "Business or residential subset with automatic access to regional, toll and international network plus to chargeable service numbers"
CAC8	0	MFC value corresponding to CIS CAC 8 "Business subset for data, facsimile and electronic mail with automatic access to regional, toll and international network."
CAC9	0	MFC value corresponding to CIS CAC 9 "Local call coin box"
DFLT	0	MFC value corresponding to CIS CAC 0 "Reserved"

Mapping CLID to ANI and OLI to ANI

The feature implements mapping of CLID on Euro-ISDN and enhances it on other ISDN interfaces.

In the pre-Release 24 implementation, on incoming route the length of Calling Number tandemed and a default DN are defined using, respectively, prompt RDNL and prompt ANDN. These two prompts RDNL and ANDN are suppressed and replaced by prompt ANIE which allows configuring ANI table entry.

Building ANI for interfaces without calling number

The title of this subsection refers to routes whose connectivity does not give the possibility to receive a calling number (DTI2, Analog,...).

This case is similar to the situation where an Incoming route with calling number does not receive the calling number.

Mapping ANI to ANI in gateway CIS DTI2 to CIS

The feature CIS ANI Reception is developed concurrently to this one for incoming CIS DTI2 routes (see CIS ANI Reception in this document). For the gateway DTI2 CIS to CIS, on the outgoing CIS route the ANI is built using the ANI received on incoming route. The received ANI can be manipulated using ANI table entry configured on incoming CIS route.

The CAC used on outgoing route is the one received in incoming ANI. This CAC is copied into outgoing ANI without any modifications. If no ANI has been received on incoming CIS route. The CAC used is the one configured against CAC_CIS prompt on incoming CIS route.

Examples of Gateways Enhancements

The following pages contain examples of how to implement gateways enhancements.

Table 35
CAC conversion table, entry 1 content

MFC CAC	CIS CAC
CAC0	9
CAC1	8
CAC2	7
CAC3	6
CAC4	5
CAC5	4
CAC6	3
CAC7	2
CAC8	1
CAC9	0
Default	3

Example 1 - Gateway call through node 3 to CO C

In this example, Received CNI on route 320 is 1234, with CAC translated to DGT5. Outgoing ANI is 555 1 7476 4.

Table 36
Example 1 - detail of built CAC

LEC Outgoing	Additional Digit	ANI DN Incoming	Category Code
555	1	7476	4

Example 2 - Gateway call through node 2 to CO B

In this example, received CNI on route 230 is 647678, with CAC translated to DGT 8. Outgoing ANI is 555 123 7678 1.

Table 37
Example 2 - Detail of built CAC

LEC Incoming	Additional digit	DNLG*CNI	Category Code
555	123	7678	1

Example 3 - Gateway call through node 1 to CO A

In this example, received CLID on route 120 is 25. Outgoing ANI is 444 123456123 25 5.

Example 3 - Detail of built CAC

LEC Incoming	Additional digit	DNLG*CLID	Category Code
444	123456123	25	5

Operating parameters

This section lists the operating parameters for CIS ANI Digits Manipulation and CIS Gateways Enhancements.

CIS ANI Digits Manipulation operating parameters

The data in ANI is built only once at the beginning of the call. The data is not changed or re-downloaded for any kind of operation during a call. Therefore, if the call goes through any type of modification such as a transfer or call forward for instance, the ANI information sent when requested is of the original originator of the call.

This feature does not allow the user to associate ANI entry to attendant consoles. When an outgoing call is originated by an attendant, the ANI message is built using the old mechanism.

The ANI size flexibility is not supported by the analog trunks (E3W, X3W). For these type of trunks, the prompt ANSZ (Overlay 16) must be answered with seven. CIS standards recommend setting ANSZ to seven for CIS DTI2 ANSZ prompt.

CIS Gateways Enhancements operating parameters

ANI is downloaded to the card only once and immediately after trunk seizure. Thus calling number can be tandemed into ANI only if received before trunk is seized. That means that the calling number must be received at the same time that the called number or before enough digits of the called number are received to seize the CIS trunk. In case of gateway ISDN interface/CIS calling number (CLID) is always received before or at the same time as the called number. In case of gateway R2MFC/CIS calling number (CNI) can be received after trunk has been seized. Then incoming MFC route must be configured to request CNI before enough digits of called number are received to seize CIS trunk.

There is no cross checking of the ANI R_ENTRY associated with the route against the ANI R_ENTRY in the customer Data Block. If an ANI R_ENTRY is removed from the ANI table and the ANI R_ENTRY is stilled assigned to a route, ANI in this case is built using the default R_ENTRY, R_ENTRY number 0 and ERR9044 message is issued at call processing time.

While default R_ENTRY number 0 has not been configured, all its fields are empty except ADDG whose default value is 8. Thus the ANI built using this table is a repetition of 8. It is strongly recommended to configure this default table as soon as ANIC prompt is set to yes on an outgoing CIS route.

It is possible to associate an undefined ANI R_ENTRY to a route. Then, when constructing ANI if R_ENTRY is still undefined, default R_ENTRY number zero is used and ERR9044 message is issued at call processing time.

Due to the independence between ANI table and outgoing CIS route, it is possible to define a LEC, or ANDN greater than ANI size configured on outgoing route. Then most significant digits will be truncated. The way it is done is similar in case of call originated from a set or a trunk.

There is no cross checking of the CAC Conversion table entries associated with a CIS or R2MFC route against the CAC Conversion table in the customer Data Block. If a CAC Conversion table entry is removed from the CAC Conversion table and this entry is still~~ed~~ assigned to a route, CAC in this case is built using the default CAC Conversion table entry, CIS_ENT number 0 for an incoming CIS route and MFC_ENT number 0 for an incoming MFC route. Additionally ERR9051 message is issued at call processing time.

It is possible to associate an undefined CIS_ENT or MFC_ENT to a route. Then, when constructing CAC if CIS_ENT or MFC_ENT is still undefined, default CIS_ENT or MFC_ENT (number 0) is used and ERR9051 message is issued at call processing time.

Feature interactions

This section identifies feature interactions for CIS ANI Digits Manipulation and Gateways Enhancements.

CIS ANI Digits Manipulation feature interactions

CIS Three Wire Analog Trunk

CIS ANI digits manipulation feature modifies Automatic Number Identification.

CIS Digital Trunk Interface

CIS ANI digits manipulation feature modifies Automatic Number Identification.

CIS MF Shuttle

CIS ANI digits manipulation feature modifies Automatic Number Identification.

CIS Gateways Enhancements

Some changes introduced in CIS ANI digits manipulation feature will impact on CIS Gateways Enhancements feature. These changes are listed below:

- The size of the ANI is configurable on a per outgoing CIS route basis.
- Valid responses for LEC, ADDG and ANDN programmed on the outgoing CIS route are modified.

- The additional digit(s) is(are) inserted between LEC and ANI DN when necessary to complete the ANI DN.
- Prompt ANIC (ANI Composing) added in Overlay 16 is also used in CIS Gateways Enhancements.

CIS Gateways Enhancements feature interactions

CIS Three Wire Trunk Analog

This development interacts with the feature CIS Three Wire Trunk Analog by changing how ANI is built in case of gateway from ISDN/DPNSS/R2MFC to CIS Analog.

CIS Digital Trunk Interface

The CIS Gateways Enhancements feature interacts with CIS Digital Trunk Interface by changing how ANI is built in case of gateway from ISDN/ DPNSS/R2MFC to CIS Digital.

CIS ANI Digits manipulation interaction

These interactions are already described in CIS ANI Digits Manipulation feature interactions.

Feature packaging

No new packages are introduced for these features.

The existing Commonwealth of Independent States Trunks (CIST) package 221 is required for these features to be operable.

CIS Multi Frequency Shuttle package is required if MF Shuttle signaling is to be used but is not mandatory for the CIS ANI digits manipulation and Gateways Enhancements functions.

The CIS DTI2 feature (including MF Shuttle) requires:

- Flexible Tones and Cadences (FTC) package 125
- International Supplementary Features (SUPP) package 131
- 2 Mbit Digital Trunk Interface (DTI2) package 129
- Flexible Numbering Plan (FNP) package 160

CIS Analog Three Wire Trunks feature requires:

- International Supplementary Features (SUPP) package 131
- Flexible Numbering Plan (FNP) package 160
- Flexible Tones and Cadences (FTC) package 125
- Trunk Fail Monitor (TFM) package 182
- Meridian 1 IPE package (XPE) package 203 (required for outgoing X3W packs)
- Fast Tone and Digit Switch (FAST_TDS) package 87 (required for outgoing E3W package)

CIS ANI Digits Manipulation feature implementation

This section contains the overlay procedures required to configure the CIS ANI Digits Manipulation feature. The CIS Gateways Enhancements feature implementation section begins on page 1062.

Task summary list

The following is a summary of the tasks in this section:

1 LD 15 - Configure ANI Table for telephones

2 LD 16 - Create or modify outgoing CIS route data block.

3 LD 10 - Define ANI entry for analog (500/2500) sets.

4 LD 10 - Configure the CAC for CIS and MFC signaling for analog 500/2500 sets.

5 LD 11 - Configure ANI entry for Meridian 1 proprietary sets.

6 LD 11 - Configure the CAC for CIS and MFC signaling for digital sets.

7 LD 27 - Configure ANI entry for Basic Rate Interface (BRI) lines.

8 LD 27 - Configure the CAC for CIS and MFC signaling for BRI sets.

9 LD 15 - Configure the ANI route table and CAC conversion table.

10 LD 16 - Configure the ANI table entry in the Route Data Block for incoming R2MFC route.

11 LD 16 - Configure the ANI table entry and CAC conversion table for Incoming CIS DTI2 route.

12 LD 16 - Configure the ANI table entry for all other route types (ISDN, incoming CIS analog, incoming DTI2 and DPNSS).

13 LD 88 - Configure the CAC for CIS signaling.

LD 15 - Configure ANI Table for telephones

Prompt	Response	Description
REQ:	NEW CHG	Add new data. Change existing data
TYPE:	ANI	Automatic Number Identification
...	...	...
ANLD	xx...xx	ANI listed directory number (for North American trunk)
CIS_ANI	YES (NO)	CIS ANI option. If CIS_ANI=YES, the next subprompts will be prompted, allowing the configuration of ANI entries for CIS ANI message composing. If CIS_ANI=NO, the following sequence of subprompts is skipped.
- S_SIZE	(0)-2000	Maximum number of ANI entries for sets that can be configured. If S_SIZE=0, next prompts are skipped. If <CR> is entered when REQ=NEW, it defaults to 0 and next prompts are skipped. The S_SIZE can't be decreased if the entries between the old size and the new one are not empty.

- S_ENTRY	aa	ANI entry for a set to be created or modified.
	Xaa	ANI entry for a set to be deleted.
	Xaa Xbb	ANI entries (aa-bb) for a set to be deleted.
		Prompted only if S_SIZE is greater than 0.
		ANI entries must be between 1 and S_SIZE.
		If REQ=NEW, this prompt and its subprompts are given only once. If REQ=CHG, they are repeated until S_ENTRY is answered with <CR>.
- - DNLG	0-(4)-15	Directory Number Length.
- - LEC	0-99...99	Local Exchange Carrier.
	X	Delete LEC.
- - ADDG	0-(8)-99...99	Additional digits, 1 to 15 digits long.
- - ANDN	0-99...99	Used as ANI DN if DN Length = 0.
	X	Delete ANDN.
...	...	...

LD 16 - Create or modify outgoing CIS route data block**.**

Prompt	Response	Description
REQ	NEW	Add new data.
	CHG	Change existing data.
TYPE	RDB	Route Data Block
TKTP	DID	Direct Inward Dial.
	COT	Central Office Trunk.
ICOG	OGT	Outgoing Route.
...	...	...
CCBA	(NO) YES	Deny/Allow collect call blocking.

CISR	YES (NO)	CIS Route
- ANSZ	(7)-15	ANI information size. Response is length of LEC+ANI DN. For analog routes, the only valid response is seven (7).
- ANIC	(NO) YES	ANI Composing Prompted for outgoing CIS route. If ANIC=NO, old ANI composing is used: if the originator of the call is a set, ANI message will consist of the CAC of the originator + the LEC of the outgoing route + the DN of the originator or the ANDN of the outgoing CIS route, depending on the class of service (DNAA/DNAD) of the set. If the originator of the call is an incoming route, the components of the ANI message are retrieved from default ANI entries and/or from the data block of the outgoing CIS route (See “CIS Gateways Enhancements feature implementation” on page 1062.) If the outgoing CIS route requires new ANI composing to be used (prompt ANIC=YES), the following is done: If no entry is associated to the calling set (ANIE=0), then old ANI composing is used. If an ANI entry is associated to the calling set (ANIE has a non-zero value), but the associated ANI entry is not configured, then old ANI composing is used. If an ANI entry is associated to the calling set (ANIE has a non-zero value), and the associated ANI entry is configured, then ANI table will be used for building the ANI message: none of the components of the ANI message will be retrieved from the data block of the outgoing CIS route.
- LEC	0-99...99	Local Exchange Code of the route. It can be from 0 digit long up to ANSZ digit long. Prompted for outgoing CIS route. Used for building ANI message if ANIC is NO or if ANIC=YES but the ANI entry associated with the originator of the call is not configured.
	X	Remove LEC.

- ADDG	0-(8)-99...99	Additional digits used in ANI message if ANIC is NO or if ANIC=YES but the ANI entry associated with the originator of the call is not configured. It is used to complete ANI DN if LEC+ANI DN consists of less than ANSZ digits. Prompted for outgoing CIS route. It can be from 1 digit long up to ANSZ digit long.
- ANDN	0-99...99	Default ANI DN. It can be from 0 digit long up to ANSZ digit long. Prompted for outgoing CIS route. Used for building ANI message if ANIC=NO and DN of set is not allowed to be sent (CLS DNAD). Also used if ANIC=YES but the ANI entry associated with the originator of the call is not configured, and DN of set is not allowed to be sent (CLS DNAD).
	X	Remove ANDN.

LD 10 - Define ANI entry for analog (500/2500) sets**.**

Prompt	Response	Description
REQ:	NEW	Add new data.
	CHG	Change existing data.
TYPE:	500	500 set.
TN	l s c u c u	Terminal number for Options 51C through 81C. Terminal number for Option 11C
CUST	xx	Customer number. xx = 0 - 99 for Options 51C through 81C. xx = 0 - 31 for Option 11C.
...	...	...
DN	xxxx ccc	Directory Number, CLID entry.
- MARP	(NO) YES	Deny/Allow Multi Appearance Redirection Prime.
- CPND	aaaa	Calling Party Name Display.

- VMB	aaaa	Voice Mailbox.
- ANIE	(0)-N	ANI Entry: it is of (0)-N where N=S_SIZE in customer data block. If ANIE=0, no entry is associated with the set. The old mechanism will be used for building the ANI message. If ANIE is of 1-N: • If ANIC = YES for the outgoing CIS route where the call takes place, then the components of the ANI message are retrieved from the ANI entry in Customer Data Block, if configured. • If the given ANI Entry is not configured, or if ANIC = NO for the outgoing CIS route where the call takes place, then the old mechanism is used for building the ANI message.
...	...	...

LD 10 - Configure the CAC for CIS and MFC signaling for analog 500/2500 sets.

Prompt	Response	Description
REQ:	NEW CHG	Add new data. Change existing data.
TYPE:	500	Type of data block for analog (500/2500) set.
TN	l s c u c u	Terminal number for Options 51C through 81C. Terminal number for Option 11C
CUST	xx	Customer number. xx = 0 - 99 for Options 51C through 81C. xx = 0 - 31 for Option 11C.
...	...	
SFLT	a..a	Secretarial Filtering.
CAC_CIS	0-(3)-9	CIS ANI Category Code.
CAC_MFC	(0)-10	MFC CNI Category Code.

LD 11 - Configure ANI entry for Meridian 1 proprietary sets.

Prompt	Response	Description
REQ:	NEW	Add new data.
	CHG	Change existing data.
TYPE:	xxxx	Meridian 1 proprietary set.
TN	l s c u c u	Terminal number for Options 51C through 81C. Terminal number for Option 11C
CUST	xx	Customer number. xx = 0 - 99 for Options 51C through 81C. xx = 0 - 31 for Option 11C.
...	...	...
KEY	xx AAA yyyy... ccc	xx = key number. AAA = Key Function. yyyy = DN or other data related to key function. ccc = CLID entry.
- MARP	(NO) YES	Deny/Allow Multi Appearance Redirection Prime.
- CPND	aaaa	Calling Party Name Display.

- VMB	aaaa	Voice Mailbox.
- ANIE	(0)-N	ANI Entry: It is of (0)-N where N=S_SIZE in customer data block. If ANIE=0, no entry is associated with the DN key. The old mechanism will be used for building the ANI message. If ANIE is of 1-N:. • If ANIC=YES for the outgoing CIS route where the call takes place, then the components of the ANI message are retrieved from the ANI entry in Customer Data Block, if configured. • If the given ANI Entry is not configured, or if ANIC=NO for the outgoing CIS route where the call takes place, then the old mechanism is used for building the ANI message.

LD 11 - Configure the CAC for CIS and MFC signaling for digital sets.

Prompt	Response	Description
REQ:	NEW CHG	Add new data. Change existing data.
TYPE:	aaa	Meridian 1 proprietary set.
TN	l s c u c u	Terminal number for Options 51C through 81C. Terminal number for Option 11C.
CUST	xx	Customer number. xx = 0 - 99 for Options 51C through 81C. xx = 0 - 31 for Option 11C.
...	...	
CAC_CIS	0-(3)-9	CIS ANI Category Code.
CAC_MFC	(0)-10	MFC CNI Category Code.

LD 27 - Configure ANI entry for Basic Rate Interface (BRI) lines**.**

Prompt	Response	Description
REQ	NEW	Add new data.
	CHG	Change existing data.
TYPE	TSP	Administer Terminal Service Profile on Digital Subscriber Loop.
...	...	...
SPID	xxxx	Service Profile ID.
DN	xxxx ccc	Directory Number (DN) and Calling Line Identification (CLID) entry. xxxx = DN ccc = CLID
- CT	aaaa	Call Types for DN aaaa = VCE or DTA.
- MCAL	1-(4)-8	Maximum Calls allowed per DN
- CLIP	(YES) NO	Allow/Deny Calling Line Identification Presentation for incoming calls.

- PRES	(YES) NO	Allow/Deny Presentation of CLID to far end on outgoing calls.
- ANIE	(0)-N	ANI entry. It is of (0)-N where N=S_SIZE in customer data block. If ANIE=0, no entry is associated with the DN key. The old mechanism is used for building the ANI message. If ANIE is 1-N: • If ANIC=YES for the outgoing CIS route where the call takes place, then the components of the ANI message are retrieved from the ANI entry in Customer Data Block, if configured. • If the given ANI Entry is not configured, or if ANIC=NO for the outgoing CIS route where the call takes place, then the old mechanism is used for building the ANI message.

LD 27 - Configure the CAC for CIS and MFC signaling for BRI sets.

Prompt	Response	Description
REQ	NEW CHG	Add new data. Change existing data.
TYPE	DSL	Digital Subscriber Loop.
DSL	l s c dsl	Digital subscriber loop address for large system, where: • l (superloop) = 0-156 (must be 0 or a multiple of 4) • s (shelf) = 0-1 • c (card) = 0-15 • dsl (Digital Subscriber Loop) = 0-7
...	...	
CAC_CIS	0-(3)-9	CIS ANI category code.
CAC_MFC	(0)-10	MFC CNI category code.

CIS Gateways Enhancements feature implementation

This section contains the overlay procedures required to configure the CIS Gateways Enhancements feature.

Feature implementation for R2MFC route

In case of gateway R2MFC/CIS it must be noticed that to be tandemed CNI must be received on R2MFC route before outgoing CIS trunk is seized. This is possible using an up-front CNI request. Up-front CNI request is defined on R2MFC route by giving a non zero value to prompt NCNI. Configure the ANI table entry and CAC conversion table for Incoming CIS DTI2 route using LD 16.

LD 15 - Configure the ANI route table and CAC conversion table.

Prompt	Response	Description
REQ:	NEW CHG	Add new data. Change existing data. REQ = NEW, default table R_SIZE (0) is created. REQ = NEW, default table CACC(0) is created. REQ = NEW, R_SIZE defaults to number of ANI entries. for incoming route created during conversion.
TYPE:	ANI	Automatic Number Identification
....	...	....
ANLD	xx...x	ANI Listed Directory Number. Only included here for clarification if this prompt appears. Only applies to North American ANI.
CIS_ANI	(NO) YES	Deny/Allow configuration of ANI entries for CIS ANI message.
...	...	
- R_ SIZE	(1)-512	Maximum number of ANI entries that can be configured for incoming routes. This maximum number is limited to 512 as it is the maximum number of routes. Entries must be empty to decrease R_SIZE.

- R_ENTRY	aa	ANI entry for an incoming route to be created or modified.
	Xaa	ANI entry for an incoming route to be deleted.
	Xaa Xbb	ANI entries for an incoming route between aa and bb to be deleted.
	<CR>	Exit. R_ENTRY is repeated until <CR> is entered. ANI entries must be between 0 and (R_SIZE-1). For REQ=NEW, only default table 0 is configurable. An R_ENTRY can be deleted even if still assigned on an incoming route.
- - DNLG	0-(4)-15	DN Length Number of digits of the Calling Line ID (CLID), Originating Line Identifier (OLI), Calling Number Identification(CNI) to use in the ANI message, starting with the less significant digits.
- - LEC	0-99..99	Local Exchange Code, 1 to 15 digits.
	X	Remove LEC.
- - ADDG	0-(8)-99...99	Additional digits, 1 to 15 digits. Used to complete ANI Directory Number (ANDN) if Local Exchange Carrier (LEC)+ANDN is less than ANSZ digits defined in LD 16.
- - ANDN	0-99...99	Used as ANI DN if calling number is not available or DNLG=0. Up to 15 digits may be entered.
	X	Remove ANDN.
CACC	(NO) YES	Deny/Allow Calling Party Category Code (CAC) Conversion table option.

-MFC_ENT		CAC conversion table to convert MFC CAC into CIS CAC for use on R2MFC routes.
	aa	CAC conversion table entry to be created or modified.
	Xaa	CAC conversion table entry to be deleted.
	Xaa Xbb	CAC conversion table entries between aa and bb to be deleted.
	<CR>	Exit MFC CAC conversion table, gives CIS_ENT prompt. This prompt is repeated until <CR> is entered. It is prompted if CACC=YES. CAC conversion table entries must be between 0 and 31. For REQ=NEW, only default table 0 is configurable. An ENTRY can be deleted even if still assigned on an incoming route.
-- CAC0	0-(3)-9	CIS value corresponding to MFC DGT0
-- CAC1	0-(3)-9	CIS value corresponding to MFC DGT1
-- CAC2	0-(3)-9	CIS value corresponding to MFC DGT2
-- CAC3	0-(3)-9	CIS value corresponding to MFC DGT3
-- CAC4	0-(3)-9	CIS value corresponding to MFC DGT4
-- CAC5	0-(3)-9	CIS value corresponding to MFC DGT5
-- CAC6	0-(3)-9	CIS value corresponding to MFC DGT6
-- CAC7	0-(3)-9	CIS value corresponding to MFC DGT7
-- CAC8	0-(3)-9	CIS value corresponding to MFC DGT8
-- CAC9	0-(3)-9	CIS value corresponding to MFC DGT9
-- DFLT	0-(3)-9	CIS value used when MFC CAC has not been received, or MFC CAC received is not in the MFC CAC list of this table

LD 16 - Configure the ANI table entry in the Route Data Block for incoming R2MFC route.

Prompt	Response	Description
REQ	NEW	Add new data.
TYPE	RDB	Route Data Block.
...	...	...
MFC	YES	Configure Multifrequency Compelled signaling.
- MFCI	x	MFC Incoming Table.
- MFCO	x	MFC Outgoing Table.
...	...	
ICOG	IAO	Incoming and Outgoing.
	INC	Incoming.
NCNI	1	Request CNI after the defined number of digits are received. CNI is requested during incoming MFC call after the first digit of dialed number has been received.
ANIE	(0)-x	ANI table Entry for Route (configured under prompt R_ENTRY, OVL 15). x = R_SIZE-1. R_Size is the maximum table entry number that can be configured. (R-SIZE is defined in LD 15).
CAC_CONV	(0)-31	CAC conversion table number for CIS Gateway. Configured against MFC_ENT in LD 15. Prompted only for non “outgoing only” R2MFC route.

LD 16 - Configure the ANI table entry and CAC conversion table for Incoming CIS DTI2 route.

Prompt	Response	Description
REQ	NEW	Add new data.
TYPE	RDB	Route data block
...	...	...
DGTP	DTI2	2 Mbit Digital Trunk Interface.
...	...	
ICOG	INC	Incoming route.
...	...	...
ANIE	(0)-x	ANI table Entry for Route (configured under prompt R_ENTRY, OVL 15). x = R_SIZE-1. R_Size is the maximum table entry number that can be configured. (R-SIZE is defined in OVL 15). Default table entry is number 0.
CISR	YES	CIS Route
...	...	...
- CAC_CONV	(0)-31	CAC conversion table number for CIS-to-R2MFC gateway, configured against CIS_ENT in CDB. Prompted only for incoming CIS DTI2 route.
CAC_CIS	0-(3)-9	CIS ANI Category Code

LD 16 - Configure the ANI table entry for all other route types (ISDN, incoming CIS analog, incoming DTI2 and DPNSS).

Prompt	Response	Description
REQ	NEW	Add new data.
TYPE	RDB	Route Data Block.
...	...	
ISDN	YES	Enable ISDN
...	...	...
ICOG	IAO	Incoming and outgoing.
	ICT	Incoming.
...	...	
ANIE	(0)-x	ANI table Entry for Route (configured under prompt R_ENTRY, LD 15). x= R_SIZE-1. R_Size is the maximum table entry number that can be configured.
...	...	...
CAC_CIS	0-(3)-9	CIS ANI Category Code

LD 88 - Configure the CAC for CIS signaling.

Prompt	Response	Description
REQ	NEW CHG	Add new data. Change existing data.
TYPE	AUB	Authcode Data Block
...	...	...
CLAS	(0)-115	Classcode value assigned to authcode (NAUT).
...	...	...
NCOS	(0)-99	Network Class of Service group number.
CAC_CIS	0-(3)-9	CIS ANI category code.

Feature operation

No specific operating procedures are required to use this feature.

CIS Toll Dial Tone Detection

Contents

The following are the topics in this section:

Feature description

The Commonwealth of Independent states (CIS) Toll Dial Tone Detection feature allows the Meridian 1 to detect a dial tone from a CIS Toll Central Office (CO) on outgoing toll calls. When received, the tone indicates that the CIS CO is prepared to collect dial pulse (decadic) digits from Meridian 1 for outgoing toll calls. The feature is implemented only for CIS DTI2 trunks.

The CIS DTD feature introduces CIS toll outpulsing criteria, which are terms that define conditions that need to be satisfied to allow Meridian 1 to start the outpulsing of the decadic digits on the outgoing Toll CIS DTI2 calls (see Figure 23).

The criteria is composed as a combination of two events: dial tone detection and ANI interaction. It may include only dial tone detection, only ANI Interaction, dial tone or ANI, dial tone and ANI. The criteria is defined at the route data block level. The detection is performed by the CIS DTI2 cards (NTCG01AC and NTCG02 AC) and when the criteria is satisfied the Meridian 1 receives a report from the card. The Meridian 1 postpones the outpulsing of the digits until the report. If the report does not arrive before the ATO timer expiration, defined in Overlay 16, the outpulsing may continue, or the call may be disconnected and busy tone provided to customer.

Outgoing toll CIS DTI2 calls can be made using the indirect or direct connection method (see Figure 24 and Figure 25).

Figure 23
CIS network block diagram

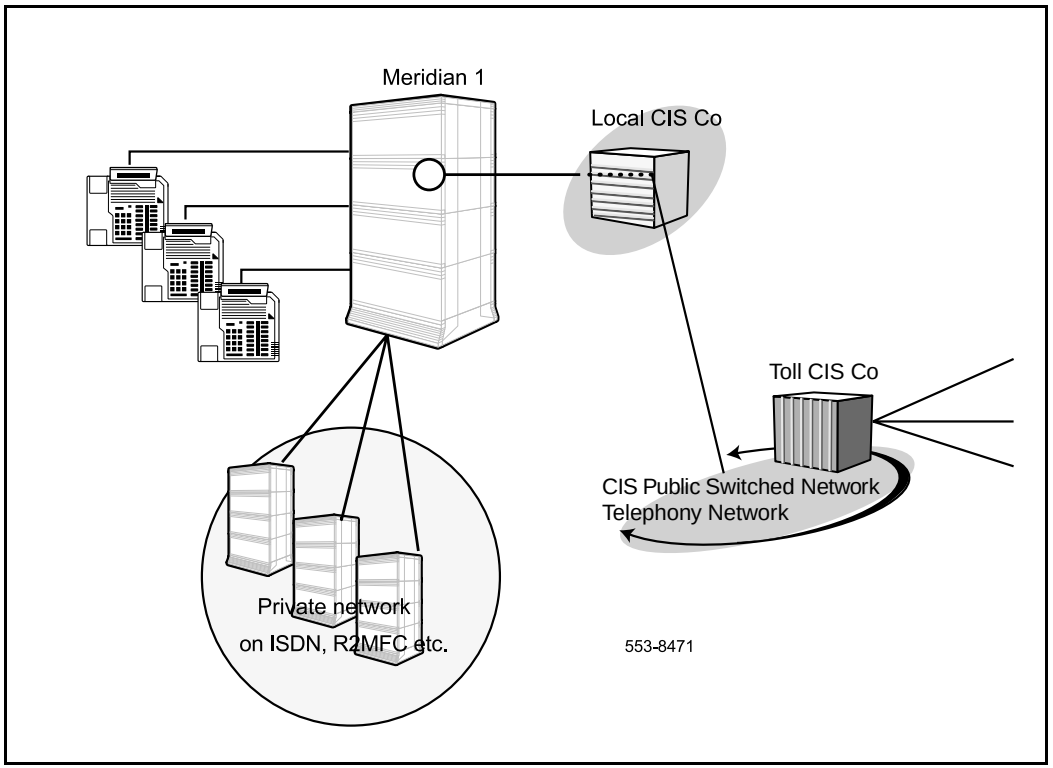


Figure 24
Indirect outgoing toll call with dial tone detection

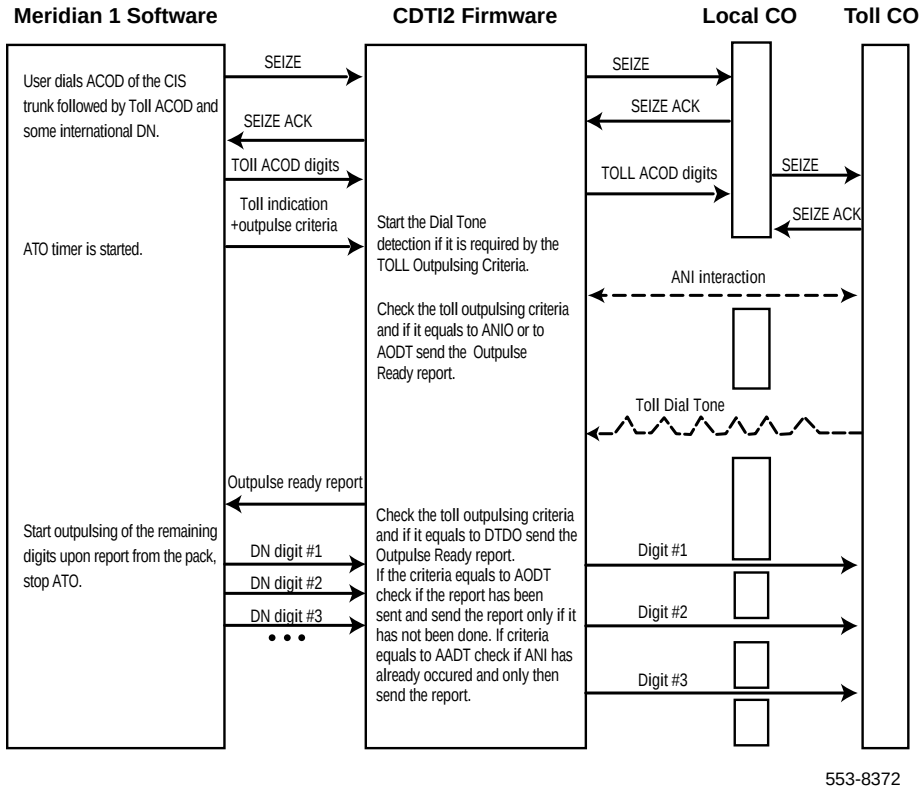
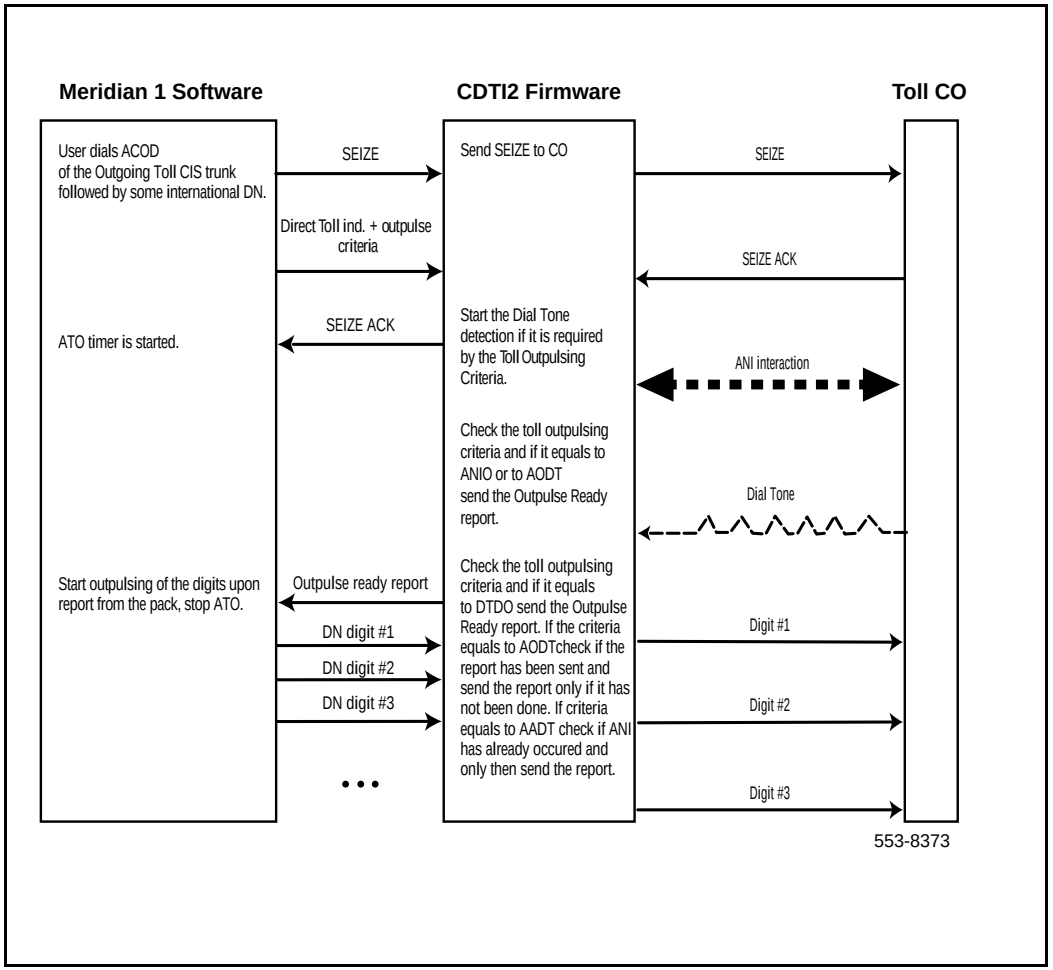


Figure 25
Direct toll call with dial tone detection



Operating parameters

This feature requires the CIS DTI2 card NTCG01AC for Options 51C - 81C. Card NTCG02AC is used in Option 11C. These CIS DTI2 cards have increased functionality that allows detection of the CIS toll dial tone.

Feature interactions

CIS 2 Mbit Digital Trunk Interface (CIS DTI2)

CIS DTD feature improves the reliability of outgoing CIS DTI2 toll calls by adding the ability to use the dial tone provided by the CIS CO as criteria to start outpulsing the decadic digits to the toll CIS CO.

Feature packaging

No new package is introduced for this feature. The following packages are required:

- 2 Mbit Digital Trunk Interface (DTI2) package 129
- International Supplementary Features (SUPP) package 131
- Commonwealth of Independent States Trunks (CIST) package 221

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

1 LD 73 - Add Multifrequency Advanced (MFA) as a CIS firmware type.

2 LD 16 - Specify CIS route information.

LD 73 - Add Multifrequency Advanced (MFA) as a CIS firmware type.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	DTI2	Digital Trunk Interface loops.
FEAT	LPTI	Loop timers and additional definitions.
CDTI2	YES	CDTI2/CSDTI2 card
...	...	
CISFW	MFA	Multifrequency Shuttle protocol handling + ANI Reception + firmware dial tone detection capabilities are supported. MFA capabilities are supported by CIS CDTI2 card (NTCG01AC for Options 51C-81C, or NTCG02AC for Option 11C).

LD 16 - Specify CIS route information.

Prompt	Response	Description
REQ	NEW CHG	Add new data. Change existing data.
TYPE	RDB	Route Data Block.
TKTP	COT	Central Office Trunk
...	...	...
ICOG	OGT	Outgoing only trunk.
...	...	...
CNTL	(NO) YES	Deny/Allow changes to controls or timers.
- TIMR	ATO 128-(4992)-65408	ANI timeout timer in milliseconds. For CIS outgoing trunk routes this defines the time delay performed after the outpulsing of the toll access code. During this delay further outpulsing is temporarily halted until the special message from the card firmware confirms the satisfaction of the CIS Toll outpulsing criteria. If the timer expires before satisfaction the behavior of the system depends on the COAT prompt. If COAT is set to YES the outpulsing continues on timeout. If COAT is set to NO the call is dropped.
...	...	...
CISR	YES	CIS Route
- DTOC	(NO) YES	Deny/Allow Direct Toll Connection.
- CTOC	 (DTDO) AADT ANIO AODT	CIS Toll Outpulsing Criteria. DTD Only. ANI And DTD. ANI Only. ANI Or DTD.
- COAT	(NO) YES	NO = Drop Call when ATO timer expires. YES = Continue Outpulsing when ATO timer expires.

Feature operation

No specific operating procedures are required to use this feature.

CLASS: Calling Number and Name Delivery

Contents

The following are the topics in this section:

Feature description

The Custom Local Area Signaling Service (CLASS) Calling Number and Name Delivery (CND) feature enables the Meridian 1 system to send the calling number and/or calling name to a CLASS set when a call is presented to it, per the Bellcore CLASS CND standard. Once the Meridian 1 delivers the CLASS CND information, it is completely up to the CLASS set to determine how the information is to be displayed. The CLASS set can even choose to ignore certain information by not displaying it.

A CLASS set is, by definition, any non-proprietary analog set with an integrated display and a Frequency Shift Key (FSK) modem receiver, or with a FSK modem receiver built-in display attachment. The CLASS sets are configured on the Meridian 1 as analog (500/2500 type) sets using Overlay 10, and are supported by the existing 500/2500 type peripheral line cards.

The calling number and/or calling name data is delivered from the Meridian 1 to the CLASS sets using FSK signaling by a CLASS modem (CMOD) unit. The CMOD units are configured using Overlay 13. They are supported by an Extended CLASS Modem (XCMC) IPE line card, the NT5D60AA

Up to 255 CMOD units may be configured on a Meridian 1 system that is equipped with the CLASS CND feature. Once configured, the CMODs are shared throughout a multi-customer Meridian 1 system. When a call is presented to a CLASS set, an available CMOD is automatically allocated.

Upon reaching the CND delivery interval[1], the appropriate CND information is delivered to the CLASS set. The allocated CMOD unit is released when ringing resumes on the CLASS set after the CND delivery interval, or when the call is disconnected, answered, or redirected. If the call is disconnected, answered, or redirected before the CND delivery interval has been reached, then no CND information is delivered. If the call is disconnected, answered, or redirected while the CND information is being delivered, the CND delivery is immediately terminated. Figures 26 to 29 depict a typical call processing and system resource allocation scenario for a new call being presented on a CLASS set.

1.The CND delivery interval is the first silent interval, after ringing has been applied for a new call, that is greater than two seconds.

Figure 26
System allocation when a CLASS set is idle

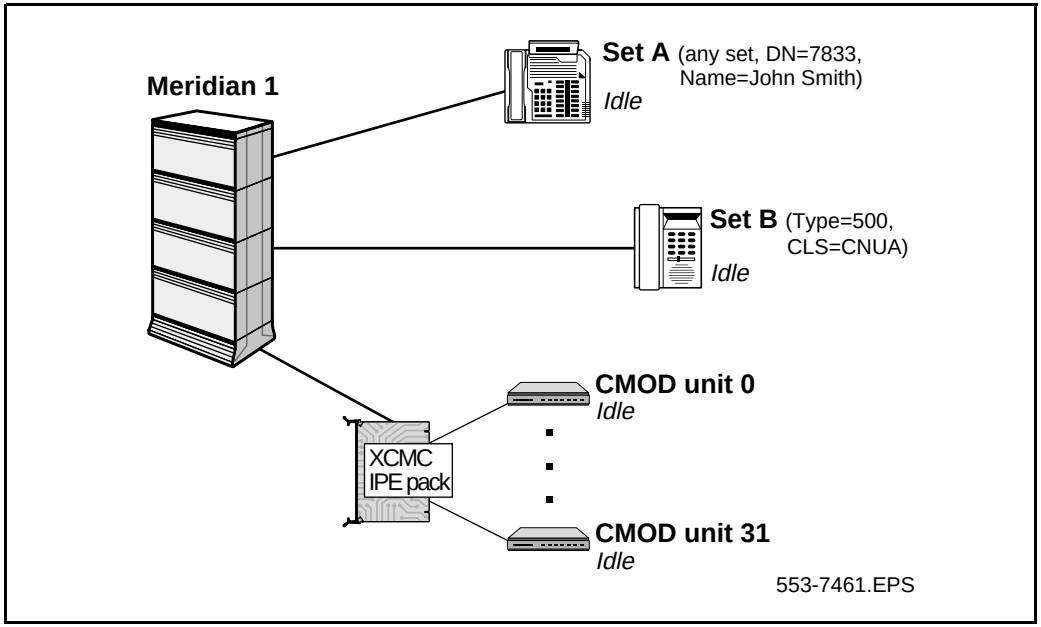


Figure 27
System resource allocation when a new call begins to ring on the CLASS set

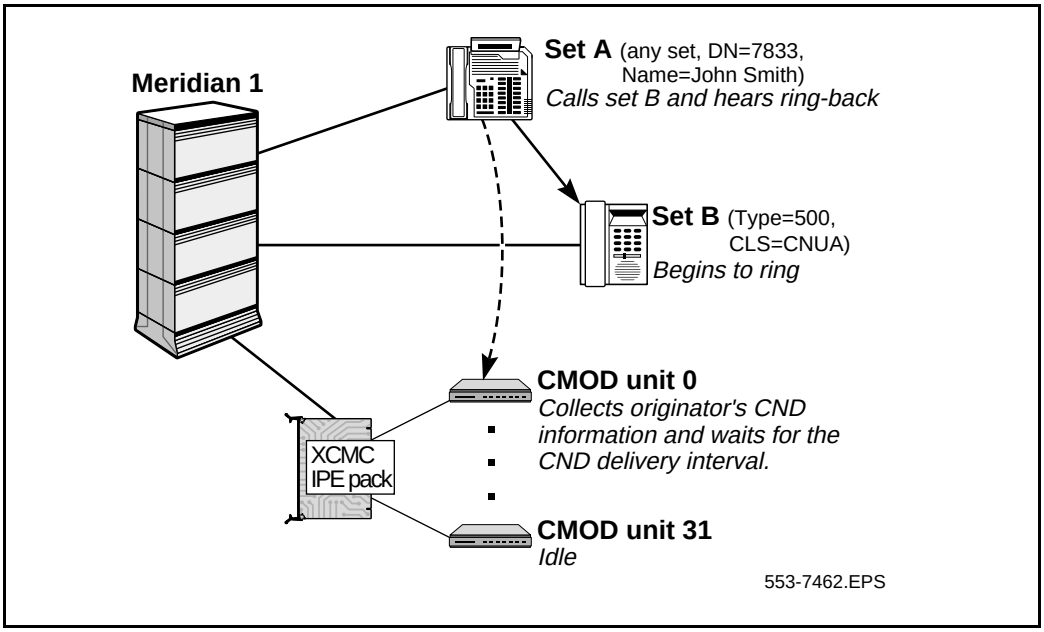


Figure 28
System resource allocation during the CND delivery interval

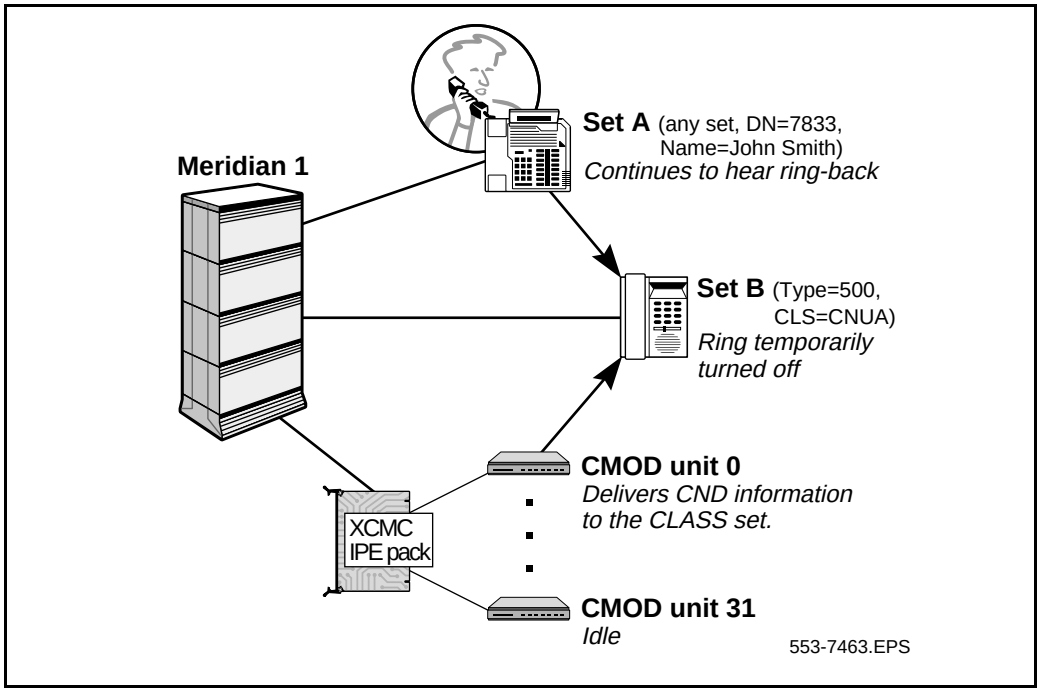
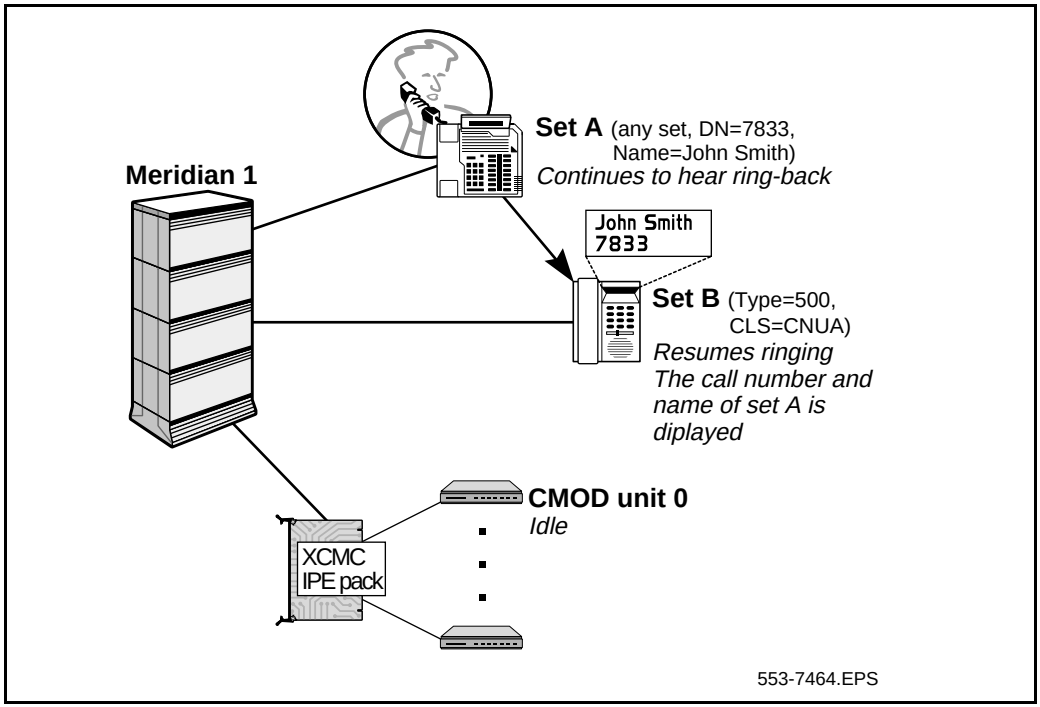


Figure 29
System resource allocation after the CND delivery interval



Configure CND Class of Service on CLASS sets

In Overlay 10, the system administrator may configure a CLASS set to deliver both Calling Number Delivery, Calling Name Delivery, or both.

To activate only Calling Number Delivery, the station set is to be configured with one of the following class of service:

- CLASS Calling Number Single Data Message Format Allow (CNUS) or
- CLASS Calling Number Multiple Data Message Format Allow (CNUA)

Subsequently, whenever a call is presented to that set, the Meridian 1 software will deliver the date and time stamp information (see the Date and time stamp information section which follows below) and the calling number information (see the Calling number information section which follows on page 1100), per the Bellcore CLASS CND delivery standard.

To activate only Calling Name Delivery, the station set is to be configured with the Calling Name Multiple Data Message Format Allow (CNAA) class of service. Subsequently, whenever a call is presented to that set, the Meridian 1 software will deliver the date and time stamp information and the calling name information (see the Calling name information section on page 1102), per the Bellcore CLASS CND delivery standard.

To activate both Calling Number Delivery and Calling Name Delivery, the station set is to be configured with both the CLASS Calling Number Multiple Data Message Format Allow (CNUA) and the CLASS Calling Name Multiple Data Message Format Allow (CNAA) class of service. Subsequently, whenever a call is presented to that set, the Meridian 1 software will deliver the date and time stamp information, the calling number information, and the calling name information, per the Bellcore CLASS CND delivery standard.

Date and time stamp information

The date and time stamp information delivered to a CLASS set is in the format ***mm dd hh mm***, where ***mm*** is a two-digit number for the month, ***dd*** is a two-digit number for the day of the month, ***hh*** is a two-digit number for the military hour of the day, and ***mm*** is a two-digit number for the minute of the hour. It is up to the CLASS set to display the date and time stamp information.

Calling number information

For a non-ISDN trunk-to-CLASS set call, the calling number delivered to the CLASS set will be the incoming In-Band ANI, or if no ANI is passed on, then the calling number unknown indicator[1] is delivered in place of the calling number.

For an ISDN trunk-to-CLASS set call, the calling number delivered to the CLASS set will be the CLID received from the incoming ISDN trunk (if the CLID is longer than 10 digits, only the first 10 will be delivered). If the incoming CLID is defined as display denied (the originating set has Display Digit Denied, Calling Party Privacy, or Calling Line Identification Restriction active), then the calling number privacy indicator[2] is delivered instead of the calling number, or, if no CLID is passed on by the incoming trunk, then the calling number unknown indicator is delivered in place of the calling number.

For a station (set)-to-CLASS set call, the calling number delivered to the CLASS set will be one of the following:

- If the originating set has Display Digit Denied active (CLS=DDGD in Overlay 10 or 11), then the calling number privacy indicator is delivered in place of the calling number.
- If the CLID entry of the originating DN specifies that it is to be identified by its internal DN (CLASS_FMT=DN in Overlay 15), then the originating DN is delivered.
- If the CLID entry of the originating DN specifies that it is to be identified by its local number (CLASS_FMT=LCL in Overlay 15), then the local public number associated with the originating DN[3] is delivered, (if the CLID is longer than 10 digits, only the first 10 will be delivered).

1.The calling number unknown indicator, per Bellcore CLASS CND delivery standard, refers to the ASCII “O” that is sent in place of the calling number.
2.The calling number privacy indicator, per Bellcore CLASS CND delivery standard, refers to the ASCII “P” that is sent in place of the calling number.
3.The local public number is composed by the ISDN CLID Enhancements feature, which forms the calling number by concatenating the customer defined home local number (HLCL in Overlay 15) and the originating DN.

- If the CLID entry of the originating DN specifies that it is to be identified by its national number (CLASS_FMT=NTN in Overlay 15), then the national public number associated with the originating DN[1] is delivered (if the number is longer than 10 digits, only the first 10 will be delivered).
- If the originating set is assigned with an undefined CLID entry, then the originating DN is delivered.

For a station (attendant)-to-CLASS set call, the calling number delivered to the CLASS set will be one of the following:

- If CLID entry 0 specifies that it is to be identified by its internal DN (CLASS_FMT=DN in Overlay 15), then the customer's attendant DN (the ATDN in Overlay 15) is delivered.
- If CLID entry 0 specifies that it is to be identified by its local number (CLASS_FMT=LCL in Overlay 15), then the local public number associated with the customer's Listed Directory Number 0 (the LDN0 in Overlay 15)[2] is delivered (if the number is longer than 10 digits, only the first 10 will be delivered).
- If CLID entry 0 specifies that it is to be identified by its national number (CLASS_FMT=NTN in Overlay 15), then the national public number associated with the customer's Listed Directory Number 0 (the LDN0 DN in LD Overlay)[3] is delivered (if the number is longer than 10 digits, only the first 10 will be delivered).
- If CLID entry 0[4] is not configured, then the customer's attendant DN (the ATDN in LD Overlay) is delivered.

1.The national public number is composed by the ISDN CLID Enhancements feature, which forms the calling number by concatenating the customer defined home national number (entered using prompt HNTN and HLCL in Overlay 15) and the originating DN.
2.The local public number is composed by the ISDN CLID Enhancements feature, which forms the calling number for calls originated by an attendant by concatenating the customer defined home local number (entered using prompt HLCL in Overlay 15) and LDN0.
3.The national public number is composed by the ISDN CLID Enhancements feature, which forms the calling number for calls originated by an attendant by concatenating the customer defined home national number (entered using prompt HNTN and HLCL in Overlay 15) and LDN0
4.The calling number for calls originated by an attendant is composed using CLID entry 0, as per the ISDN CLID Enhancements feature.

Calling name information

For a non-ISDN trunk-to-CLASS set call, the calling name unknown indicator[1] is delivered to the CLASS set in place of the calling name.

For an ISDN trunk-to-CLASS set call, the calling name delivered to the CLASS set will be the calling name received from the incoming ISDN trunk (if the calling name is longer than 15 characters, only the first 15 will be delivered). If the calling name is defined as presentation denied (the originating set has Display Name Denied, Calling Party Privacy, or Calling Line Identification Restriction active), then the calling name privacy indicator[2] is delivered in place of the calling number, or, if no calling number is passed on by the incoming trunk, then the calling name unknown indicator is delivered in place of the calling name.

For a station (set)-to-CLASS set call, the calling name delivered to the CLASS set will be one of the following:

- The calling name associated with the originating DN (if the calling name is longer than 15 characters, only the first 15 will be delivered).
- If no name is defined with the originating DN, then the calling name unknown indicator is delivered in place of the calling name.
- If the originating set has Display Name Deny Class of Service (CLS=NAMD in Overlay 10 or 11), then the calling name privacy indicator is delivered in place of the calling name.

For a station (attendant)-to-CLASS set call, the calling number delivered to the CLASS set will be one of the following:

- The calling name associated with the customer's attendant DN (if the calling name is longer than 15 characters, only the first 15 will be delivered).
- If no name is associated with the customer's attendant DN, then calling name unknown indicator is delivered in place of the calling name.

1.The calling name unknown indicator, per Bellcore CLASS CND delivery standard, refers to the ASCI "O" that is sent in place of the calling name.
2.The calling name privacy indicator, per Bellcore CLASS CND delivery standard, refers to the ASCI "P" that is sent in place of the calling name.

Network engineering for CLASS sets

In a Meridian 1 system with a single group network, the network internal blocking is determined by the concentration ratio of equipped ports on peripheral equipment and the number of interfaced loops or superloops. Depending on traffic engineering, a non-blocking network is achievable.

In a multi-group system, intergroup junctors are required to switch calls between two network groups. Due to the concentration of time slots from a network group to that of inter-group junctors, blocking may occur. This is true for a multi-group Meridian 1 with or without CLASS sets. However, since the CLASS feature depends on a voice path to deliver Calling Name and Number Delivery (CND) to a set, excessive congestion at the inter-group junctor could block the delivery of CND and diminish the usefulness of the feature, as well as impact the grade of service of the existing equipment on the system.

This engineering section examines the inter-group junctor blocking issue and provides recommend engineering rules to alleviate potential network congestion problems.

In general, the engineering effort for CLASS feature can be classified into three categories:

A new site following engineering rules (see page 1111) requires no inter-group junctor traffic check-off.

An existing or new site with relatively low inter-group junctor traffic, will require only one XCMC (Extended CLASS Modem Card) IPE pack that can serve all CLASS sets in a multi-group system.

An existing site with heavy inter-group junctor traffic will require either moving trunks/sets around between network groups when only one XCMC pack is equipped or providing an XCMC pack (or packs) for each group.

Meridian 1 multi-group network

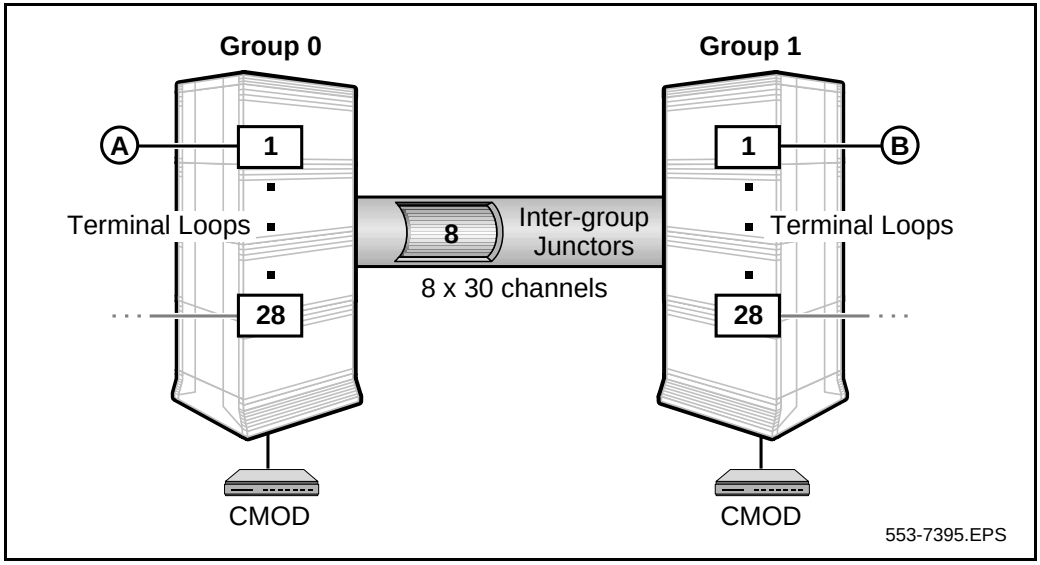
This section is only relevant to a Meridian 1 multi-group network. A single group Meridian 1 system does not have inter-group junctors. Therefore, special engineering on junctor is not applicable. The Option 11C has a network architecture different from the rest of Meridian 1 Options. It has a non-blocking network and does not require any network engineering, except to use Table 39 CMOD (Class MODem) capacity table to find the number of modems needed.

In general, inter-group junctor blocking is most severe when there are only two groups, since under typical traffic distribution assumptions, 50% of calls will stay in the originating group and 50% will terminate on the second group through junctors, unless a Community Of Interest (COI) is known and taken into consideration in engineering to minimize inter-group traffic.

Under the assumption of even distribution of traffic, the percentage of traffic to an inter-group junctor will drop to 33.3% of the total group traffic for a three-group system. Similarly, the junctor traffic will be 25% of group traffic for a four-group system and 20% for a five-group system.

A simplified Meridian 1 with two-group network and CLASS sets is shown by Figure 30.

Figure 30
A Meridian 1 system with a two-group network



Note that traffic to a CLASS set can be originated from a non-CLASS set, another CLASS set or an incoming trunk. Since trunks have more traffic impact on junctor blocking, they are used to illustrate the feature operation, however, both sets and trunks can be traffic sources to CLASS sets.

The maximum size Meridian 1 comprises of 5 network groups. Each group has 32 loops of which 28 can be terminal loops, the rest are service loops (TDS loops for tones, conference and music).

From Group 0 to Group 1, as shown in Figure 30, there are 8 one-way junctors. Similarly, there are another 8 one way junctors from Group 1 to Group 0. For practical purposes, they can be treated as 8 two-way junctors. A two-way path is equal to a voice channel. A junctor has 30 voice traffic channels as on a loop. Each two-way channel represents a conversation path. A channel is also used to deliver the CND from the CMOD to a CLASS set.

CLASS feature operation

A call originated from Set A (or trunk A) seeks to terminate on a CLASS set B. When B starts to ring, A will hear ringback. A unit in CMOD (CLASS Modem) is assigned to collect originator's CND information and waits for the CND delivery interval. After the first ring at B, a silence period (deliver interval) ensues, the CMOD unit begins to deliver CND information to the CLASS set.

The CND information of a traffic source (A) is a system information, which is obtained by the system when a call is originated. During the two-second ringing period of the CLASS set B, A's CND is delivered to CMOD via SSD messages (using a signaling channel only). When the CND information is sent from CMOD to CLASS set B, it is delivered through a voice path during the four-second silence cycle of set B. The CMOD unit is held for a duration of six seconds.

If the XCMC (Extended CLASS Modem Card) IPE pack, which provides up to 32 CMOD units, is located in the IPE of Group 0, the CMOD unit in the pack will receive CND data through the SSD messages and use one of the voice channels of the inter-group junctor to deliver it to CLASS set B in Group 1.

If the XCMC IPE pack is located in Group 1, the system will deliver SSD messages containing CND information to CMOD and then send it to Set B during the delivery interval through a voice path, which is an intra-group channel not involving an inter-group junctor.

When CMOD units and CLASS sets are co-located in the same network group, there are no voice paths on the inter-group junctor required to deliver CND information; when they are equipped on different groups, inter-group junctors must carry CND traffic. The resource allocation algorithm will search for a CMOD unit located in the same group as the terminating CLASS set first before it attempts to use a CMOD unit from a different group.

Inter-group junctor capacity

The time slot allocation algorithm for inter-group junctors is somewhat different from regular network loops, however, it is a close approximation to use the network loop capacity for junctor capacity, since they each have 30 traffic channels.

In order for the connection between a CMOD unit and the remote set (on a different group) to meet the Grade Of Service (GOS) of Meridian 1 for internal call setup, traffic on the loop and inter-group junctor should meet normal GOS requirements, that is 660 CCS per loop or junctor.

If we let an inter-group junctor be loaded to 660 CCS like a loop, the total allowed traffic at eight junctors is 5280 CCS (=660x8). At 6 CCS per CLASS set, the allowed number of sets generating inter-group traffic is 880 (=5280/6). If half of set traffic is intra-group, and the other half inter-group, the allowed number of CLASS sets in Group 1 is 1,760 (=880/0.5). On per loop basis, each loop can be equipped with 62 (=1760/28) CLASS sets.

Similarly, a 3-group network is likely to have 1/3 of traffic remaining in the group, 1/3 of traffic going to the next group, and another 1/3 of calls going to the third group. By using this inverse proportion approach to breakdown traffic flow at junctors, the capacity of a network group in terms of CLASS sets is summarized in Table 38. The entry in the Table 38 is the threshold for inter-group junctor traffic check-off.

The table entry indicates that in a two group system, the second group is allowed to have 1760 CLASS sets or a combination of CLASS and equivalent sets without a need to move sets or trunks around to reduce inter-group junctor traffic. Due to higher traffic, an agent set or a trunk is counted to be equal to four regular sets. The conversion needs to be done before using Table 38.

If the number of equipped sets (CLASS or otherwise) or equivalent sets (sets converted from trunks and agent sets) is less than the threshold, the junctor traffic is expected to be low. There is no special engineering necessary for CLASS sets (other than providing required modems).

Note that the junctor traffic issue can be ignored if each group is fully equipped with sufficient CMOD units to handle CLASS sets within the group. It is the attempt to use one XCMC pack to serve multiple groups that requires special attention to inter-group traffic. As long as CLASS service is not impacted by a traffic in-balance already existed in the system, it is not the objective of this engineering guideline to solve that problem.

Once the threshold is exceeded, re-configuration of the system is necessary to reduce junctor congestion. The detailed engineering rules are given later in this document.

Table 38
Meridian 1 maximum CLASS sets per group (based on inter-group junctor capacity limitation)

No. of Groups	Sets/Group
2	1760
3	2933
4	3520
5	4080

Note: Convert a trunk or an agent set to four equivalent sets before applying Table 38.

A single group system can have as many CLASS sets as each loop allows. The engineering of Meridian 1 is not different from that of non-CLASS sets, since there is no inter-group junctor involved. The only engineering required is to find the required number of CMOD units from Table 39 to serve a given number of CLASS sets.

Note that the capacity per group for multigroup systems assumes no trunking in that particular group (or trunks have been converted to equivalent sets). Therefore, the total system capacity, by taking into account trunks, agent sets and service circuits, will not be as large as a straight multiple of number of groups by the number of sets per group.

The number of allowed CLASS sets per group in Table 38 is strictly a function of inter-group traffic (except for five-group systems). When a system becomes five-group, the junctor capacity is no longer a bottleneck under the assumption of even traffic distribution. The system capacity will become unrealistic if it is purely based on the inter-group junctor capacity, therefore, other system resources, particularly the system CPU, need to be checked. The number 4080 is based on loop traffic (28 loops/7 superloops), not junctor capacity.

If a group comprises of both regular sets and CLASS sets, the total number of sets in the group should not exceed the quoted number in the table. If trunks and agent sets are included in the group, convert them to “equivalent sets” before using Table 38. More details are described in the engineering guide.

Table 39 shows the CMOD capacity. It provides the number of CMOD units required to serve a given number of CLASS sets with the desired grade of service. The required number of CMOD units should have a capacity range whose upper limit is greater than the number of CLASS sets equipped in a given configuration.

The procedure to use Table 39 is further illustrated in engineering examples in the section “Engineering examples” on page 1112.

Table 39
CMOD unit capacity

CLASS Set	1-2	3-7	8-27	28-59	60-100	101-150	151-200	207-267
CMOD Unit	1	2	3	4	5	6	7	8
CLASS Set	268-332	333-401	402-473	474-548	549-625	626-704	705-785	786-868
CMOD Unit	9	10	11	12	13	14	15	16
CLASS Set	869-953	954-1039	1040-1126	1127-1214	1215-1298	1299-1388	1389-1480	1481-1572
CMOD Unit	17	18	19	20	21	22	23	24
CLASS Set	1573-1665	1666-1759	1760-1854	1855-1949	1950-2046	2047-2142	2143-2240	2241-2338
CMOD Unit	25	26	27	28	29	30	31	32

CLASS Set	2339 - 2436	2437 - 2535	2536 - 2635	2637 - 2735	2736 - 2835	2836 - 2936	2937 - 3037	3038 - 3139
CMOD Unit	33	34	35	36	37	38	39	40
CLASS Set	3140 - 3241	3242 - 3344	3345 - 3447	3448 - 3550	3551 - 3653	3654 - 3757	3768 - 3861	3862 - 3966
CMOD Unit	41	42	43	44	45	46	47	48
CLASS Set	3967 - 4070	4071 - 4175	4176 - 4281	4282 - 4386	4387 - 4492	4493 - 4598	4599 - 4704	4705 - 4811
CMOD Unit	49	50	51	52	53	54	55	56
CLASS Set	4812 - 4918	4919 - 5025	5026 - 5132	5133 - 5239	5240 - 5347	5348 - 5455	5456 - 5563	5564 - 5671
CMOD Unit	57	58	59	60	61	62	63	64

General engineering guidelines

Non-Call Center applications

In a non-call center application, there is no significant number of agent sets. Therefore, no agent set to regular set conversion is needed. The only type of port requiring special treatment is trunk.

Configurations following engineering rules (no re-configuration required)

The following engineering rules should be followed to avoid the need to re-configure a switch to accommodate the CLASS feature.

1 Provide the number of CMOD units serving all CLASS sets in the system based on the capacity table (Table 39).

2 Equip all CLASS sets in one network group.

3 Equip the XCMC IPE pack on the network group with CLASS sets.

If the system is a single group system, or if above rules are fully met, no further engineering is necessary. However, in case of an existing multi-group site upgrading to provide CLASS feature, we may need to re-configure the system in order to satisfy rule (2).

When the above rules are not fully met, continue the system engineering by following the procedure in the next subsection.

Re-configuration may be required (when engineering rules are not fully followed)

When above rule (2) can not be satisfied in a new site or an existing one, the following guidelines are designed to minimize network blocking, and to determine whether a re-configuration (to move trunks and sets around) or to provide an XCMC pack per group is necessary.

1 To use Table 39 to estimate CMOD unit requirements, consider only CLASS sets (no trunks or non-CLASS sets).

2 If CLASS sets are equipped in more than one group, locate the XCMC IPE pack in the group with most CLASS sets.

3 Use Table 38 to decide whether re-configuration is required. For a network group with trunks, regular sets and CLASS sets, convert trunks to sets by using the formula: 1 trunk = 4 sets (called equivalent sets), and then add up the total.

Check threshold in Table 38, if the number of equivalent sets is less than 1760 (e.g., for a two-group system), there is no need to re-configure the system.

If the number is greater than 1760, we need to move some of the CMOD units to a second XCMC IPE pack on another group (when CLASS sets are scattered in two groups), or move some sets or trunks from one group to another group to satisfy the threshold.

The following examples will show some of the engineering details of dealing with various alternatives.

To simplify discussion, the network group 0 has minor number of CLASS sets. The majority of CLASS sets are in group 1 (refer to Figure 30).

Engineering examples

One XCMC pack serving a single group system

No special engineering rule is needed for a single group system (Meridian 1 Option 51C or 61C). Look up Table 39 to find the required number of CMOD units to serve the given CLASS sets. For example, to serve an Option 61C with 400 CLASS sets, use Table 39 to find the number of CMOD units serving a range including 400 sets. The result is 10 units which can serve 333 to 401 CLASS sets.

One XCMC pack serving a 2-group system

1 **Example 1**: No re-configuration

A 2-group Meridian 1 system serving an office is expected to convert 400 analog sets to CLASS sets. Currently, 100 of them are located in group 0, where all incoming trunks are located, and the remaining 300 sets are in group 1. Assume that group 1 is also equipped with 800 non-CLASS sets. How many CMOD units are needed to serve this application and does the customer need to re-configure the switch (move sets and trunks between group 0 and group 1) to do the upgrade?

Solution:

The table lookup indicates that 400 CLASS sets need 10 CMOD units. Since one pack provides 32 units, one XCMC pack is sufficient for this customer.

Group 1 is equipped with 300 CLASS sets which is greater than the 100 sets in group 0, the pack should be installed in group 1.

The total equipped ports in group 1 is 1100 (=800+300). For a 2-group system, the second group is allowed to have 1760 sets (from Table 38) without junctor traffic concerns, therefore, there is no need for the customer to re-configure the switch.

2 **Example 2**: Re-configuration

A similar application as in the last example, except that there are 1600 non-CLASS sets and 100 trunks in group 1.

Solution:

The same number of CMOD units (10), since the number of CLASS sets in the system is the same.

The number of total equivalent sets in group 1 is 2300 (=1600 +300 +100x4) which is greater than the 1760 threshold in the Table 38 for a 2-group system.

The customer will have a number of alternatives to resolve the junctor blocking issue, depending on the situation:

(1) move the 100 CLASS sets from group 0 to group 1, so all CLASS sets are served by the XCMC pack in group 1, or

(2) move the 300 CLASS sets and the XCMC pack to group 0, or

(3) move 540 non-CLASS sets (=2300-1760) from group 1 to group 0, or

(4) move 100 CLASS sets from group 1 to group 0 and split the 10 CMOD units to 5 for group 0 and 5 for group 1. However, this will require another XCMC pack to be equipped in group 0. The cost of this approach is not trivial. It can be justified only when growth plan indicates a need for a second pack in the near future anyway.

The final decision depends on the specific situation of a site.

Call Center applications

Configurations following engineering rules (no re-configuration required)

The following engineering rules should be followed to avoid the need to re-configure a switch to accommodate the CLASS feature for call center environment.

1 Convert an agent set to regular set by using 1 agent CLASS set = 4 sets (called equivalent sets)

2 Sum up the total number of regular CLASS sets and equivalent CLASS sets and find the number of CMOD units required based on the capacity table (Table 39).

3 Equip CLASS agent sets in the group where trunks carrying incoming traffic to agent sets are located.

4 Equip non-agent CLASS sets in the same group as the agent CLASS sets.

5 Equip the XCMC IPE pack on the network group with CLASS sets.

If the system is a single group system, or if above rules are fully met, no further engineering is necessary.

In case of an existing multi-group site upgrading to provide CLASS feature, re-configuring the system may be necessary to satisfy rules (3) and (4).

When above rules are not fully met, continue the system engineering by following the procedure in the next subsection.

Configurations do not fully meet engineering rules (re-configuration may be required)

When above rules can not be satisfied in a new site or an existing one, the following guidelines are designed to (1) minimize network blocking, (2) determine whether a re-configuration (to move trunks and sets around) is necessary, or (3) whether separate XCMC packs are necessary to serve the multi-group system.

1 Convert an agent set to regular set by using 1 agent CLASS set = 4 sets.

2 Sum up the total number of equivalent CLASS sets and find the number of CMOD units required based on the capacity table (Table 39).

3 Equip the XCMC IPE pack on the network group with most CLASS sets (or equivalent sets).

4 Limit the number of agent CLASS sets to be 200 or less per group.

5 Limit the number of regular CLASS sets in a group without XCMC pack to be 100 or less.

6 Convert trunks (1 trunk = 4 sets), and agent set (1 agent set = 4 sets) to equivalent sets before using Table 38 to find junctor traffic threshold.

7 If the threshold in Table 38 is greater than the total number of equivalent sets, traffic in the system is balanced, there is no need for further network engineering.

8 If the number of equivalent set is greater than the threshold, one or all of the following engineering rules should be followed to reduce junctor traffic:

a Move sets (CLASS or non-CLASS) or trunks to another group to satisfy the above engineering rules.

b Equip XCMC pack in more than one group to serve local CLASS set traffic.

9 When a trunk route is known to serve only agent sets, and these trunks and agent sets are in the same group, exclude them from the set count in Table 38 threshold (e.g., do not include trunks and agent sets with known COI to use Table 38; they do not generate traffic to junctors).

The following examples will show some of the engineering details of dealing with various alternatives.

To simplify discussion, the network group with most trunks is called group 0, consequently, a majority of CLASS sets, if not all, are in group 1. If most agent CLASS sets and XCMC pack are in group 0, there will ne no need for further engineering.

Engineering Examples

One XCMC pack serving a single group system

No special engineering rule is needed for a single group system. Look up Table 39 to find the required number of CMOD units to serve the given CLASS sets. For example, to serve an Option 61C with 300 agent CLASS sets, use Table 39 to find the CMOD units that can serve 1200 equivalent sets (=300x4). The result is 20 units.

One XCMC pack serving a 2-group system

1 **Example 1**: No re-configuration required

A two-group Meridian 1 system serving a call center is expected to upgrade 300 analog sets (100 administrative sets and 200 agent sets) to CLASS sets. The 100 administrative sets are located in group 0, where are also located all incoming trunks. The 200 agent sets are in group 1, which will continue to be used as agent sets after upgrading. Assume that group 1 is also equipped with 500 non-CLASS sets. How many CMOD units are needed to serve this application and does the customer need to re-configure the switch (move sets and trunks between group 0 and group 1) to do the CLASS feature upgrade?

Solution:

The table lookup indicates that 900 equivalent CLASS sets (=100+200x4) need 17 CMOD units. Since one pack provides 32 units, one XCMC pack is sufficient for this customer.

Group 1 is equipped with 200 agent CLASS sets or 800 equivalent sets which is greater than the 100 sets in group 0, the pack should be installed in group 1.

The total equipped ports in group 1 is 1300 (=200x4+500). For a 2-group system, the second group is allowed to have 1760 sets (from Table 38) without junctor traffic concerns, therefore, there is no need for the customer to re-configure the switch.

In addition, both “100 CLASS sets in a group without CMOD units (group 0)”, and” 200 agent CLASS sets in a group separate from incoming trunks (group 1)” statements are within engineering rules, therefore, no re-configuration is necessary.

2 Example 2: Re-configuration required

A similar application as in the last example, but there are 1600 non-CLASS sets in group 1.

Solution:

The same number of CMOD units (17) is required, since the number of equivalent CLASS sets (900) in the system is the same.

Equip the 17 CMOD units in group 1, since the XCMC pack should be equipped in the group with most CLASS (equivalent) sets.

The number of total equivalent sets in group 1 is 2400 (=1600+200x4) which is greater than the 1760 threshold in Table 38 for a two-group system.

The customer will have a number of alternatives to resolve the junctor blocking issue, depending on the situation:

Move the 100 CLASS sets from group 0 to group 1, or

Equip the 200 CLASS agent sets and the XCMC pack in group 0, or

Move 640 non-CLASS sets (=2400-1760) from group 1 to group 0 to avoid threshold violation, or

Move 100 CLASS sets from group 1 to group 0 and split the 17 CMOD units to 10 for group 0 and 7 for group 1; however, this will require another XCMC pack to be equipped in group 0, or

Move 160 trunks with COI to agent sets from group 0 to group 1, so that the total equivalent sets in group 1 will become 1760 (=1600+(200-160)x4), since this way the 160 trunks and an equal number of agent sets will not generate traffic to junctors.

The final decision depends on the specific situation of a site.

3 **Example 3**: Mixed sets, trunks in both groups and re-configuration required

A two-group Meridian 1 system serving a call center is expected to equip 200 administrative CLASS sets in group 0 and 400 CLASS agent sets in group 1. 500 trunks carrying incoming traffic to agents are located in group 0, 60 trunks serving local CO non-ACD traffic are equipped in group 1. Assume that group 1 is also equipped with 300 non-CLASS sets. Can this configuration meet engineering rules? How many CMOD units are needed?

Solution:

The equivalent CLASS sets in system = 200 + 400x4 = 1800. From Table 39, 27 CMOD units are needed. It requires the XCMC pack to be equipped in group 1.

When we equip the XCMC pack in group 1, there are three violation of rules: (1) the number of CLASS sets in the group without CMOD units (group 0) is greater than 100, (2) the number of agent sets in a group without incoming trunks (group 1) is 400 which exceeds the 200 per group limit, and (3) the violation of threshold in Table 38 for group 1 (=400x4+60x4+300=2140>1760). Several alternatives are available to make this configuration meeting engineering rules:

Move 100 CLASS sets and 400 incoming trunks from group 0 to group 1; all above 3 violations are removed by this re-configuration: (1) CLASS sets in group 0 is 100, (2) 400 CLASS agent sets and 400 incoming trunks with COI are in the same group (group 1), (3) the number of equivalent sets in group 1 for threshold check-off is reduced to 640 (=100+60x4+300=640) which is certainly within the limit (1760).

However, it is impractical to put almost all trunks and agent sets in one group (group 1). With so many rule violations, the most realistic approach is to move 200 CLASS agent sets to group 0 and equip approximately 15 CMOD units in group 0 and 12 units in group 1.

One XCMC pack serving a 3-5 group system

Chances of groups larger than three requiring special engineering are slim, since the threshold (Table 38) limiting the number of sets per group is much higher.

If the rule of co-locating CLASS sets and CMOD units in the same group is not fully met, as long as basic rule like putting XCMC pack in the group with most CLASS sets is followed, perhaps, no re-configuration between any two groups is necessary.

However, if in doubt, isolate any two groups at one time, and go through the two-group engineering procedure to re-configure the system two groups at a time. Ignore the rest of system during the engineering process, except for calculating the total number of CMOD units, which should cover the need of all CLASS sets in the system. However, during a two-group engineering, only the number of CMOD units attributable to the two-group at hand should be used in calculations.

Also remember to use 2933 (equivalent) sets per group for threshold check-off for the three-group system, and their respective number for four- and five-group systems (Table 38).

The complete check-off of set threshold between any two groups in a multi-group system can be represented by the following combinations (a number denotes the group number: e.g., 1-2 represents group one-group 2):

three-group: 1-2, 1-3, 2-3.

four-group: 1-2, 1-3, 1-4, 2-3, 2-4, 3-4.

five-group: 1-2, 1-3, 1-4, 1-5, 2-3, 2-4, 2-5, 3-4, 3-5, 4-5.

It should be noted that although CMOD units are equipped according to the traffic requirement of CLASS sets in a network group for the inter-group junctor traffic consideration, they are a system resource shared by the whole system.

Operating parameters

Dialed Number Identification System (DNIS) is not supported by the CLASS feature.

This feature has been developed for the North American residential market, as well as for the small business, hospitality, schools and universities, nursing homes and hospitals, and mobile home markets.

This feature applies to a standalone environment, and to an ISDN networking environment supporting CLID and a non-ISDN networking environment with or without In-Band Automatic Number Identification (ANI).

If the CLASS Calling Number Delivery and CLASS Calling Name Delivery data to a CLASS set is lost, there is no indication, such as an error message, provided. The call is presented in the normal manner, as if the CLASS CND function has not been activated.

A maximum of 10 digits can be delivered as the calling number, and a maximum of 15 characters can be delivered as the calling name. These are Bellcore limitations.

The 16 port Analog Message Waiting line card (QPC789A) is not supported for CLASS: Calling Number and Name Delivery.

Up to 255 CLASS modems can be configured on a Meridian 1 system, and up to 32 CLASS modem units can be configured on any Extended CLASS Modem card.

No CLASS CND traffic measurement is supported.

The CND delivery interval is the first silent interval, after ringing has been applied for a new call, that is greater than two seconds. If the ringing applied to the CLASS set uses a cadence with a ring-off cycle that is more than four seconds in duration, then the CLASS set might view the call as having been disconnected and might clear the CND display as a result. This is a CLASS set firmware limitation.

Due to firmware limitations on some types of CLASS sets, after a call has been disconnected, the CND information associated with the disconnected call may still appear on the CLASS set's display for several seconds. During this time, the CLASS set cannot display new CND information. Though the Meridian 1 delivers the CND information pertaining to a new call, there is no guarantee that the CLASS set will display the delivered information.

Feature interactions

Attendant Call Extension

When an attendant extends a call to a CLASS set, the Calling Name and Number of the attendant is delivered to the CLASS set, and not that of the extended station.

Automatic Wake Up

When an Automatic Wake Up call is presented to a CLASS set with Calling Name Delivery activated, then the calling name unknown indicator is delivered in place of the calling number.

Blind Transfer

When a Meridian 1 proprietary set completes a Blind Transfer to a CLASS set, the Calling Name and Number of the transferring set is delivered to the CLASS set, and not that of the set being transferred. When an analog (500/2500 type) set completes a Blind Transfer to a CLASS set, the transfer is presented as a new call to the CLASS set. Therefore, the Calling Name and Number of the transferred set is delivered to the CLASS set.

Call Forward All Calls

When a call is redirected to a CLASS set via Call Forward All Calls, the Calling Name and Number of originating set, and not that of the forwarding set, is delivered to the CLASS set.

Call Forward, Internal

When a call is redirected to a CLASS set via Internal Call Forward, the Calling Name and Number of originating set, and not that of the forwarding set, is delivered to the CLASS set.

Call Transfer

When a Call Transfer has been completed, the Calling Name and Number of the transferred party will not be delivered.

Calling Line Identification Restriction for ISDN BRI sets

When an ISDN BRI set, with Calling Line Identification Restriction active, makes a nodal call to a CLASS set with Calling Name Delivery active, the calling name privacy indicator will be delivered as the calling name.

Conference/No Hold Conference

When a set initiates a conference call to a CLASS set, the Calling Name and Number of the initiating set is delivered to the CLASS set.

Dial Intercom

The CLASS Calling Name and Number class of service cannot be configured on Dial Intercom Group sets.

Direct Inward System Access (DISA)

If a call is made to a CLASS set via DISA dialing, then the Calling Name and Number delivered to the CLASS set is that of the incoming trunk and not the DISA DN. This is consistent with the normal display function for DISA calls.

Display of Calling Party Denied

When a set with Display of Calling Party Denied active makes a nodal call to a CLASS set with Calling Number Delivery active, then the calling name privacy indicator is delivered in place of the calling name.

Distinctive Ringing

The normal delivery cycle for Calling Name and Number Delivery applies to calls presented to a CLASS set with distinctive ringing, that is, the Calling Name and Number Delivery information is delivered during the first silent period that is longer than two seconds.

Flexible Numbering Plan (FNP) Enhancement

For a customer equipped with the FNP package 160, the calling number delivered to the CLASS set can be of any length, up to 10 digits.

For a customer not equipped with FNP, the following apply:

- For a station (set or attendant) making a call to a CLASS set, if the local public number is to be delivered to the CLASS set as the calling number of the calling station, then the Meridian 1 software will pad or truncate the calling number to be exactly seven digits long.

- For a station (set or attendant) making a call to a CLASS set, if the national number is to be delivered to the CLASS set as the calling number of the calling station, then the Meridian 1 software will pad or truncate the calling number to be exactly 10 digits long.
- For an incoming trunk call to a CLASS set, the incoming Calling Number Identification/Automatic Number Identification that is passed to the CLASS set be of any length, up to 10 digits.

Group Call

When a set makes a Group Call to a CLASS set with Calling Number Delivery active, the calling number unknown indicator will be delivered in place of the calling number.

When a set makes a Group Call to a CLASS set with Calling Name Delivery active, the calling name unknown indicator will be delivered in place of the calling name.

Hotline

When a Hotline call is made to a CLASS, then the Calling Name and Number is delivered in the same manner as when a call is presented to the CLASS set via normal dialing.

Hunt

When a call is redirected to a CLASS set via Hunt, the Calling Name and Number of originating set, and not that of the redirecting set, is delivered to the CLASS set.

Incremental Software Management (ISM)

While no new ISM limit is introduced by the CLASS feature, each CLASS modem unit TN is counted against the system TN limit and is reflected in the overlay banner.

Feature Group D

When an incoming Feature Group D trunk call is presented to a CLASS set with Calling Number Delivery active, the calling number delivered to the CLASS set will be one of the following:

- If the Feature Group D trunk route is configured so as to not show the incoming ANI (SHAN = NO in Overlay 19), the calling number privacy indicator is delivered in place of the calling number.

- If no ANI is passed on, then the calling number unknown indicator is delivered in place of the calling number.
- Otherwise, the incoming Feature Group D trunk ANI is directly delivered.

In-Band ANI

When an incoming In-Band ANI trunk call is presented to a CLASS set with Calling Number Delivery active, the calling number delivered to the CLASS set will be one of the following:

- If no ANI is passed on, then the calling number unknown indicator is delivered in place of the calling number.
- Otherwise, the incoming In-Band ANI is directly delivered.

Integrated Services Digital Network

When an incoming Integrated Services Digital Network (ISDN) trunk call is presented to a CLASS set with Calling Number Delivery active, the calling number delivered to the CLASS set will be one of the following:

- If the incoming CLID is defined as display denied (the originating set has Display Digit Denied, Calling Party Privacy, or Calling Line Identification Restriction active), then the calling number privacy indicator is delivered in place of the calling number, or, if no CLID is passed in from the incoming trunk, then the calling number unknown indicator is delivered in place of the calling number.
- If no CLID is passed on by the incoming trunk, then the calling number unknown indicator is delivered in place of the calling number.
- Otherwise, the CLID received from the incoming ISDN trunk is directly delivered. If the CLID is longer than 10 digits, only the first 10 will be delivered.

When an incoming ISDN trunk call is presented to a CLASS set with Calling Name Delivery active, the calling name delivered to the CLASS set will be one of the following:

- If the calling name is defined as presentation denied (the originating set has a Display Name Denied, Calling Party Privacy, or Calling Line Identification Restriction active), then the calling name privacy indicator is delivered instead of the calling name.

- If no calling name is passed on by the incoming trunk, then the calling name unknown indicator is delivered in place of the calling name.
- Otherwise, the calling name received from the incoming ISDN trunk is directly delivered. If the calling name is longer than 15 characters, only the first 15 will be delivered.

Meridian 911

When an incoming M911 trunk call is presented to a CLASS set with Calling Number Delivery active, the calling number delivered to the CLASS set will be one of the following:

- If no ANI is passed on, then the calling number unknown indicator is delivered in place of the calling number.
- Otherwise, the incoming ANI is directly delivered.

Private Line Service

When a Private Line Service call is made to a CLASS, then the Calling Name and Number is delivered in the same manner as when a call is presented to the CLASS set via normal dialing.

VIP Automatic Wakeup

When an attendant makes a VIP Automatic Wakeup call to a CLASS, then the Calling Name and Number is delivered in the same manner as when the attendant makes a call to the CLASS set via normal dialing.

Virtual Network Services (VNS)

When an incoming VNS trunk call is presented to a CLASS set with Calling Number Delivery active, the calling number delivered to the CLASS set will be one of the following:

- If the incoming CLID is defined as display denied (the originating set has Display Digit Denied, Calling Party Privacy, or Calling Line Identification Restriction active), then the calling number privacy indicator is delivered in place of the calling number.
- If no CLID is passed on by the incoming VNS trunk, then the calling number unknown indicator is delivered in place of the calling number.
- Otherwise, the CLID received from the incoming VNS trunk is directly delivered. If the CLID is longer than 10 digits, only the first 10 will be delivered.

When an incoming VNS trunk call is presented to a CLASS set with Calling Name Delivery active, the calling name delivered to the CLASS set will be one of the following:

- If the calling name is defined as presentation denied (the originating set has a Display Name Denied, Calling Party Privacy, or Calling Line Identification Restriction active), then the calling name privacy indicator is delivered in place of the calling name.
- If no calling name is passed on by the incoming VNS trunk, then the calling name unknown indicator is delivered in place of the calling name.
- Otherwise, the calling name received from the incoming VNS trunk is directly delivered. If the calling name is longer than 15 characters, only the first 15 will be delivered.

Feature packaging

The following packages are required for the CLASS Calling Name and Number Delivery feature:

- Calling Party Name Display (CPND) package 95
- CLASS Calling Number Delivery (CNUMB) package 332
- CLASS Calling Name Delivery (CNAME) package 333 and

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

1 LD 15 - Configure the CLASS CLID parameters in the Customer Data Block.

2 LD 10 - Configure the CLASS Calling Name and Calling Number Delivery Class of Service for Analog (500/2500 type) sets.

3 LD 13 - Configure the CLASS modem unit (up to 255 CLASS modem units may be configured per Meridian 1 system).

LD 15 - Configure the CLASS CLID parameters in the Customer Data Block.

Prompt	Response	Description
REQ:	CHG	Change or delete existing data.
TYPE:	NET	Networking data.
CUST	xx	Customer number.
...		
CLID		CLID option.
	(NO)	NO = (the default) do not configure a CLID table. In this case, the remaining prompts are not generated, and no CLID is sent for the customer.
	YES	YES = configure a CLID table for the customer.
- SIZE	0-(256)-4000	The maximum number of CLID entries that are required.
...		
- ENTRY	aaaa Xaaaa Xaaaa Xbbbb <CR>	aaaa = CLID entry to be configured. Xaaaa = CLID entry to be deleted. Xaaaa Xbbbb = CLID entries to be deleted. aaaa and bbbb must be a value between 0 and (SIZE-1). The action for the entry will be saved to system memory after the CLID entry has been completely configured. If an existing CLID entry is changed, the message "ENTRY aaaa SAVED" is displayed. If a CLID entry or CLID entries is/are deleted, the message "ENTRY aaaa DELETED" or "ENTRIES aaaa-bbbb DELETED" is displayed.
...		
- LSC	0-9999999 X	Local steering code, 1-7 digits. X = delete digits.
- - CLASS_FMT	(DN) LCL NTN	Send internal DN to a CLASS set as the calling number. Send local number to a CLASS set as the calling number. Send National Number to a CLASS set as the calling number.

ENTRY aaaa SAVED ENTRY aaaa DELETED ENTRIES aaaa-bbbb DELETED ...	Displayed message. Refer to the ENTRY prompt description.

Note 1: You may print the CLASS_FMT information included in the CLID using **LD 21**.

Note 2: You may print or count the station sets class of service using **LD 81**. This information would typically be used for billing purposes, to bill set users for calls according to the assigned class of service.

LD 10 - Configure the CLASS Calling Name and Calling Number Delivery Class of Service for Analog (500/2500 type) sets.

Prompt	**Response**	**Description**
REQ:	**CHG**	**Change existing data.**
TYPE:	500	Telephone type.
TN	l s c u c u	Terminal address. For Option 11C.
...		
DN	x..x yyyy	Directory Number for this set (x..x) and CLID entry associated with this set (ENTRY configured in LD 15).
	(CNUD) CNUA CNUS (CNAD) CNAA	CLASS Calling Number Delivery Denied. CLASS Calling Number Multiple Data Format Allowed. CLASS Calling Number Single Data Format Allowed. CLASS Calling Name Delivery Denied. CLASS Calling Name Multiple Data Format Allowed. Refer to the section “Configure CND Class of Service on CLASS sets” on page 1099 for details. ***Note:*** *These Class of Service entries are not valid for a Dial Intercom Group (DIG) set.*

CLS ...		

LD 13 - Configure the CLASS modem unit (up to 255 CLASS modem units may be configured per Meridian 1 system).

Note: While no new ISM limit is introduced by the CLASS feature, each CLASS modem unit TN is counted against the system TN limit and is reflected in the overlay banner.

Prompt	Response	Description
REQ	NEW CHG	Add new data Change existing data.
TYPE	CMOD	CLASS modem unit.
DMOD	1-127	Default Model number for this route (Option 11)
TN	l s c u c u	Modem unit Terminal Number for Options 51C-81C. Modem unit Terminal Number for Option 11C. ***Note:*** *Since the CLASS modem unit uses the octal-density Extended CLASS Modem Card (XCMC), up to 32 units can be configured on any XCMC card.*

Note: You can print the CMOD unit information using **LD 20**.

Feature operation

No specific operating procedures are required to use this feature.

CLASS: Visual Message Waiting Indicator

Contents

The following are the topics in this section:

Feature description

The Custom Local Area Signaling Service (CLASS) Visual Message Waiting Indicator (VMWI) feature allows a CLASS set to receive a visual indication that messages are waiting. The visual indicator may be in the form of a lighting or flashing Light Emitting Diode (LED), or a special message on a liquid crystal display, or both. The type of visual indicator depends on the firmware of the CLASS set being used.

Note: For a non-Class set, lighting the Message Waiting Lamp through a high voltage message (Voltage Message Waiting) is still supported and operates in the same way as it did before.

The visual indication message (an “ON/OFF” CLASS VMWI specific message) is delivered from the Meridian 1 to the CLASS sets using Frequency Shift Keying (FSK) signaling based on Bellcore specifications, via a CLASS modem (CMOD) unit. The CMOD units are configured using LD 13. Once configured, the CMOD units are shared throughout a multi-customer Meridian 1 system. When an FSK message is presented to a CLASS set, an available CMOD unit is automatically allocated.

After all messages are retrieved, the visual indicator is cleared. The CLASS VMWI feature will not be able to turn off the message waiting indicator until the CLASS set has returned to the idle state, even though all of the messages have been retrieved by the user.

The CLASS VMWI feature supports the Bellcore Single Data Message Format (SDMF) and Multiple Data Message Format (MDMF) messaging. These formats are configured in the Meridian 1 database using LD 10. To use SDMF, a Class of Service of CNUS is required. For MDMF, a Class of Service of CNUA and/or CNAA is required.

The following description outlines the general functionality of the CLASS VMWI feature.

The following scenarios affect the sending of an ON or OFF message indicator to a CLASS set.

If the CLASS set is idle:

- the ON/OFF message is sent immediately to the set.

If the CLASS set is busy:

- as soon as the CLASS set becomes idle (goes on-hook), the system immediately sends the VMWI message to the set.

If the CLASS set or CMOD unit is disabled (via LD 32 or 30), or no CMOD unit is available:

- the CLASS VMWI feature will automatically abort the VMWI message. The CLASS set is then checked every 10 seconds, for up to 2 1/2 hours, until the set is detected to be idle. At that time, the system will immediately deliver the VMWI message.

If a CLASS set is in the middle of receiving a VMWI message, and the CLASS set goes off-hook:

- the VMWI message will be aborted. The CLASS set is checked every 10 seconds, for up to 2 1/2 hours, until the set is detected to be idle. At that time, the system will immediately deliver the VMWI message.

Note that, if the CLASS VMWI feature is waiting to send an “ON/OFF” message and another “ON/OFF” message is requested, only the last “ON/OFF” message is actually sent to the CLASS set.

The CLASS VMWI feature supports Nortel Networks and third party CLASS sets, if these sets are Bellcore VWMI compliant.

The following figures depict a typical feature operation and system resource allocation scenario for a CLASS Visual Message Waiting Indication being presented to a CLASS set. Note that the representation is for an ON message being delivered to the CLASS set. The same operation and system resource allocation applies for an OFF message being sent, except that the contents of the message would be different.

Figure 31
CLASS set is in idle state

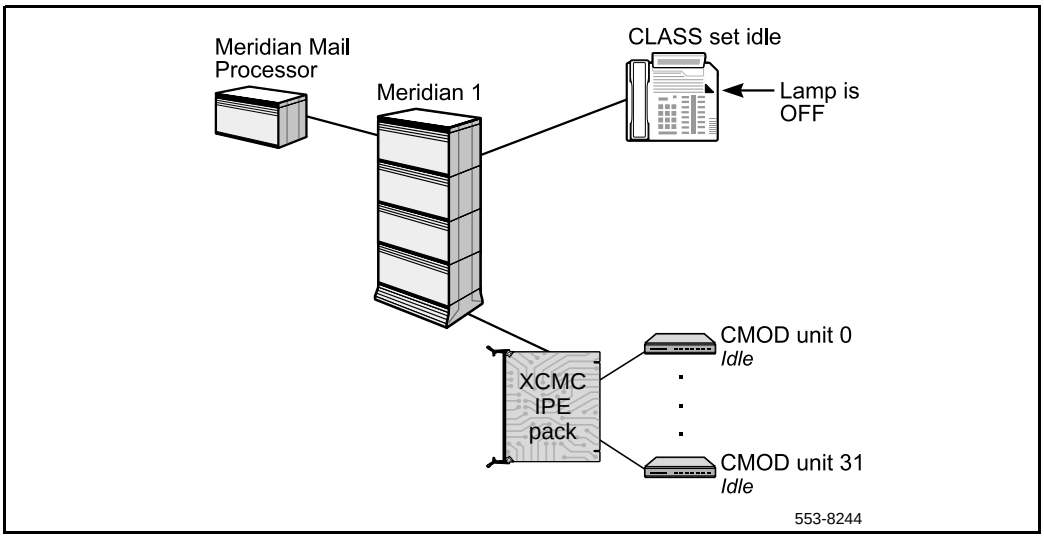


Figure 32
CLASS VMWI ON message in the process of being delivered to the CLASS set

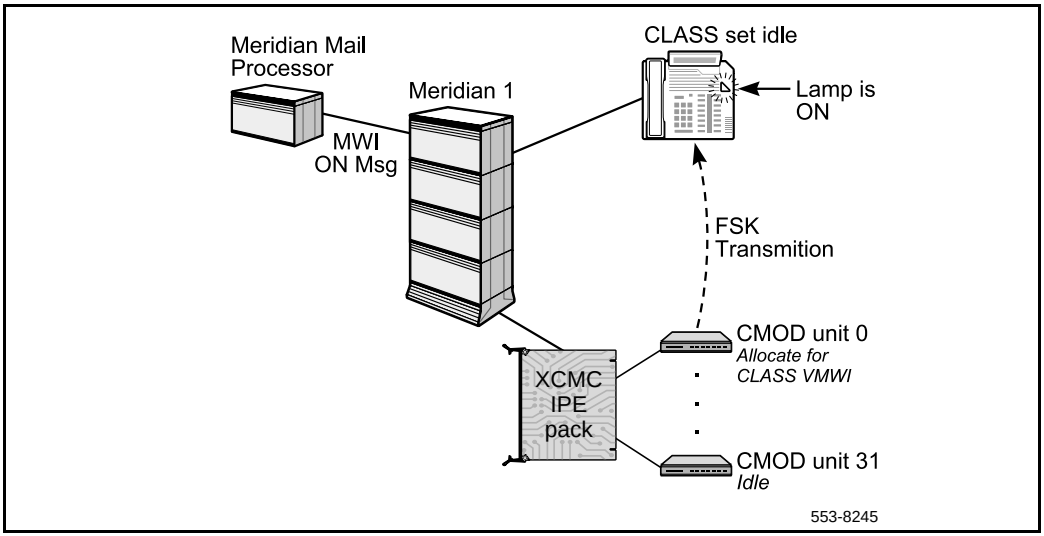
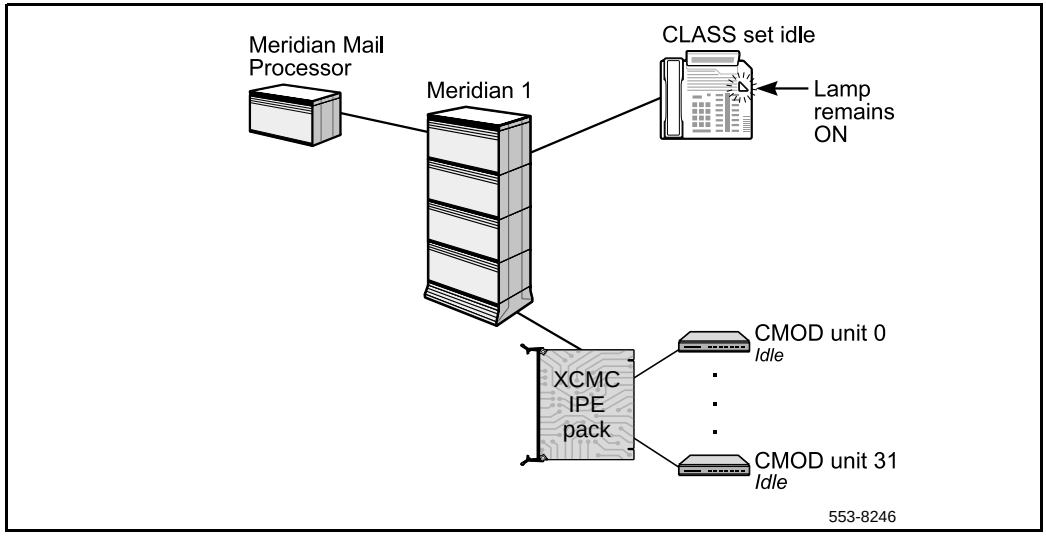


Figure 33
CLASS VMWI has been delivered to the CLASS set



Operating parameters

This feature has been developed for the North American residential market, as well as for the small business, hospitality, schools and universities, nursing homes and hospitals, and mobile home markets.

When a craftsperson uses Overlay 10 to administer a service change to a CLASS set, if the Meridian 1 software identifies, during overlay wrap-up, that the CLASS VMWI feature is waiting to send a visual indication to the set being serviced, a SCH1099 message will be generated, indicating that the VMWI pending message is lost and no retry will be attempted. The service change itself does not trigger any messages to the set.

Some CLASS sets, like the Nortel Networks's M9000 series of sets, support both voltage and CLASS (FSK) Message Waiting. However, once the CLASS set is configured in LD 10, then the Meridian 1 will no longer send voltage messages to the set.

If a CLASS set that previously used FSK messaging to receive Visual Message Waiting Indication has the Class of Service changed to be a non-CLASS set that uses Voltage Message Waiting, the visual indicator will not operate correctly. The following will occur:

- Voltage Message Waiting will work if the set is returned to the no message waiting state (visual indicator is dark) before switching over from FSK to voltage.
- Voltage message waiting will not work if the set is left at the message waiting state (visual indicator is lit) before switching from FSK to voltage.

It is up to the craftsperson to ensure that a CLASS set is correctly configured to support the CLASS VMWI feature.

Up to 255 CMOD units may be configured on a Meridian 1 system. Once configured, the CMOD units are shared throughout a multi-customer Meridian 1 system. When an FSK message is transmitted to a CLASS set, an available CMOD unit is automatically allocated.

If a CLASS set with a lit message waiting indicator retrieves all of its messages, the CLASS VMWI feature will not be able to turn off the message waiting indicator until the CLASS set has returned to the idle state.

Lamp audit does not apply to the CLASS VMWI feature.

There is a 2 1/2 hours time limit for a retry in the case of a pending message.

Up to 255 CLASS modem units can be configured on a Meridian 1 system, and up to 32 CLASS modem units can be configured on any Extended CLASS Modem card.

Feature interactions

Attendant Console

When a CLASS set that is on a call with the attendant goes on-hook, the call will not be released until the attendant releases the call. The CLASS VMWI feature will wait until the call is actually disconnected before sending the VMWI message to the CLASS set that had already gone on-hook

Call Party Control Incoming

When a CLASS set on an active call is placed in Call Party Control Incoming (CPCI) state, the set will not be presented with any other incoming call. The CLASS VMWI feature will not send the VMWI message to the CLASS set to turn the visual indication ON or OFF, until the set releases the active call.

Make Set Busy

When a CLASS set is in the Make Set Busy state, the set will not be presented with incoming calls. Although no incoming calls are presented to the set, VMWI message can still be sent to the CLASS set to turn the visual indication ON or OFF, as long as the set is in the idle and on-hook state.

Meridian Mail

The CLASS VMWI feature makes use of Meridian Mail by having the Meridian Mail functionality communicate with the Meridian 1 system to inform the CLASS set to turn the visual message waiting indicator ON or OFF. The Meridian 1 software determines the appropriate type of protocol based on the configuration of the CLASS set, and sends it to the set to turn the visual message waiting indicator ON or OFF.

Message Waiting

In order to support the CLASS VMWI functionality on a CLASS set, the Message Waiting feature has been enhanced to turn the message waiting indicator ON or OFF on the CLASS set through FSK signalling.

In addition, the CLASS VMWI feature can interwork with Stuttered Dial Tone. The Stuttered Dial Tone functionality (which is part of the Flexible Tones and Cadences feature) provides an audible indication, rather than a visual one, that a message is waiting. It is configured separately from the CLASS VMWI feature, using the Class of Service (CLS) prompt in LD 10. If the LPA (Lamp Allowed) response is entered, then a CLASS visual indication is sent. If the LPD (Lamp Denied) response is entered, then Stuttered Dial Tone is sent instead. Note that the Stuttered Dial Tone and CLASS visual indication are mutually exclusive. A CLASS set may receive either Visual or Stuttered Dial Tone as a message waiting indicator, but not both.

Permanent Hold

When a CLASS set is placed on permanent hold, the set is still treated as though it is presented with a phone call. The CLASS VMWI feature will not send the VMWI message to the CLASS set to turn the visual indication ON or OFF, until the set actually goes on-hook or the call is not presented to the set. At this time, VMWI message will be sent to the CLASS set to update the visual message waiting status.

Set Relocation

When a CLASS set is relocated, the CLASS VMWI feature will lose the message when the set finishes the relocation. An SCH1099 error message is printed to indicate that the CLASS VMWI message is lost and no automatic retry will be attempted.

Feature packaging

The following packages are required for the CLASS VMWI feature:

- Message Waiting Center (MWC) package 46
- CLASS Calling Number Delivery (CNUMB) package 332, or
- CLASS Calling Name Delivery (CNAME) package 333, and

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

1 LD 10 - Configure a CLASS set as an analog (500/2500 type) set, and configure the required Class of Service for the set.

2 LD 13 - Configure the CLASS modem unit (up to 255 CLASS modem units may be configured per Meridian 1 system).

LD 10 - Configure a CLASS set as an analog (500/2500 type) set, and configure the required Class of Service for the set.

Prompt	Response	Description
REQ:	**CHG**	**Change existing data.**
TYPE:	500	Telephone type.
TN	l s c u	Terminal address for the set, for Options 51C, 61C, 81C, where l = loop, s = shelf, c = card, u = unit.
	c u	For Option 11C, where c = card, u = unit.
CUST	xx	Customer number, as defined in LD 15. xx = 0-99 for Option 51C, 61C, 81C. xx = 0-31 for Option 11C.
...		
DN	xxxx	Directory Number for the set.
...		
CLS		Class of Service for the CLASS set.
	MWA LPA	Message Waiting Allowed. Visual Indication (Lamp) Allowed.
		Note: At least one of the following CLASS CLS must be allowed.
	CNUA CNUS CNAA	CLASS Calling Number Multiple Data Format Allowed. CLASS Calling Number Single Data Format Allowed. CLASS Calling Name Multiple Data Format Allowed.

...		

LD 13 - Configure the CLASS modem unit (up to 255 CLASS modem units may be configured per Meridian 1 system).

Prompt	Response	Description
REQ	NEW CHG	Add new data Change existing data.
TYPE	CMOD	CLASS modem unit.
DMOD	1-127	Default Model number for this route
TN	l s c u	Modem unit Terminal Number for Options 51C, 61C,81C, where l = loop, s = shelf, c = card, u = unit.
	c u	For Option 11C, where c = card, u = unit.
		Note: *Since the CLASS modem unit uses the octal-density Extended CLASS Modem Card (XCMC), up to 32 units can be configured on any XCMC card.*

Note: You may print the CMOD unit information using **LD 20**.

Feature maintenance and diagnostics

LD 30 and LD 32

LD 30 and LD 32 handle CLASS VMWI messaging, in the case that a CMOD unit or a CLASS set is in the state of being disabled. Any CLASS VMWI message that is in progress will be aborted. A check every 10 seconds, for up to 2 1/2 hours, will be done on the CLASS set until another CMOD unit is found or the CLASS set is enabled, before a VMWI message is actually sent to the set to perform visual indication.

LD 77

LD 77 is used to monitor CLASS VMWI messaging.

Feature operation

No specific operating procedures are required to use this feature.

CLID on Analog Trunks for Hong Kong (A-CLID)

Contents

The following are the topics in this section:

Feature description

With the Calling Line Identification on Analog Trunks (A-CLID) feature and the DXUT-A card (NTRB37AA), on an incoming Central Office (CO) call, Meridian 1 can extract information such as:

- Calling Party Number
- Calling Party Name
- Reason for absence of Calling Party Number or Name (if necessary)

The A-CLID information is treated similar to ISDN CLID for delivery to other modules and applications in the system, including the display on digital telephones and consoles at the local node and other network nodes (if any).

You can enable or disable A-CLID on an individual trunk port basis.

The A-CLID information passes to the terminating party, which includes:

- Trunks - ISDN (PRI/BRI/QSIG), R2MFC (DTI/DTI2, Analog)
  - — Calling Party Number information can be tandemed over all ISDN and R2MFC interfaces
  - — Calling Party Name information can be tandemed only on SL1 and QSIG ISDN interfaces. R2MFC does not support name information.
- Terminals - Attendant Consoles, Telephones (CLASS, 2208 with display, 2216, 2616, 2317, 5317, M3000, M3902, M3903, M3904, M3905)
- Applications - Call Pilot, Customer Controlled routing, Meridian Mail, Meridian Link, Symposium Call Center Server (calling party number only)

Figure 34 describes the feature operation.

Figure 34
System structure for CLID delivery

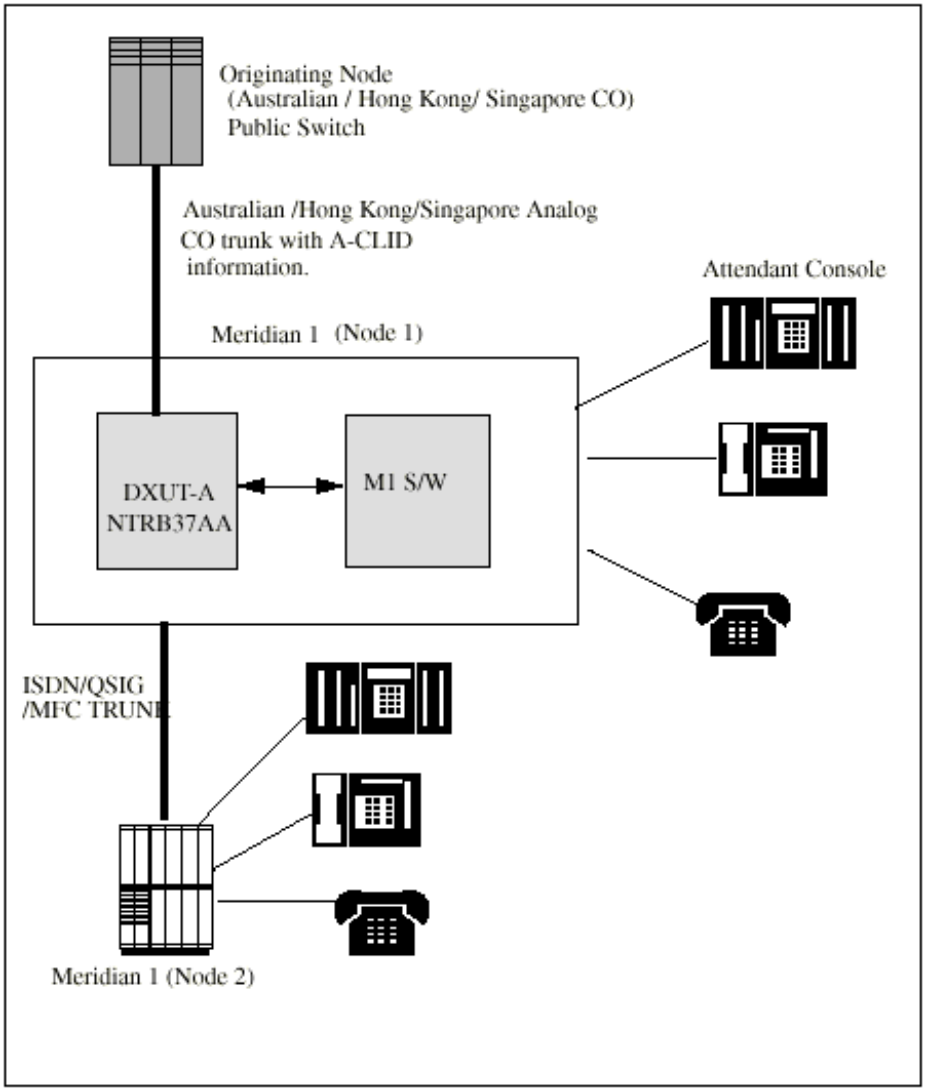


Table 40 shows the display format for different combinations of analog CLI information.

If you do not receive the calling number (“P” or “O” is received as the reason for absence), the display shows the P/O route access code number and member number.

If you do not receive the calling name (“P” or ”O” is received as the reason for absence), then the display shows “PRIVATE” or ”UNAVAILABLE”.

If you do not receive either the calling name, or its reason for absence, then the display shows “UNAVAILABLE”.

Table 40
Format of CLI information

Calling Number	Reason for Absence of Calling Number	Calling Name	Reason for Absence of Calling Name	Display Format
491893021	-	JOHN SMITH	-	JOHN SMITH 491893021
-	“O “	PAY PHONE	-	PAY PHONE O-8015-1
-	“O “	-	-	UNAVAILABLE O-8015-1
-	“O “	-	“O “	UNAVAILABLE O-8015-1
-	“P “	-	-	UNAVAILABLE P-8015-1
-	“P “	-	“P “	PRIVATE P-8015-1
P = Private	O = Other			

Operating parameters

The A-CLID feature is only for incoming loop start trunks (both supervised and non-supervised) in Hong Kong.

Direct Inward Dialing (DID) trunks do not support the A-CLID feature.

A-CLID requires one mode: On-hook data transmission with ring.

If you initialize the system while the CLID information is transferring from the DXUT-A card to software:

- you lose all CLID information not sent.
- you lose the un-established call (a call is established after the software receives the complete CLID information).

If the call is established, and you initialize the system, the call is restored. However, maintaining the displayed information is not guaranteed.

> ***Note:*** If system initialization occurs after the A-CLID call is in the agent queue, the ACD module must display the CLID information after the call is established.

If the cyclic redundancy check (CRC) fails, the call terminates without displaying the CLID (“UNAVAILABLE” and “O-Route access code number - Member number” for name and number display).

If data transmission stops half-way, the call terminates without displaying the CLID (“UNAVAILABLE” and “O-Route access code number - Member number” for name and number displays).

The system can receive, process, and display alphanumeric characters as CLI information. No CLI information displays if the CO transmits information in another format.

A maximum display of 20 digits and 27 characters is possible with this feature.

When the call is tandemed to an ISDN/MFC trunk, only the first 16 digits of A-CLID passes on.

This feature does not change the functionality of R2-MFC trunks. R2-MFC trunks display the route access code number when the CLI information is not available, and not the member number.

If the system receives unrecognized messages or parameter types, the call terminates without displaying the CLID ("UNAVAILABLE" and "O-Route access code number - Member number" for name and number displays).

The A-CLID feature delays the occurrence of the first ring. The terminating set rings when the complete FSK message is received, or the software times out waiting for the FSK message.

When a DISA call is abandoned, the CO trunks will be busy for a short period of time before disconnecting. This is characteristic of CO trunks.

Feature interactions

Attendant Call Extension

If an attendant extends a call from an incoming A-CLID CO trunk, the terminating set receives the analog CLI information.

CLASS: Calling Number and Name Delivery

The analog CLI information is given to the XCMC service pack to provide number and name display to analog CLASS telephones. The CLASS telephones can only display the CLI information when the incoming CO call is auto-terminated on that telephone.

For calls terminating on a CLASS set, only the:

- calling party number and name information display.
- first 15 characters of the information display.

Direct Inward System Access (DISA)

If a user connects to the Meridian 1 system through Direct Inward System Access (DISA) dialing, the incoming trunk information is passed, not the DISA DN information.

Information Notification Service for Japan

The A-CLID feature does not work with the Information Notification Service for Japan (INS-J) feature.

Private Line Service

A-CLID information does display on the telephone.

Feature packaging

This feature requires Analog Calling Line Identification (ACLI) package 349

Feature implementation

Task summary list

The following task is required:

LD 14 – Configure analog CLI.

Use the Calling Line Identification Allowed (CLIA) Class of Service (CLS) in Overlay 14 to activate the A-CLID feature on an individual port basis.

Note: If EXUT is configured on a DXUT-A card pack, and the ACLI package is equipped, then the default CLS is Calling Line Identification Denied (CLID) for all incoming CO trunks to that card.

LD 14 – Configure analog CLI.

Prompt	Response	Description
REQ	CHG NEW x	Change existing data block. Add new data block to the system. Follow NEW with a value of 1-255 to create that number of consecutive trunks.
TYPE	COT	Central Office Trunk data block.
....	....	
XTRK	EXUT	Enhanced Extended CO trunk card.
....	....	
SIGL	LOP	Loop start

....	....	
CLS	CLIA (CLID)	Class of Service options for trunks. Calling Line Identification Allowed Calling Line Identification Denied (default)
....	....	

Feature operation

No specific operating procedures are required to use this feature.

Collect Call Blocking

Contents

The following are the topics in this section:

Feature description

In Brazil an automatic long distance collect call service called DDC is available. The Collect Call Blocking feature enables a Meridian 1 administrator to block DDC calls on incoming Direct Inward Dialing (DID) and Public Exchange/Central Office trunks (analog or DTI2). Under the following conditions, the Meridian 1 sends a special answer signal to the Central Office to indicate to the Central Office that collect calls cannot be accepted:

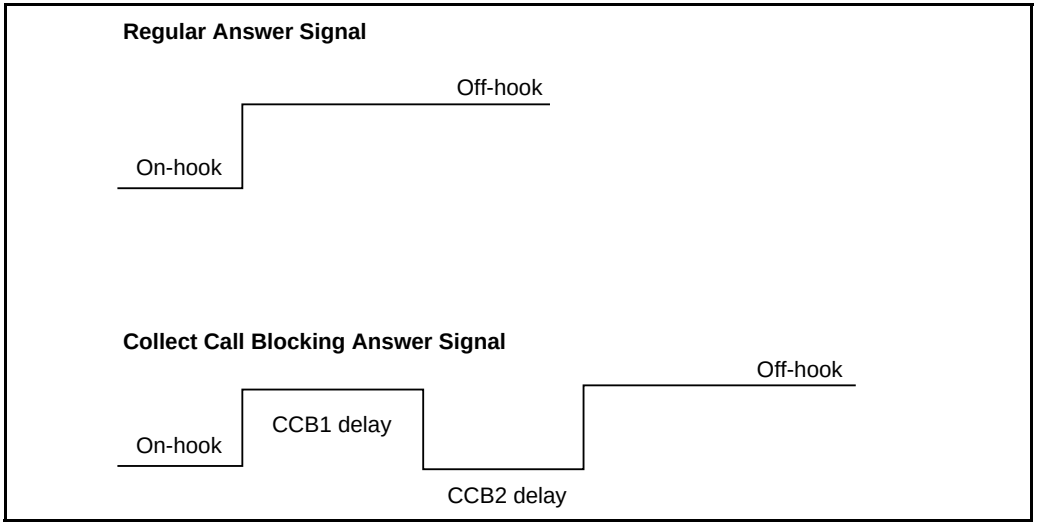
- The Collect Call Blocking (CCB) package 290 is enabled
- The incoming route has CCB enabled via the CCB prompt in the Route Data Block, and
- The call is answered by a CCB user (that is, Collect Call Blocking Allowed Class of Service or option).

Classes of Service and prompts have been introduced to inhibit specific users from receiving collect DID and Central Office calls. These can be configured for the following:

- analog (500/2500 type) telephones and Meridian 1 proprietary telephones through the Collect Call Blocking Allowed/Denied (CCBA/CCBD) Class of Service.
- Attendant and Network Alternate Route Selection calls on a per customer basis through CCBA/CCBD option.
- Automatic Call Distribution (ACD) queues through the CCBA prompt.
- Direct Inward System Access (DISA) through the CCBA prompt.
- Tandem calls dialed with Coordinated Dialing Plan (CDP) (Trunk Steering Code, Distant Steering Code) through the CCBA prompt.
- Tandem non-CDP calls through the CCBA prompt in the Route Data Block from the outgoing trunk route.

The Meridian 1 sends the CCB answer signal in place of the regular signal for incoming DID/CO calls from routes with CCB enabled, when a call is answered by a CCB user. If the call is a collect call, the CO will disconnect the call.

Figure 35
Collect Call Blocking answer signal compared to regular answer signal



Operating parameters

The Collect Call Blocking feature supports both analog and DTI2 trunks, and the following Intelligent Peripheral Equipment (IPE) cards:

- the NTCK16BB Extended Flexible COT Trunk Card (XFCOT) with firmware flash timing
- the NT8D14BA Enhanced Extended Universal Trunk Card (EXUT) containing the Centrex Switchhook Flash function in the firmware, and
- the NT8K14AK Extended Universal Trunk Card (XUT) which may be used if the Centrex Switchhook Flash is configured with software timing.

The Collect Call Blocking answer signal can only be sent in cases where answer supervision is provided by the Meridian 1.

Once the modified answer signal is sent to the CO, the Meridian 1 has no control over how the call will be handled by the CO.

If a CCB user answers a call from a CO/DID route with Collect Call Blocking activated, the CCB answer signal is sent to the CO for all incoming DID and CO calls. For analog trunks, the user will experience clicking on the line and a temporary break is speechpath (0.5 to 2.5 seconds) while the CCB answer signal is being sent.

If the XFCOT and EXUT cards do not have flexible firmware timing, the CCB flash portion of the CCB answer signal will be ignored by firmware, and the regular answer signal will be returned to the CO. However, software controlled signaling can be done with EXUT cards.

In a standalone environment, all input from a set (except from the Release key) is ignored while the Collect Call Blocking answer signal is being sent.

Collect Call Blocking is applied to attendants on a customer basis only; it cannot be applied on a tenant basis.

The answer signal returned for a call from a route with CCB enabled and that is Network Attendant Service (NAS) routed is determined by the customer option on the source node. Thus, NAS routing can be configured across any Meridian Customer Defined Network environment, but the source node determines the answer supervision sent to the CO.

Call Detail Recording (CDR) record timing begins on the first answer of the CCB answer sequence. For this reason, CDR records will be generated for incoming calls to CCB users across routes on which CCB is enabled. If the call is collect, and is dropped, a CDR record of approximately CCB1 + CCB2 length will be generated.

For data calls, all calls will be answered with the CCB answer signal, if CCB is enabled. This may have an effect on data protocols, while CCB signaling is taking place.

If firmware timing is used (FWTM = YES in Overlay14) for sending the CCB flash, the CCB2 timer is downloaded to the card before sending the firmware flash. If the CCB2 timer is changed in the Route Data Block, either the card has to be enabled or the switch has to be initialized to get the new CCB2 timer downloaded to the card.

Feature interactions

Automatic Answerback

The Automatic Answerback (AAB) feature, when assigned to a Meridian 1 proprietary telephone, allows any incoming call to a single-appearance Prime Directory Number (PDN) to be answered automatically. If an incoming DID or CO call terminates on a set with the AAB feature enabled, the call is automatically answered after one ring. If the set has a CCBA Class of Service, the CCB answer signal is provided in the place of the regular answer signal.

Automatic Call Distribution

Collect Call Blocking can be enabled on an ACD queue basis. Hence, if an incoming CO or DID call is answered by an ACD agent, the answer supervision signal that is returned to the CO is determined by the value of the CCBA prompt in Overlay 23. While the CCB answer signal is being sent, the same limitations apply to ACD as apply to sets with CCBA Class of Service.

Automatic Call Distribution Interflow

If an ACD call from a route with CCB enabled is diverted to an interflow DN, and answer supervision has not already been provided, the answer signal returned to the CO depends on the source ACD queue. The CCB answer signal is returned to the CO if the source ACD queue has CCB enabled.

Automatic Call Distribution Night Call Forward

During Night Call Forward (ACD) call processing, the source ACD queue is removed or overwritten. Therefore, the CCB treatment given will be based on the queue the call happens to be in at the time the call is answered.

Automatic Call Distribution Night RAN Route Announcement

If an ACD call from a route with CCB enabled is diverted to a Night RAN route (defined by NRRT in the ACD block), the CCB signal returned to the CO depends on the source ACD queue. If the source ACD queue has CCB enabled, the CCB answer signal is sent to the CO.

Automatic Call Distribution Overflow

If an ACD call from a route with CCB enabled is diverted to an overflow ACD DN and answer supervision has not already been provided, the answer signal returned to the CO depends on the source ACD queue from where the call came. If the source ACD queue has CCB enabled, the CCB signal is sent to the CO.

Autoterminate

If an incoming DID or CO call from an autoterminate trunk terminates on a set or ACD queue with a CCBA Class of Service, the CCB answer signal is provided in place of the regular answer signal.

Basic Rate Interface (BRI) Sets

For BRI sets CCBA/CCBD Class of Service cannot be programmed. Therefore, it is not possible to prevent BRI sets from accepting DDC collect calls.

Central Answering Position

The answer signal returned to the CO for calls that get answered by a Central Answering Position (CAP) is determined by the source ACD configuration and not the customer option (CCBA/CCBD in Overlay 15) on the source node.

Centralized Attendant Service

The answer signal returned to the CO for calls that get answered by a Centralized Attendant Service is determined by the customer option (CCBA/CCDB in Overlay 15) on the source node.

Centrex Switchhook Flash

A Centrex Switchhook Flash cannot be invoked by another feature while the CCB answer signal is being sent.

Malicious Call Trace - Enhanced

If a station activates Malicious Call Trace (MCT) while the CCB answer signal is being sent, MCT activation is ignored. This also applies to the case when MCT is activated from a remote node.

Meridian Mail

Because Meridian Mail is configured using ACD queues, the same interactions exist as in the ACD case. When Meridian Mail sends a call answer message to the Meridian 1, the CCB configuration in the source ACD queue is used to determine if a CCB answer signal should be sent to the Central Office. All mail boxes using the same ACD queue to access Meridian Mail will get the same CCB treatment.

If some of the mail boxes are allowed to receive collect calls, this may be a problem. A possible solution is to configure two ACD queues on the Meridian 1 to access Meridian Mail. One queue would have collect calls allowed and the second queue would have collect calls denied.

Network Automatic Call Distribution

The answer signal returned to the CO for a network ACD call from a route with CCB enabled is determined by the source ACD queue. If the source ACD queue has CCB enabled, the CCB answer signal is returned in place of the regular answer signal.

Pilot DN

If an incoming DID or CO call has CCB enabled and is routed to a pilot DN, the answer signal returned to the CO is determined by the CCB configuration of the terminating station.

Private Line Service

If an incoming DID or CO call from a private line trunk terminates on a set with a CCBA Class of Service, the CCB answer signal is provided in place of the regular answer signal.

Recorded Announcement

A Recorded Announcement (RAN) route is defined as having CCBA YES or NO, which is used if Coordinated Dialing Plan (CDP) or ACD queues were not used to get to the RAN route. If the call is routed through ACD/CDP to terminate on RAN, the CCB treatment will depend upon the CCB data of the ACD/CDP, and not of the RAN route.

Tandem to Unsupervised Trunk

If an incoming DID or CO call tandems to an unsupervised trunk before it terminates, the answer signal is sent by time-out. Therefore, any CCB tandem calls made to unsupervised trunks will not have the CCB answer signal sent until the time-out occurs.

Trunk Hook Flash

If a station activates Trunk Hook Flash (THF) while the CCB answer signal is being sent, THF activation is ignored.

Feature packaging

Collect Call Blocking (CCB) package 290 must be provisioned to activate this feature.

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

1 LD 16 – Enable Collect Call Blocking on a route and configure timers.

2 LD 14 – Setup the firmware timing for XFCOT and EXUT cards.

3 LD 15 – Allow Collect Call Blocking for attendants.

4 LD 10 – Enable Collect Call Blocking for analog (500/2500 type) telephones.

5 LD 11 – Enable Collect Call Blocking for Meridian 1 proprietary telephones.

6 LD 23 – Enable Collect Call Blocking on ACD queues.

7 LD 24 – Enable Collect Call Blocking on DISA blocks.

8 LD 87 – Enable Collect Call Blocking on CDP Steering codes.

LD 16 – Enable Collect Call Blocking on a route and configure timers.

Prompt	Response	Description
REQ	NEW CHG	Add. Change.
TYPE	RDB	Route Data Block.
CUST	0-99 0-31	Customer number. For Option 11C.
ROUT	0-511 0-127	Route Number. For Option 11C.
TKTP	aaa	Trunk type. Must be COT, DID, FEX, or WAT for CCB.
...		

M911_ANI	NO	M911 route. Must be set to NO to enable CCB.
...		
ISDN	NO	ISDN route. Must be set to NO to enable CCB.
...		
ICOG	IAO ICT OGT	Incoming and outgoing, incoming, or outgoing. Must be either IAO or ICT to enable CCB. Must be either IAO or OGT to get the CCBA prompt for outgoing calls.
...		
CNTL	(NO) YES	Change to controls or to timers.
...		
CCB	(NO) YES	Collect Call Blocking enabled or disabled on incoming route. CCB package 290 is required. Enter YES to obtain CCB timer prompts.
CCB1	512-(1536)-4992	Collect Call Blocking delay timer 1 in milliseconds. Input rounded to the next multiple of 128 milliseconds.
CCB2	500-(1520)-2550	Collect Call Blocking delay timer 2 in milliseconds. Input rounded to the next multiple of 10 milliseconds. If any CCB route members (trunks) are using firmware timing (FWTM = YES in LD 14), changes to the CCB2 timer value will not take effect until the new timer value is downloaded to the card. This can be done by enabling the card or initializing the switch.
CCBA	(NO) YES	Collect Call Blocking allowed or denied for outgoing route.

LD 14 – Setup the firmware timing for XFCOT and EXUT cards.

Prompt	Response	Description
REQ	NEW CHG	Add. Change.
TYPE	DID COT FEX WAT	Trunk Type.
TN	l s c u c u	Terminal Number. Terminal Number for the Option 11C.
XTRK	EXUT XCOT	Type of card.
FWTM	(NO) YES	Firmware timing for flash. Enter YES to enable firmware timing.
CUST	0-99 0-31	Customer number. For Option 11C.
RTMB	0-511 0-510 0-127 0-510	Trunk route and member number. For Option 11C.
SUPN	YES	Answer supervision required.

LD 15 – Allow Collect Call Blocking for attendants.

Prompt	Response	Description
REQ:	NEW CHG	Add. Change.
TYPE:	FTR	Gate opener.
CUST	0-99 0-31	Customer number. For Option 11C.
- OPT	CCBA	Allow Collect Call Blocking. CCBD =Default

LD 10 – Enable Collect Call Blocking for analog (500/2500 type) telephones.

Prompt	Response	Description
REQ:	NEW CHG	Add. Change.
TYPE:	500	Telephone type.
TN	l s c u c u	Terminal Number. Terminal Number for the Option 11C.
...		
CLS	(CCBD) CCBA	(Deny) allow Collect Call Blocking.

LD 11 – Enable Collect Call Blocking for Meridian 1 proprietary telephones.

Prompt	Response	Description
REQ:	NEW CHG	Add. Change.
TYPE:	aaaa	Telephone type, where: aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, or 3000.
TN	l s c u c u	Terminal Number. Terminal Number for the Option 11C.
...		
CLS	(CCBD) CCBA	(Deny) allow Collect Call Blocking.

LD 23 – Enable Collect Call Blocking on ACD queues.

Prompt	Response	Description
REQ	NEW CHG	Add. Change.
TYPE	ACD	ACD data block.
CUST	0-99 0-31	Customer number. For Option 11C.
ACDN	xxxx	ACD Directory Number.
...		
CCBA	(NO) YES	(Deny) allow Collect Call Blocking.

LD 24 – Enable Collect Call Blocking on DISA blocks.

Prompt	Response	Description
REQ	NEW CHG	Add. Change.
TYPE	DIS	DISA data block.
CUST	0-99 0-31	Customer number. For Option 11C.
...		
DN	xxxxxxx	DISA Directory Number.
...		
CCBA	(NO) YES	(Deny) allow CCB answer signal to be sent.

LD 87 – Enable Collect Call Blocking on CDP Steering codes.

Prompt	Response	Description
REQ	NEW CHG	Add. Change.
CUST	0-99 0-31	Customer number. For Option 11C.
FEAT	CDP	Coordinated Dialing Plan.
TYPE	TSC DSC	Steering code type.
...		
CCBA	(NO) YES	(Deny) allow Collect Call Blocking.

Feature operation

No specific operating procedures are required to use this feature.

Conference

Contents

The following are the topics in this section:

Reference list

The following are the references in this section:

- “Music, Enhanced” on page 2297

Feature description

Conference adds additional parties to an established call. The maximum is three or six, depending on the Conference feature assigned to the conference call originator. Not all conference parties have to be local to the Meridian 1, although one party must be an internal Directory Number (DN) to uphold the conference connection. The attendant can also establish six-party conferences.

Meridian 1 proprietary telephones require a separate Conference 3 or Conference 6 key/lamp pair. M2317 and M3000 Touchphones establish conference calls by means of a softkey. Analog (500/2500 type) telephones use the switchhook to establish a three-party conference.

The six-party Conference (C6A) Class of Service enables analog (500/2500 type) telephones to establish a six-party conference, which operates the same as a three-party conference, with the exception of Conference Control operation.

Conference Control disconnects an unwanted third party (trunk only) from a three-party conference. Analog (500/2500 type) telephone users implement this feature by means of switchhook flash. Telephones with the six-party conference capability implement Conference Control by dialing SPRE + 87.

It is recommended that all analog (500/2500 type) telephones have either the three-party conference (C6D) Class of Service or the six-party Conference (C6A) Class of Service to avoid confusion when using Conference Control.

Operating parameters

Due to the possibility of getting annoying noise (squealing, for example) when two or more trunks are involved in a conference, it is strongly recommended that no more that two trunks be involved in the process.

At least one party in the conference must be a telephone on the local Meridian 1 for the duration of the conference call.

Attendant Administration does not support the implementation of six-party conference for analog (500/2500 type) telephones. An error message is displayed if an attempt is made to remove Transfer Allowed (XFA) Class of Service for analog (500/2500 type) telephones with a C6A Class of Service.

A Transfer allowed (XFA) Class of Service is required for a three-party conference (C6D) and is also a prerequisite for the six-party conference Class of Service (C6A) on analog (500/2500 type) telephones.

Dial access of Conference Control is provided only for analog (500/2500 type) telephones with a C6A Class of Service.

The number of timeslots is limited to 30 per conference loop. For Option 11C, a maximum of five simultaneous conferences, each consisting of six conference users, is supported per conference loop.

Double conferences are blocked to avoid conference chains (that is, set A and set B are on an established call. The user of set B presses the Conference key to call set C. Any attempt by set C to initiate another conference is blocked if set B has not yet completed the conference).

While the originating side of a call is linked to a transfer or conference key (that is, the originator of a transfer/conference call has not yet completed the transfer/conference), the terminating side cannot initiate a transfer or conference. Conference calls cannot be transferred.

A warning tone is available for conference calls. When the option is enabled, the tone lets callers know that they are entering a conference call. The switch for this option is preset to disable the warning tone. For information on the switch settings for the NT8D17 Conference/TDS card, refer to *Circuit card installation and testing*.

Feature interactions

500/2500 Line Disconnect

If one of the parties in the conference is connected to a 500/2500 port that is in turn connected to a Voice Response Unit (VRU), dial tone is provided to the 500/2500 port when all the other parties in the conference disconnect. This feature enhancement applies in the same way to Call Transfer and Hunting.

AC15 Recall: Transfer from Meridian 1

The use of the Conference key does not activate the AC15 Recall: Transfer from Meridian 1 feature. Conference call is not supported because it is not possible to have two parties on the same trunk.

AC15 Recall: Timed Reminder Recall

The conference feature is sometimes used to perform a transfer when a controlling party establishes a call, the controlling party establishes a conference with a third party and releases, and a call is established between the two remaining parties.

If an established call is extended over a trunk to initiate a conference call, this conference call cannot be set up if this trunk has answer supervision and the called extension has not answered. The AC15 Timed Reminder Recall feature cannot be activated by using the conference feature to extend a call over an AC15 TIE trunk, because the AC15 TIE trunk must have answer supervision and the called extension must be ringing.

AC15 Recall: Transfer from Norstar

It is not possible in any situation with Transfer from Norstar to establish a three-party conference. It is not possible for an AC15 trunk to initiate a consultation if it is involved in a conference.

Advice of Charge for EuroISDN

If a set is participating in a conference, no charge is displayed for that set. Whenever an ISDN CO trunks that provides Advice of Charge (AOC) is added to a conference, the call charging information, received from the network, accumulates against the set that initiates the call.

Once the last set involved in a conference call disconnects, a search is made of all trunks remaining in the conference call to determine which trunk has been established in the call for the longest period of time. This trunk becomes the chargeable TN. Once this trunk disconnects, the process is repeated so a new chargeable TN can be located.

Attendant Barge-In
Attendant Busy Verify

Conference Control cannot be activated if an attendant has used Barge-In or Busy Verify during a conference that involves a trunk.

Attendant Break-In

If the attendant cannot break in to a conference call because the call is supporting the maximum number of callers, busy tone continues and the Break-In key lamp flashes.

Attendant Console

Three-party Conference (C6D) allows analog (500/2500 type) telephones on established calls to flash the switchhook and Dial 0 to talk to the attendant. Six-party conference users follow the same sequence, but the conference loop is seized and the call is treated as a conference call. When only two parties remain from the conference, the call is returned to a simple call if neither of the remaining parties is an Attendant Console.

Attendant Overflow Position

An Attendant Overflow Position (AOP) call answered on an AOP DN may be conferenced with another DN.

Autodial Tandem Transfer

The Autodial Tandem Transfer feature is blocked during Conference and No Hold Conference calls.

Automatic Redial

When an Automatic Redial (ARDL) call is not accepted by the calling party, the Conference (A03 or A06) key is ignored.

B34 Codec Static Loss Plan Downloading
B34 Dynamic Loss Switching

When a conference connection is established, no pads are switched in on the trunk side; any extra loss that is required is provided by the conference circuit based on an algorithm which takes into account the number of lines and trunks.

Call Forward All Calls

On analog (500/2500 type) telephones, Call Forward All Calls can be activated or canceled during a conference call.

Call Forward by Call Type

Calls modified by Conference receive Call Forward by Call Type treatment for the conferenced telephone. If party A calls party B, and B tries to conference in party C, the forwarding DN and Class of Service are that of C. For example, Joan and Bob are in conversation, and they try to conference in Mack. Mack is not at his desk, so the attempted conference call is sent to the destination associated with Mack’s telephone.

Call Page Network Wide

A station set or Attendant Console that conferences an external Call Page Network Wide (PAGENET) uncontrolled call is not blocked. However, an external PAGENET controlled call is blocked.

Call Park

A parked call can be accessed after Conference is activated

Call Party Name Display

When pressed during an active call, or to set up a conference, the Conference, Connect, or Join Parties key clears the display. The telephones involved in the conference have blank displays. If the conference returns to a two-way only call, each telephone displays the DN and name of the other telephone.

Call Pickup

This feature cannot be activated during a conference call. Meridian 1 proprietary telephones can activate Call Pickup if an idle Directory Number (DN) key is available. The conference call must be put on hold before pressing the idle DN key to pick up the call.

Call Pickup Network Wide

Call Pickup Network Wide may be used to pickup an enquiry call from a conference, subject to the same limitations as apply to Call Transfer.

Call Transfer

Conference can be used to transfer calls, eliminating the need for a separate Call Transfer key/lamp pair on Meridian 1 proprietary telephones. Calls in the ringing state cannot be transferred with Conference. The third party must answer before the transfer can be completed.

A conference can also be established after initiating a Call Transfer operation. After the third party answers, pressing the Conference key establishes a three-way conference.

When a switchhook flash transfers calls on analog (500/2500 type) telephones with three-party conference (C6A) Class of Service, the transferring party goes on hook, leaving the other two parties established. Telephones with a C6A Class of Service involved in a conference having more than three parties must add the last party to the conference, then flash the switchhook and go on hook to complete the transfer.

Called Party Disconnect Control

Trunks with Called Party Disconnect Control allowed are treated as trunks without disconnect supervision when conferenced.

Calling Party Name Display Denied

Call Party Name Display, and thus the Calling Party Name Display Denied enhancement, do not apply to conference calls.

Calling Party Privacy

The Calling Party Privacy (CPP) feature will pass the Privacy Indicator to the terminating set to inhibit the display of the Calling Party Name and Number if the Conference feature is used for the purpose of performing a transfer.

Camp-On, Forced

Telephones involved in Conference calls cannot be camped on to. Overflow tone is returned to telephones attempting Forced Camp-On.

Centrex Switchhook Flash

Centrex Switchhook Flash (THF) allows conference calls through the CO. It can be invoked only if there is an established call connected to an outside trunk. If the telephone is engaged in internal conference calls, THF cannot be used.

Charge Account and Calling Party Name

Conference calls produce multiple Call Detail Recording (CDR) records. Whenever a new trunk is added to a conference, the connection between the connected telephone and the trunk is recorded, and a connection to the conference loop is established. This causes CDR to generate a start record with the telephone and trunk identified as the involved parties. As trunks are removed from a conference, CDR end records are produced. These records may identify different telephones or conferences as the local parties.

China – Attendant Monitor

If any party involved in a monitored call attempts to activate conference, monitoring is immediately deactivated. With Attendant Monitor active, the attendant cannot create a conference without first disabling the Attendant Monitor feature.

China – Supervised Analog Lines

If a terminal device answers an incoming call and then initiates a conference, no battery reversal answer supervision signal is extended to the terminal device when new parties of the conference answer. However, a hook flash disconnect supervision signal is extended to the terminal device when the last party in the conference disconnects.

If a terminal device initiates a conference, battery reversal answer supervision is extended to the terminal device when the first party answers. No polarity change is made when additional parties are added to the conference. The polarity is reverted to normal when the terminal device disconnects or when the last party in the conference disconnects.

China – Toll Call Loss Plan

Toll Loss Plan is not supported when a conference is in progress. When a local party connecting to a toll call makes a conference call, the pad levels on the ONS line card are switched back to their original (non-toll call) values. Then, the existing Conference algorithm takes care of the necessary pad switching. This would not alter the existing conference call in terms of loss levels.

When a conference call joins in a toll call, the Toll Loss Plan is not effective.

When a conference call involving a toll call becomes a two-party call, the Toll Loss Plan is applied on the set and DTI2 trunk.

The conference pad switching algorithm is not changed for the Toll Loss Plan, since the 7 db requirement does not apply to a Conference call.

Controlled Class of Service

If Controlled Class of Service (CCOS) is activated at a telephone involved in a conference call, established Central Office or toll calls are not affected. The CCOS restriction level is applied immediately, and no new calls can be initiated from the conference. The telephone remains in the CCOS active state after the conference is terminated.

Controlled Class of Service, Enhanced

If Controlled Class of Service (CCOS) is activated at a telephone on a conference call, established Public Exchange/Central Office or toll calls are not affected. The CCOS restriction level is applied immediately; however, no new calls can be initiated from the conference. That telephone remains in the CCOS state after the end of the conference.

Dial Access to Group Calls

The Conference feature cannot be applied to a Group Call.

Dial Intercom

If an analog (500/2500 type) telephone is part of a Dial Intercom Group (DIG), the user of the telephone can conference only with another user whose telephone is within the same Dial Intercom Group (DIG).

Digital Private Signaling System #1 (DPNSS1) Executive Intrusion

Executive Intrusion is denied if the requested party is established in a local conference, or if the requested party is involved in an enquiry call. These restrictions may apply to the unrequested party depending on the connection being used between the requested and unrequested parties.

End-to-End Signaling

The Attendant Console and the telephone receiving Attendant End-to-End Signaling cannot both activate End-to-End Signaling simultaneously.

Group Call

Neither Call Transfer nor Conference can be initiated during a Group Call. If an analog (500/2500 type) telephone user flashes the switchhook during an established Group Call, the user is dropped from the call.

Held Call Clearing

Active Conference calls are cleared by an on-hook or Release key action. Conference calls being held are cleared by an on-hook action only, and not by a Release key action. In either case, all other parties on the conference remain connected.

Hot Line

A Flexible Hot Line (non-enhanced) telephone cannot place conference calls, but an Enhanced Hot Line telephone can activate the conference feature. If the Hot Line restriction option is set, the conference call can terminate only to other Hot Line telephones. If the restriction option is not set, the conference call can terminate to any type of telephone.

ISDN QSIG/EuroISDN Call Completion

A Call Completion request cannot be made on a conference call attempt.

ISDN QSIG Name Display

An incoming QSIG call with name display presentation allowed is conferenced locally. When a conferee drops out of the conference, calling party's name information is displayed and is passed on to another conferee. Name display information remains until the last local set remains on the call.With presentation restricted, the calling party's name information is not displayed as conferees leave the call.

In-Band Automatic Number Identification

If an agent activates the Conference feature while active on an In-Band Automatic Number Identification (IANI) call, the display is cleared. The display remains clear while the Conference call is active. If the conferenced party releases first, the ANI number appears on the agent's display.

Malicious Call Trace

When a station or console that is on the conference loop activates the MCT feature, the trace record shows only the conference loop number and conference number as the ORIGTN, and the Terminal Number (TN) of the station or console that activated the feature as the TERTN. No information on the other parties in the conference is given.

Malicious Call Trace - Enhanced

If MCT is activated during a conference, the trace record shows the conference number and the conference loop number. Trace records are printed for each party involved in the conference. The originator of the call's trace record is printed first.

Meridian Mail Conference Control

Three- and six-party conference allows 2500 telephones to disconnect from Meridian Mail by dial access during a conference call.

A 2500 telephone on an established call flashes the switchhook to place the existing call on Consultation Hold. After receiving special dial tone, the user dials the third party. If the third party does not answer, the call is forwarded to Meridian Mail. If the 2500 telephone flashes the switchhook again, a three-party conference is established, including Meridian Mail. If the user does not flash the switchhook at this time, Privacy is in effect and the user can disconnect from Meridian Mail by dial access before returning to the original call. This can be done if the user is in conference or on a simple two-party call.

To disconnect from Meridian Mail, press octothorpe (#) to stop the recorded greeting, octothorpe (#) to stop recording your message, and 83 to disconnect. To disconnect from any other message system connected to Meridian 1, press 3 to stop the recorded message and the asterisk (*) to disconnect.

Meridian 911

When a call is answered, and then conferenced, the trunk priority is lost (the conference consultation call is an internal call and treated as low priority by the software). This operation is the same for normal calls and 911 calls.

Meridian 911 - Call Abandon

M911 abandoned calls cannot be conferenced.

Message Registration

The party that originates a call is charged. The charge cannot be moved to another party using Conference.

Multi-Party Operations

Current Conference feature for analog (500/2500 type) telephones with C6A is not affected by conference with TSA Class of Service.

Multi-Party Operations – Call Join

The Call Join feature allows a user of a Meridian 1, Meridian 1000 series, or digital telephone to conference in or transfer a third party to a party held on the user’s telephone, without having to dial the third party. The user can then hang up.

Multi-Party Operations -Three-Party Service
Multi-Party Operations Enhancements

The patience tone or the Misoperation ringback is not applied to a conference party.

Music

With basic Music on Hold, when a call is placed on consultation hold while a Conference is being established, music does not play. Enhanced Music (EMUS) package 119 is required for music on consultation hold (see "Music, Enhanced" on page 2297).

Music, Enhanced

The held party receives Music when the Conference key is pressed, while the conference is being established, and whenever the conference is reduced to two parties with one party on Hold. Once the conference is established, Music is no longer provided.

A Six-party Conference operates the same as a Three-party Conference.

Network and Executive Distinctive Ringing

If a new party is to be included in an established conference, the ringing that is applied to the set of the new party depends on the sets of the established parties. The system scans the trunks and sets of the conferees for a trunk marked as distinctive or a set designated as executive. The ringing cadence of the new set depends on the highest index found by the scan.

Network Intercom

A Conference call may involve a mixture of intercom and regular DN keys.

No Hold Conference

This feature can be enabled at any time that a regular Conference-6 feature can be activated.

Off-Hook Alarm Security

The Off-Hook Alarm Security (OHAS) line lockout treatment occurs when a telephone associated with an OHAS DN initiates a Conference call and the ASTM expires. Only the Conference initiator receives the OHAS treatment; other conferees remain in Conference. If the initiator of the Conference call presses the Conference key, the OHAS DN is conferenced in with the other conferees.

On Hold on Loudspeaker

It will not be possible to conference the loudspeaker call to another party.

Override

A conference call cannot be entered by using Override.

Override, Enhanced

Telephones involved in conference calls cannot be force camped on or Priority Overridden. Overflow (fast busy) tone is returned to telephones attempting either Forced Camp-On or Priority Override.

Paging

Paging trunks cannot be conferenced.

Periodic Pulse Metering (PPM)

Whenever a PPM trunk is added to a conference, a CDR Start record is generated, if CDR is equipped on the trunk. The PPM pulse counts from the trunk are accumulated against the party who initiated the call. If a party who adds a PPM trunk to the conference disconnects while the conference is still in progress, read requests are sent to the PPM trunk to read the residual count. Then, the on-board counter is cleared, the residual count is added to the temporary meter, and the contents of the temporary meter are added to the terminal meter. A CDR Transfer (X) record is then printed against this party, and the temporary meter is cleared. The party that is charged is the one that has been in conference the longest. When a trunk with disconnect supervision disconnects, a CDR End record is immediately printed. For trunks that do not provide a disconnect signal, their CDR records are not printed until the last party disconnects from the conference.

Privacy Override

The Conference feature can be used to add other parties to a Privacy Override connection.

Recorded Announcement Trunk

A Recorded Announcement (RAN) trunk cannot be Conferenced.

Recorded Telephone Dictation

Dictation trunks cannot be conferenced.

Ring Again

This feature cannot be activated during a conference call.

Station Activity Records

For a set with Class of Service Call Detail Monitoring Allowed (CDMA) involved in a call with a trunk, a Station Activity Record is produced only when that set conferences in the first party. Conferencing of all subsequent parties does not generate a “D” record. An additional “D” record is produced when the last conferee with Class of Service CDMA connected to the trunk goes on hook. This does not affect any other CDR record generation during a conference.

Trunk Access from any Station

A switchhook flash on analog (500/2500 type) telephones results in special dial tone. Dialing SPRE + 4 (TAFAS access code) then picks up an incoming Trunk Access from any Station (TAFAS) call. A second switchhook flash reconnects the user to the original conference call. The call picked up by TAFAS is put on Consultation Hold. No other action can be taken with a call picked up in this way during an established conference call.

Trunk Barring

The originator of a conference call can connect only to a barred route on a consultation basis. A switchhook flash from an analog (500/2500 type) telephone results in a reestablished connection with the Originating Trunk Connection. The user of a Meridian 1 proprietary telephone must release the barred connection to return to the Originating Trunk connection, or the conference containing the Originating Trunk connection; operating the Conference key on a Meridian 1 proprietary telephone has no effect. An attendant may return to the Originating Trunk Connection, or the conference containing the Originating Trunk Connection, by releasing the barred connection. This is done by pressing the RLS DEST key; pressing the Conference key has no effect.

Trunk to Trunk Connection

Trunk to Trunk Connection allows external trunks to remain established in a call, provided that all external trunks involved have disconnect supervision. With respect to charging costs associated with a conference call, once the last set involved in the conference call disconnects, a search is made of all remaining trunks in the call to determine which call is established in the call for the longest period of time. This trunk is the chargeable Terminal Number (TN). This process is repeated to find the next chargeable TN.

Feature packaging

This feature is included in base X11 System Software.

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

1 LD 10 – Enable Conference 3 or Conference 6 for analog (500/2500 type) telephones.

2 LD 11 – Enable Conference 3 or Conference 6 for Meridian 1 proprietary telephones.

LD 10 – Enable Conference 3 or Conference 6 for analog (500/2500 type) telephones.

Prompt	Response	Description
REQ:	CHG	Change.
TYPE:	500	Telephone type.
TN	l s c u c u	Terminal Number. For Option 11C.
CLS	(XFD) XFA (C6D) C6A	(Deny) allow transfer Class of Service. (Deny) allow six-party conference (C6A requires an XFA Class of Service).

LD 11 – Enable Conference 3 or Conference 6 for Meridian 1 proprietary telephones.

Prompt	Response	Description
REQ:	CHG	Change.
TYPE:	aaaa	Telephone type, where: aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, or 3000.
TN	l s c u c u	Terminal Number. For Option 11C.
KEY	xx AO3 AO6	Add a Conference 3 or Conference 6 key (must be key 23 for the M3000). xx = key number.

Feature operation

To add a new party to an established call on a Meridian 1 proprietary telephone, follow these steps:

1 Press **Conference**.
The first party is on hold and you receive a dial tone.

2 Dial the number of the new party.
When the new party answers, you may talk privately.

3 Press **Conference** to include all parties in the call.

4 To add more parties to the conference (up to six, including yourself), repeat steps 1-3.

Note: If you make a mistake while dialing or receive a busy signal, press **Rls** to disconnect. To return to the call, press the key beside the fast flashing indicator.

To add a new party to an established call on an analog (500/2500 type) telephone, follow these steps:

1 Flash the switchhook.
You hear three beeps followed by dial tone. The first party is on hold.

2 Dial the telephone number of the person to be included in your call.
When the call is answered, you may talk privately with the new party.

3 Flash the switchhook to include all parties in the call.

4 To add more parties to the conference (up to six, including yourself), repeat steps 1-3.

Note: If you make a mistake while dialing or receive a busy signal, flash the switchhook to return to the original caller.

Conference Warning Tone Enhancement

Contents

The following are the topics in this section:

Feature description

The Conference Warning Tone Enhancement feature was developed to meet the Italian requirements to distinguish between a conference warning tone and a true intrusion. A Conference Warning Tone warns users that they are involved in a conference connection. An Intrusion Tone warns users involved in a conference of an intrusion into their connection.

Prior to this development, the Intrusion Tone was also used as a Conference Warning Tone, and the two tones could only be distinguished by their cadences, not by their tone frequency. With this feature, a separate Conference Warning Tone can be defined, with its tone and cadence defined in overlay program. This tone and cadence can only be programmed in Flexible Tones and Cadences (FTC) table 0.

The Conference Warning Tone can be enabled or disabled via the CWFT prompt in overlay program. When the tone is enabled, a permanent speech path connection is placed from the tone circuit to the conference circuit to provide the tone to all parties connected in a conference. The tone and cadence for the Conference Warning Tone can be programmed to be distinctively different from the tone and cadence produced by the Intrusion Tone given by such features as Barge-In, Break-In, or Busy Verify.

Operating parameters

This feature only applies to the Meridian 1 Option 11C.

The Conference Warning Tone will only be contained and defined within FTC Table 0. All other FTC tables will not contain any references to the Conference Warning Tone and this tone cannot be copied to any other FTC table by a numbered response to the DFLT (Default to existing FTC tone table) prompt in overlay program. Since existing code does not allow FTC table 0 to be deleted, there is no danger of deleting the Conference Warning Tone.

For cadence tables, table numbers above 15 should be chosen for the Conference Warning Tone, because cadence tables numbers below 15 are influenced by Software Controlled table numbers.

Feature Interactions

Tones and Cadences

There are no changes to the limitations to cadence numbers entry values. The same restriction still applies.

Feature packaging

This feature is included in base X11 System Software.

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

1 LD 56 – Configure Conference Warning Tone.

2 LD 97 – Enable Conference Warning Tone.

LD 56 – Configure Conference Warning Tone.

Prompt	Response	Description
REQ	CHG	Modify existing data.
TYPE	FTC	Flexible Tones and Cadences data block.
TABL	0	FTC table number 0. Only table number 0 can be used to make changes to the Conference Warning Tone.
...		
RING	NO	Modify the ringing feature definitions.
HCCT	YES	Modification of the hardware controlled cadence tone definitions allowed.
...		
- EEST	NO	End-to-end Signaling type.
- CFWT		Conference Warning Tone.
- - XTON	0-(3)-255	The Conference Warning Tone number. A tone number provided by the tone circuit.
- - XCAD	0-(19)-255	The Conference Warning Tone cadence number. Cadence number must have been previously set up within LD 56 by responding to the TYPE prompt with FCAD.

LD 97 – Enable Conference Warning Tone.

Prompt	Response	Description
REQ	CHG	Modify existing data.
TYPE	XCTP	Conference/TDS/MF Sender card parameters.
CPAD	 (0) 1	Conference pad values. Use software pad values. Use pad values defined by switch settings.
DTMF	0-(14)-255	Tone table of the first Dual-tone Multifrequency digit to be used.
CFWT	(NO) YES	(Disable) enable Conference Warning Tone.

Feature operation

No specific operating procedures are required to use this feature.

Console Operations

Contents

The following are the topics in this section:

Feature description

Console Operations consists of Console Presentation and Queue Thermometer.

Console Presentation

This part of the feature makes it possible to present a call to a certain Incoming Call Indicator (ICI) key only to specified consoles of a customer or an Attendant Console Group (ACG).

Those consoles are configured (Overlay 15 option PSA/PSD) to have presentation status for the ICI key to handle the following call treatments:

- If a call is not automatically presented to an idle console, it is indicated on the appropriate ICI key on all consoles within the customer or ACG (Overlay 15 option MTI/CUI).
- When all attendants with presentation status for a certain ICI key within a group, customer or ACG are in position busy, then a call to that ICI key will be presented to any other console within the group or only presented to the last console that is not in Night Service in a group (Overlay 15 option RECA/RECO).
- When a ACG is in Night Service, a call to that ACG is redirected to the customer or trunk night DN, or to a night ACG (Overlay 15 option NCA/NCD).

Queue Thermometer

This part of the feature applies to a special console which has four single-digit numeric displays. Each display can be configured to show the number of attendant calls in queue for specified ICI keys of a customer or an ACG (Overlay 15 option MTI/CUI).

A queue thermometer display can also be configured to show the number of calls to those ICI keys that are not individually displayed on any other display of that console.

Optionally, this sum may exclude calls to ICI keys to which inter-attendant calls, recalls and metered calls are presented (Overlay 15 option DRT/DRE).

Operating parameters

Console Presentation

When Multi-tenant Service (MTS) is in use, the following limitations apply when using Console Operations:

- All attendants must belong to an ACG
- All attendants must belong to only one ACG, and
- No attendants must belong to ACG 0.

Feature interactions

Console Presentation

Departmental Listing Directory Number

Departmental Listing Directory Number is a way of directing attendant calls. The feature has some similarities to MTS, but it overrides Multi-tenant Service (MTS) and is therefore not affected by Console Presentation.

Listed Directory Numbers, Network Wide

Console Operation makes it possible for each console to select which ICI call types will be presented to the console. Network wide LDN does not work with the Console Presentation feature because it is not supported by NAS. Console Operation can, however, be configured with two additional LDNs.

The queue thermometer indicates how many calls are in the queue for a certain ICI key. An ICI key can correspond to more than one ICI type. Even though the ICI type of a call may be different with or without this feature active, it will not interact with queue thermometer operations.

Feature packaging

Console Operations (COOP) package 169.

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

1 LD 15 – Configure the Console Presentation feature.

2 LD 15 – Configure the Queue Thermometer feature.

Console Presentation

LD 15 – Configure the Console Presentation feature.

Prompt	Response	Description
REQ:	NEW CHG	Add, or change.
TYPE:	ATT	Gate opener.

...		
- OPT	(PSD) PSA	Presentation Status selection allowed (denied) on Attendant Consoles.
	(CUI) MTI	ICI lamps show Multi-tenant Service (MTS) Attendant Console Group (AGP) information for incoming calls.
	(RECO) RECA	Attendant calls will be redirected when there is no presentation status to other consoles in the console group; RECO when all consoles are busy, RECA when all but one console is busy.
	(NCD) NCA	When an Attendant Console Group is in Night Service, redirection of attendant calls is allowed (denied).

Queue Thermometer

LD 15 – Configure the Queue Thermometer feature.

Prompt	Response	Description
REQ:	NEW CHG	Add, or change.
TYPE:	CDB	Customer Data Block.
...		
- OPT	(DRE) DRT	Queue thermometer includes (excludes) Inter-Attendant calls, Recalls and Metered calls.

Feature operation

No specific operating procedures are required to use this feature.

Console Presentation Group Level Services

Contents

The following are the topics in this section:

Feature description

A Console Presentation Group (CPG) is a subset of the consoles configured for a customer. A CPG handles attendant calls from one or more tenants and incoming trunk calls on one or more routes. CPG improves functions for the following CPG Level Services:

- Attendant Overflow Positions (AOP)
  AOP DN and waiting time threshold can be specified for each CPG.
- Call Waiting Indication
  Count thresholds, timers, and buzz options can be defined for each CPG.
- Incoming Call Identification (ICI)
  ICI keys can be defined for each CPG. Attendants see only those ICI definitions for their own CPG.

- Listed Directory Numbers (LDN)
  Each CPG allows four LDNs.
- Night Service (NSVC)
  Each CPG can go into Night Service mode independent of the other groups.
- Recorded Announcement (RAN)
  Each CPG can have its own recorded overflow announcements.

Operating parameters

Console Presentation Group (CPG) services and Departmental Listed Directory Numbers (DLDN) are mutually exclusive at the customer level. That is, DLDNs can be equipped on the same system with Console Presentation Groups (CPGs), but not enabled for the same customer group at the same time.

Feature interactions

Attendant Administration

Attendants can dial the access code and activate the Administration mode. In this mode, they can modify the configuration of any telephone for this customer.

Attendant Secrecy

The Secrecy option specified for a customer applies to all attendants for that customer.

Attendant Supervisory Console

The supervisory console specified for a customer belongs to one CPG. In the Supervisory mode, ICI indicators show only the information for ICIs in that CPG. Thresholds specified in the Customer Data Block apply only to the CPG where that console resides, and do not effect any other CPG.

Call Park

Parked calls recall to the attendant who parked them. If that Attendant Console goes into Position Busy mode, the call recalls to an attendant in the same CPG as the original.

If the attendant goes into Night Service while a call is parked, the recall is presented to the Night DN defined for that CPG. If an attendant goes into Night Service while the recall is in the attendant queue, it stays in the attendant queue until the call is abandoned.

Tenant access checking between the set (A) who picks up a parked call and the party (B) who parked the call, is enforced as follows:

- If B is a set, tenant-to-tenant access must be allowed between A and B.
- If B is an attendant, A and B must belong to the same CPG for tenant-to-tenant access.
- If access is denied, set A (who intends to pick up the access-denied parked call) receives a blocking tone.

Network-Wide Listed Directory Number

CPG does not work with the network part of Network-Wide Listed Directory Number (LDN) because CPG is not supported by Network Attendant Service, which the network part requires. This feature does, however, provide two additional LDNs for each Console Presentation Group.

Night Key for Direct Inward Dialing Digit Manipulation

The Day/Night table can be activated with the DRC key by any attendant in the Console Presentation group.

Feature packaging

Console Presentation Groups (CPGS) package 172 requires:

- Multi-Tenant Service (TENS) package 86.

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

1 LD 93 – Enable Console Presentation Group (CPG).

2 LD 93 – Assign Attendant Consoles to a presentation group.

3 LD 93 – Assign tenants to an attendant group number.

4 LD 93 – Assign a route to an attendant group number.

5 LD 93 – Add Console Presentation Group features.

LD 93 – Enable Console Presentation Group (CPG).

Prompt	Response	Description
REQ	CHG	Change.
TYPE	TENS	Multi-Tenant data block.
CUST	0-99 0-31	Customer number. For Option 11C.
CPGS	YES	Enable CPG Level Services.

LD 93 – Assign Attendant Consoles to a presentation group.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	CPG	Console Presentation Group data block.
CUST	0-99 0-31	Customer number. For Option 11C.
AGNO	0-63	Attendant Console group number.
ANUM	1-63 1-63	Attendant Console numbers.

LD 93 – Assign tenants to an attendant group number.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	TCPG	Tenant to Console Presentation Group data block.
CUST	0-99 0-31	Customer number. For Option 11C.
TEN	1-511	Tenant number.
AGNO	0-63	Attendant Console group number.

LD 93 – Assign a route to an attendant group number.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	RCPG	Route to Console Presentation Group data block.
CUST	0-99 0-31	Customer number. For Option 11C.
ROUT	1-511	Route number.
AGNO	0-63	Attendant Console group number.

LD 93 – Add Console Presentation Group features.

Prompt	Response	Description
REQ	NEW, CHG	Add, or change Multi-Tenant Service for a customer.
TYPE	CPGP	Console Presentation Group level parameters.
CUST	0-99 0-31	Customer number. For Option 11C.
CPG	1-63	Console Presentation group number.

LDN0	xxxx	Listed DN 0.
NIT1	xxxx	First Night Service by Time of Day (NTOD) DN.
TIM1	hhmm	Hour minute for First NTOD DN.
NIT2	xxxx	Second NTOD DN.
TIM2	hhmm	Time for Second NTOD.
NIT3	xxxx	Third NTOD DN.
TIM3	hhmm	Time for Third NTOD DN.
NIT4	xxxx	Fourth NTOD DN.
TIM4	hhmm	Time for Fourth NTOD.
ICI	xx aaa	Incoming Call Indicators (ICI).
AQTT	1-(30)-255	Attendant queuing threshold.
AODN	xxxx	Attendant overflow DN.
CWCL	(0)-255 (0)-255	Number of waiting calls, lower threshold and upper bound.
CWTM	(0)-511 (0)-511	Time for waiting calls, lower threshold and upper bound.
CWBZ	(NO) YES (NO) YES	Call Waiting Buzz. The first field provides a two-second buzz when the upper CWCL or CWTM threshold is exceeded. The second field provides a buzz when the first call enters the queue.

Feature operation

No specific operating procedures are required to use this feature.

Controlled Class of Service

Contents

The following are the topics in this section:

Feature description

Controlled Class of Service (CCOS) alters the Class of Service restriction levels on telephones that have been defined as CCOS controlling telephones. This applies to Meridian 1 proprietary telephone users designated as CCOS controllers. While CCOS is active, Public Exchange/Central Office or toll calls made from these telephones cannot be completed without first being routed through an attendant.

Meridian 1 proprietary telephones designated as CCOS controlling telephones are assigned a CCOS key/lamp that is used to activate or cancel the system-defined CCOS restriction level on individual DNs.

Operating parameters

Controlling telephones can be any Meridian 1 proprietary telephone.

CCOS controlling telephones must refer to the Prime Directory Number (PDN) when activating or canceling CCOS on other telephones.

Automatic Call Distribution (ACD) agents cannot be restricted by CCOS.

Feature interactions

Authorization Code

The Authorization Code overrides a telephone's CCOS restriction level.

Conference

If CCOS is activated at a telephone involved in a conference call, established Central Office or toll calls are not affected. The CCOS restriction level is applied immediately, and no new calls can be initiated from the conference. The telephone remains in the CCOS active state after the conference is terminated.

Flexible Feature Codes

If Electronic Lock (ELK) is activated, the CCRS Class of Service is used whether Controlled Class of Service (CCOS) is active or not. ELK takes precedence over CCOS. If ELK is deactivated, the set is treated as per existing operation.

When FFC ELKA and a password is entered, this set will use the CCRS Class of Service configured in LD 15. The CCRS Class of Service will always be used whether or not CCOS is currently controlling the set's Class of Service. When FFC ELKD and a password is entered, the set will use the appropriate Class of Service associated with this set. If CCOS is enabled for the set, the associated customer Class of Service is used (that is, CCRS, ECC1, or ECC2). If CCOS is not enabled for this set, the set's own Class of Service is used.

When FFC ELK is deactivated, the set reverts back to the Class of Service as it should be without FFC ELK, instead of always reverting back to the set's Class of Service (that is, if CCOS is enabled, it will use the customer's Class of Service; if CCOS is not enabled, it will use the set's Class of Service).

Hot Line

When a Hot Line DN is on a telephone that has Controlled Class of Service activated, Hot Line calls ignore the imposed Class of Service if the System Speed Call (SSC) package is present and the Hot Line list is given an adequate Network Class of Service (NCOS) for the override

Multiple Appearance Directory Number

CCOS restriction levels are activated or canceled on controlled telephones through their Prime Directory Number (PDN). When the PDN of a Meridian 1 proprietary telephone is made CCOS active, all DNs on that telephone are also restricted. If the DN is a PDN on other telephones, those telephones are also restricted (if they have CCSA Class of Service).

Room Status

You can change the access restrictions for room telephones from the BGD or from a telephone equipped with a Room Status key (RMK).

Scheduled Access Restrictions

During normal hours, CCOS restrictions override normal telephone restrictions. During off-hour periods or times when a Scheduled Access Restrictions (SAR) LOCK is in effect, however, Scheduled Access Restrictions apply. When the LOCK or off-hour period ends, CCOS restrictions continue to apply until they are removed or SAR becomes effective again. Whether a CCOS controller or electronic lock is used to activate CCOS, there is no indication to the user when Scheduled Access Restrictions are in effect, overriding CCOS restrictions. A telephone defined in overlay program 10 or 11 or a trunk defined in overlay program 14, which is assigned an SAR group number, has its Class of Service defined by the SAR schedule of its SAR group.

Station Category Indication

The Controlled Class of Service (CCOS) feature has priority over SCI. A station’s SCI category is suppressed when CCOS is active, and calls to the attendant DN carry the CCOS class defined in the database.

Feature packaging

The (CCOS) package must be equipped to activate the Controlled Class of Service feature.

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

1 LD 15 – Enable CCOS for a customer.

2 LD 11 – Allow CCOS on Meridian 1 proprietary telephones.

3 LD 10 – Allow CCOS on analog (500/2500 type) telephones.

4 LD 11 – Change CCOS controlling telephone assignments on Meridian 1 proprietary telephones.

LD 15 – Enable CCOS for a customer.

Prompt	Response	Description
REQ:	CHG	Change.
TYPE:	CDB CCS	Customer Data Block. Gate opener.
CUST	0-99 0-31	Customer number. For Option 11C.
- CCRS	UNR CUN CTD TLD SRE FRE FR1 FR2	Unrestricted. Conditionally unrestricted. Conditionally toll-denied. Toll-denied. Semi-restricted. Fully restricted. Fully restricted 1. Fully restricted 2.

LD 11 – Allow CCOS on Meridian 1 proprietary telephones.

Prompt	Response	Description
REQ:	CHG	Change.
TYPE:	aaaa	Telephone type, where: aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, or 3000.
TN	l s c u c u	Terminal Number. For Option 11C.
CLS	(CCSD), CCSA	(Deny) allow CCOS.

LD 10 – Allow CCOS on analog (500/2500 type) telephones.

Prompt	Response	Description
REQ:	CHG	Change.
TYPE:	500	Telephone type.
TN	l s c u c u	Terminal Number. For Option 11C.
CLS	(CCSD) CCSA	(Deny) allow CCOS.

LD 11 – Change CCOS controlling telephone assignments on Meridian 1 proprietary telephones.

Prompt	Response	Description
REQ:	CHG	Change.
TYPE:	aaaa	Telephone type, where: aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, or 3000.
TN	l s c u c u	Terminal Number. For Option 11C.
KEY	xx COS	Assign CCOS controlling key.

Feature operation

To activate CCOS, follow these steps:

1. Press **CCOS**.

   Note that this is a toggle: If CCOS is already active, pressing the key will change the CCOS state to inactive. Check the CCOS lamp to determine if CCOS is already active.

2. Dial the Prime Directory Number (PDN) of the telephone to be changed and press CCOS.

3. Press **Rls**.

To deactivate CCOS, follow these steps:

1. Press **CCOS**.

2. Dial the PDN of the telephone to be returned to its original Class of Service and press CCOS.

3. Press **Rls**.

CIS ANI Reception

Contents

The following are the topics in this section:

Feature description

The Commonwealth of Independent States (CIS) Automatic Number Identification (ANI) Reception feature allows the Meridian 1 to receive the Automatic Number Information from the CIS Central Office (CO) calling party on incoming local calls. The CIS Public Telephone Network does not provide ANI information on the incoming toll calls.

The CIS ANI Reception feature works on the CIS Digital Trunk Interface (DTI) feature. It requires CIS DTI2 card, vintage NTCG01AC (Options 51C-81C) or NTCG02AC (Option 11C).

The ANI digits received from the CIS CO are used by the Meridian 1 as the R2MFC Calling Number Identification (CNI) digits. A list of uses for the ANI digits is found on page 1071. The ANI digits are also displayed on the display of the Meridian 1 proprietary set or on the attendant console display.

ANI Reception is performed in one of two ways:

- ANI request is issued automatically by the incoming local CIS DTI2 trunk during the call setup.
- ANI request is issued by the incoming local CIS DTI2 trunk upon a manually solicited request from the Meridian 1 proprietary set with display or from the attendant console. The request to receive the ANI information is invoked by pressing a calling number display key on the attendant console source key or on the Meridian 1 proprietary set by pressing the display key followed by the trace key. Press trace key for active call for Proprietary sets and attendant consoles. The trace key can be used instead of the source key for Malicous Call Trace (MCT) for sets and consoles. An ANI request can also be made by 500/2500 sets by entering the Flexible Feature Code (FFC) assigned for MTRC in LD 57.

Automatic ANI request

The automatic ANI request is sent by the CDTI2 card to the CIS CO before the incoming local call is answered. If the incoming trunk operates in the decadic, or Dial Pulse (DP) mode, the ANI request is sent to the CIS CO after all dialed digits have been collected from the CIS CO (see Figure 19.) If the trunk operates in the MF Shuttle mode, the ANI request is sent after the end of the MF Shuttle dialing (see Figure 20 on page 1073). The ANI digits are uploaded to the Meridian 1.

The Automatic ANI request option may be used only in conjunction with the DN Size Feature. The DN Size Flexible (using the SSL tables) or Fixed should be defined for the incoming CIS DTI2 DID route before setting the automatic ANI option to “Yes”.

The ANI digits are used in the following way:

- They are tandemed as the Calling Line Identification (CLID) Originating Line Identifier on DPNSS (OLI) to the Integrated Services Digital Network (ISDN)/Digital Private Network Signalling System (DPNSS) gateways, Basic Rate Interface (BRI) gateways

- They are mapped into the Multi-frequency Compelled Signaling complying with CCITT R2 specification (R2MFC) Calling Number Identification R2MFC (CNI)
- They are displayed on the display of the Meridian 1 proprietary sets and on the attendant consoles
- They are stored in the Call Detail Recorder
- They are sent through the Meridian Link and the ICCM link using the fields dedicated for the R2MFC CNI digits

The translation of the dialed number which is received from the CIS CO is postponed until the CDTI2 card informs Meridian 1 that the ANI digits have been received. If the ANI reception report does not arrive from the card, the call is treated after the ANI timer expires. The treatment for the call that failed to provide the automatic ANI is configured on the route data block level.

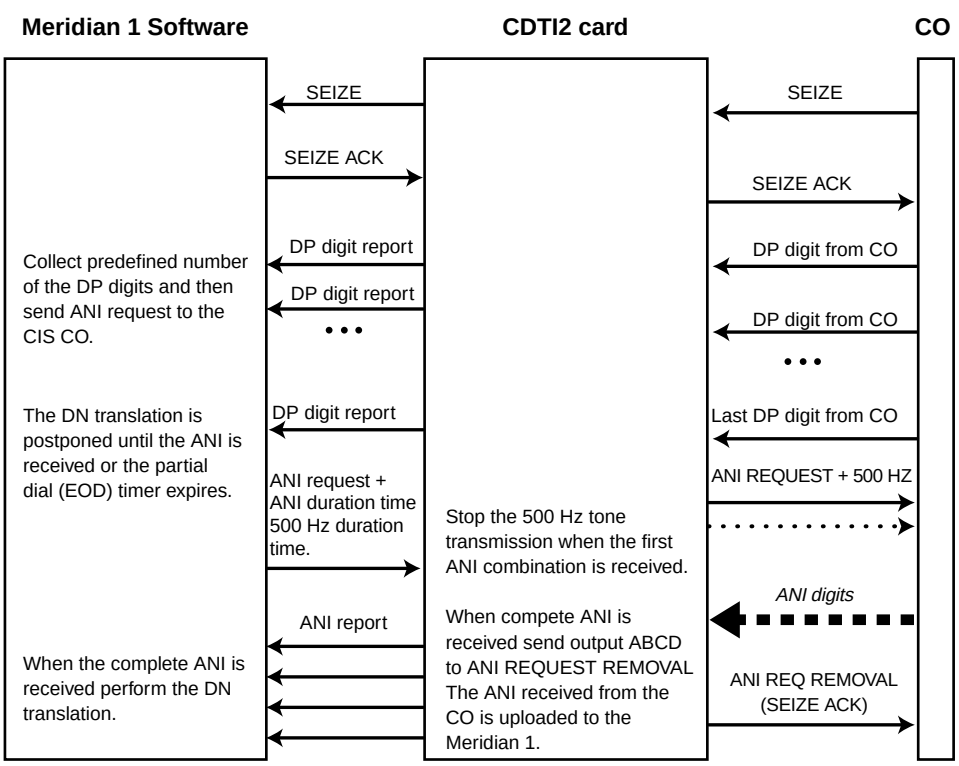
Solicited ANI request

The solicited ANI request is issued upon a manual request from the Meridian 1 proprietary set using the display key or from the attendant console using the trace key. The received ANI information is displayed on the display of the Meridian 1 proprietary set or attendant console and it is also used for the CDR, call trace. If the request is performed using the Trace key, the MCT record is printed also on the MCT TTY. Meridian 1 sends the ANI request message to the CDTI2 card when a user presses the DN key after the set has entered display mode using the Digit Display key or after the Trace key was pressed. The CDTI2 card performs the ANI interaction and uploads the received ANI to the Meridian 1 (see Figure 21).

The ANI is stored in the unprotected trunk data block. The solicited ANI request may be performed an unlimited number of times during a single call. Each time, the new ANI replaces the previously received ANI (if there is one).

When solicited ANI request is initiated using the Trace key, the Malicious Call Trace feature functionality remains unchanged, the ANI request is sent in addition to the normal MCT activities. The ANI information, when received from the card, is also printed on the MCT TTY as MCT ticket.

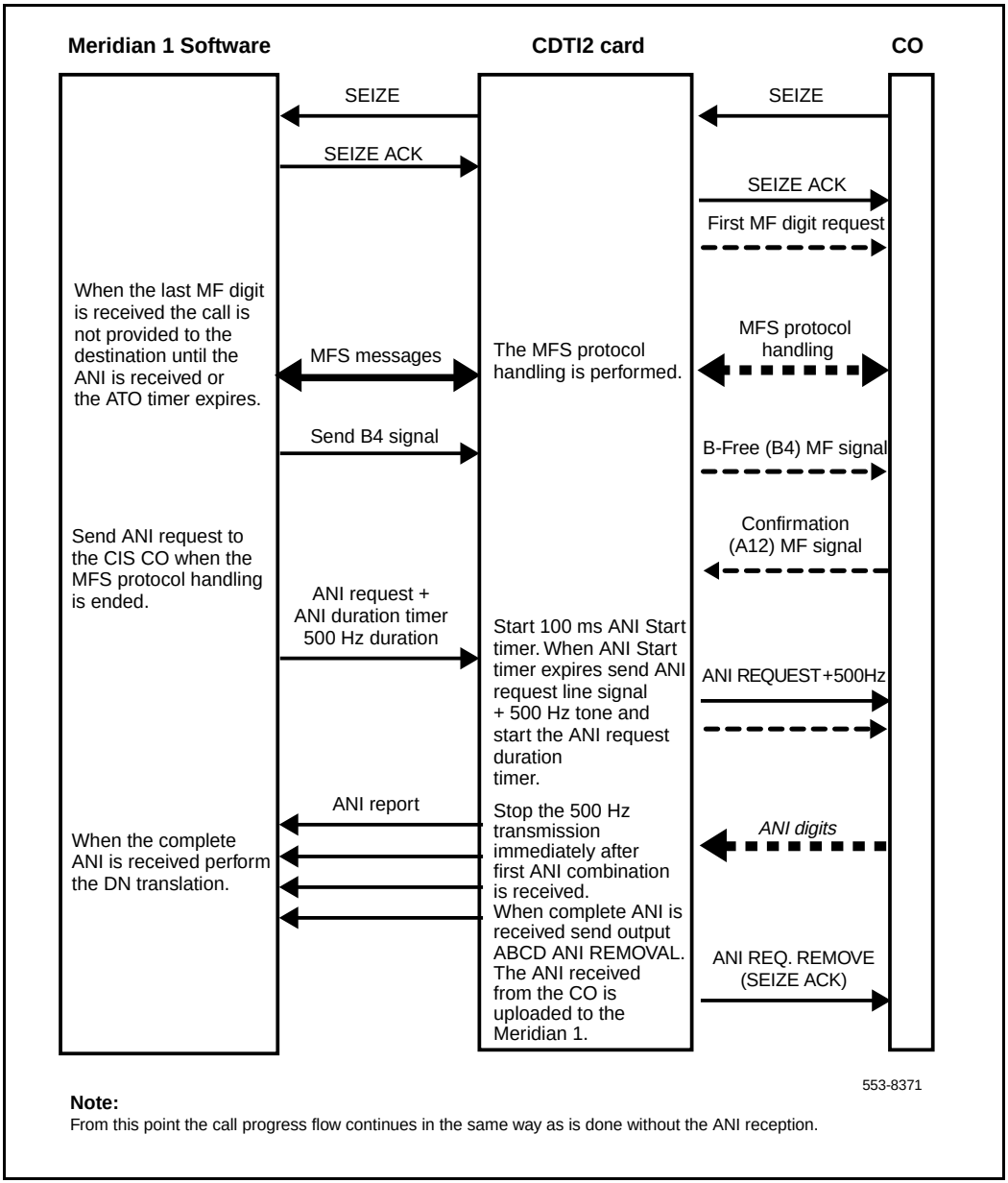
Figure 19
Automatic ANI request for incoming local call (decadic dial pulse mode)



Note:
From this point the call progress flow continues in the same way as it is done without the ANI reception.

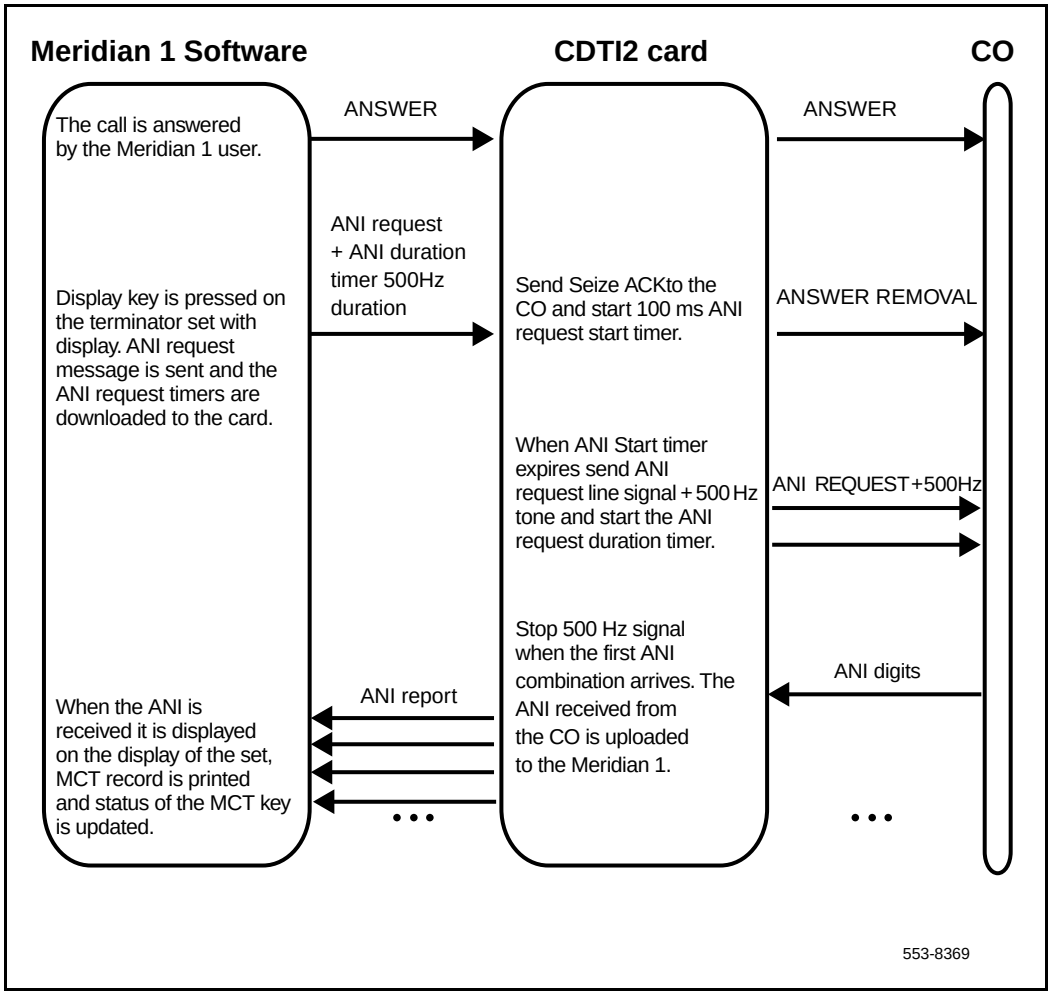
553-8370

Figure 20
Automatic ANI request for the MF shuttle call



Note:
From this point the call progress flow continues in the same way as is done without the ANI reception.

Figure 21
Manually solicited ANI request



ANI Gateways

The ANI digits which are received from the CIS CO party as a response to the automatic ANI request are propagated to the Meridian 1 terminating party if it is capable of receiving the CNI digits.

The ANI digits are propagated to the following terminating types:

- R2MFC trunks - the ANI to R2MFC CNI mapping is performed in the following way: all the ANI digits except for the ANI Calling Party Category Code (CAC) are used for the CNI composition, the ANI CAC is converted to the Multi-frequency Compelled (MFC) CNI CAC according to the CAC conversion tables.
- ISDN trunks - Meridian Customer Defined Integrated Services Digital Network (MCDN), EuroISDN: European Integrated Services Digital Network **(**EURO), Q Signaling (QSIG), DPNSS - the ANI to CLID/OLI mapping is based on the R2MFC CNI to CLID mapping.
- CIS trunks - the ANI to ANI mapping is implemented in the framework of the CIS ANI Digits Manipulation and Gateways Enhancements feature described in this document. The ANI information that is received from the incoming CIS DTI2 trunks is used by the CIS Gateways Enhancements feature to compose the ANI information to be downloaded to the outgoing CIS trunks.

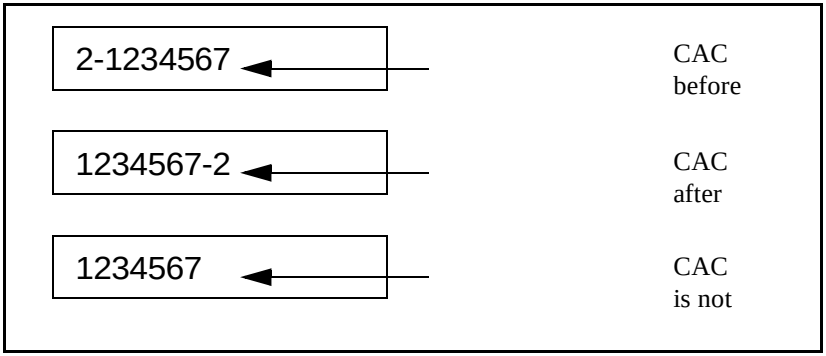
ANI Digits Display

The ANI digits are displayed on the display of the Meridian 1 proprietary set or of the attendant console. The ANI digits are displayed starting from the left side of the display. The CAC display option is configured on the route data block level and it may be set to one of the following options (see Figure 22):

- display CAC before the ANI number
- display CAC after the ANI number
- do not display CAC

The CAC digit is separated from the ANI number by the minus sign. When displaying ANI, there are several options available for CAC display. If ANI request is repeated several times during a single call, each time new ANI digits overwrite old ANI digits on the display. If the DN key that requested the ANI information is placed on hold when the ANI digits arrive from the CDTI2 card, the ANI digits are not displayed. In this case, when the call is returned from hold, the ANI digits are displayed.

Figure 22
ANI Display options



ANI Digits in CDR

The ANI digits are placed in the CDR at the place intended for the R2MFC CNI digits. The CAC may be stored in the CDR together with the ANI digits. The presentation of the CAC in the CDR is configured at the route data block level as shown in the dash list below. The CAC may be either:

- placed before the ANI digits
- placed after the ANI digits
- not placed in the CDR

The CDR records containing ANI are generated only if the CDR options are configured in the customer data block (Overlay 15) as described in the CDR NTP.

The feature does not change the CDR output formats. The ANI digits are stored in the CDR in the same way as the R2MFC CNI digits.

Operating parameters

This feature requires the CIS DTI2 card NTCG01 vintage AC for Options 51C - 81C, the CIS DTI2 card NTCG02 vintage AC is used for Option 11C.

Feature interactions

CIS Digital Trunk Interface and CIS Multifrequency Shuttle (MFS)

The feature is based on the CIS DTI2 interface features. The feature enhances the capabilities of CIS DTI2 but does not change previous functionality.

Malicous Call Trace (MCT)

The feature allows MCT to receive ANI digits on incoming local CIS DTI2 calls. There is no MCT feature that can be activated from Meridian 1 on the CIS CO. When the ANI digits are received from the CO, they are printed on the MCT TTY and displayed on the display of the set or console that activated the MCT feature.

Feature packaging

No new package is introduced for this feature. The following packages are required:

- 2 Mbit Digital Trunk Interface (DTI2) package 129
- International Supplementary Features (SUPP) package 131
- Commonwealth of Independent States Trunks (CIST) package 221
- Optional - Malicous Call Trace (MCT) package 107

Feature implementation

This section contains the overlay procedures required to configure the ANI Reception feature.

> ***Note:*** If Malicous Call Trace is used, turn to the Software Features Guide for detailed MCT implementation instructions.

- **LD 73** - The response MFA - Multifrequency Advanced has been added to the CISFW prompt to support the ANI Reception and the Firmware Dial Tone Detection features on the NTCK01AC and NTCK02AC cards. When operating in the CIS mode, the NTCG01AA/02AA cards should be configured as DP, and the NTCG01AB/02AB cards should be configured as MFS.
- **LD 14** - The CNA may be defined for the incoming DID DTI2 trunk if it is configured on the CDTI2 loop with the CIS Firmware version set to MultiFrequency Advanced in Overlay 73.
- **LD 16** -Set the prompt CISR to YES to allow access to the CIS Route prompts.

The following options are added for the CIS DTI2 routes:

- The Automatic ANI (AANI) option determines if the automatic ANI request should be sent to the CIS CO party at the end of dialing on incoming local calls. If the ANI information is required for gateway calls this option should be set to YES.
- The ANI Failure Treatment (ANFT) option defines the treatment for incoming calls which failed to provide ANI (see Note). The possible options are:
  - to provide the call to the required destination using the alternative ANI to indicate the ANI Reception failure
  - to drop the call
  - to transfer the call to the predefined intercept DN using the Alternative ANI to indicate the ANI Reception failure
- The Intercept DN (ITDN) prompt defines the intercept DN if the intercept treatment option is selected.

Note: The Alternative ANI is composed from the access code of the incoming CIS DTI2 DID route and the number of the incoming trunk within the route.

- The ANI TimeOut (ATO) timer which was used only for Outgoing CIS trunks is now also used for incoming CIS trunks to define timeout for the automatic ANI digits reception. The termination of the incoming call is delayed until either the ANI digits are received from the CDTI2 card, the ANI failure report is received from the CDTI2 card or the ATO expires. The ATO timer should be set at least twice as large as the following ARD timer.
- ANI Request Duration (ARD) timer is added to the route timers, the timer defines how long the CDTI2 card waits for the ANI information after sending the ANI REQUEST line signal. When the ARD timer expires for the first time the CDTI2 card performs an additional attempt to request the ANI information from the CIS CO. If the timer expires after the second attempt the ANI reception failure is reported to the Meridian 1. The ARD timer is downloaded to the CDTI2 firmware. The timer should not exceed half of the ATO timer.
- CAC Display (CACD) option defines how the Category Access Code (CAC) is displayed on the Meridian 1 proprietary set or attendant console. The possible options are:
  - to display CAC before the ANI
  - to display CAC after the ANI or
  - not to display CAC
- CAC in CDR (CACC) option defines how the Category Access Code (CAC) is stored in the CDR. The possible options are to:
  - store CAC before the ANI
  - store CAC after the ANI
  - not store CAC.

Task summary list

The following is a summary of the tasks in this section:

1 LD 73 - Define Multifrequency Advanced (MFA) as firmware type definition.

2 LD 14 - Add Calling Number Identification Allowed (CNA) as a class of service for incoming Direct Inward Dial (DID) CIS DTI2 trunks.

3 LD 16 - Define the CIS Route.

LD 73 - Define Multifrequency Advanced (MFA) as firmware type definition.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	DTI2	Digital Trunk Interface loops.
FEAT	LPTI	Loop Timers and additional definitions.
CDTI2	YES	CDTI2/CSDTI2 card
...	...	
CISFW	MFA	Multifrequency Shuttle protocol handling + ANI Reception + Firmware Dial Tone Detection capabilities are supported by the card.
- MFSL	(0)-3	The MFS signals transmission level. The prompt appears when CISFW is set to MFS or MFA and the CISMFS package is equipped. The transmission level may be set to the following values: 0 = -7.3 dB 1 = -5.0 dB 2 = -3.5 dB 3 = 0 dB
- 500L	(0)-1	ANI request tone (500 Hz) transmission level. The prompt appears when CISFW is set to MFA. The transmission level may be set to the following values: 0 = -7.3 dB 1 = -3.5 dB

LD 14 - Add Calling Number Identification Allowed (CNA) as a class of service for incoming Direct Inward Dial (DID) CIS DTI2 trunks.

Prompt	Response	Description
REQ	NEW CHG	Add new data. Change existing data.
TYPE	DID	Direct Inward Dial trunks.
...	...	...
CLS		Class of Service.
	CNA	Allow Calling Number Identification for incoming CIS DTI2 DID trunks.

LD 16 - Define the CIS Route.

Prompt	Response	Description
REQ	NEW CHG	Add new data. Change existing data.
TYPE	RDB	Route Data Block.
TKTP	DID	Direct Inward Dial.
...	...	...
DTRK	YES	Digital Trunk Route
- DGTP	DTI2	Digital Trunk Type
...	...	...
ICOG	ICT	Incoming Trunk.
...	...	...
CNTL	YES	Allows change to controls or timers.
TIMR	ARD 512-(1024)-2048	ANI Request Duration timer, defines duration of the ANI request signal. The timer is stored as increments of the 256 ms.

TIMR	ATO 2048-(2560)-5120	ANI Timeout timer. Defines how long Meridian 1 waits for the ANI information from the CIS CO. If timer expires before the ANI is uploaded from the CDTI2 card, Meridian 1 treats the call as it is defined in the ANI Failure Treatment option. The ATO should be at least twice as large as the ARD.
CISR	YES	CIS Route
- CACD		The option defines how the CAC is displayed on the display of the set or console. The option also controls presentation of the CAC in the messages to the auxiliary processors. The options are:
	(NO) BEF AFT	NO = do not display CAC. BEF= display CAC before ANI. AFT= display CAC after ANI.
- CACC		Defines how CAC is stored in CDR.
	(NO)	NO = do not store CAC
	BEF	BEF = store CAC before ANI
	AFT	AFT = store CAC after ANI
- AANI		The option defines if the Automatic ANI request should be sent to the CIS CO when the incoming calls are originated from the CIS CO to the trunks within this route.
	(NO)	NO = do not send automatic request.
	YES	YES = send automatic request.
- ANFT		The prompt defines the ANI Failure Treatment option. It is prompted only if the AANI is set to YES. The possible options are:
	(CONT)	Provide call to the required destination.
	FAIL	Drop call.
	ITDN	Transfer call to intercept DN.
- - ITDN	<DN>	Intercept DN (up to 8 digits) defines the DN to transfer the incoming calls which failed to provide ANI. The prompt appears if the ANFT option is set to ITDN.

Feature operation

Manual ANI request is made by pressing a calling number display key on the Attendant Console or on the Meridian 1 proprietary set followed by pressing the SCR key or by pressing the TRC key on the Meridian 1 proprietary set or Attendant Console.

Controlled Class of Service, Enhanced

Contents

The following are the topics in this section:

Feature description

Enhanced Controlled Class of Service (ECCS) allows a controller or Attendant Console to alter the Class of Service (CLS) restriction levels of other Controlled Class of Service (CCOS) telephones. The feature allows two customer-defined levels of restriction. In addition, the CCOS key can be assigned to an Attendant Console and M3000 telephones as a programmable key.

Operating parameters

Controlling telephones can be any Meridian 1 proprietary telephone.

A CCOS controlling telephone must refer to the Prime DN when activating or canceling CCOS on other telephones.

Automatic Call Distribution (ACD) agents cannot be restricted by CCOS.

On M3000 telephones, the CCOS key can be assigned as a programmable key (0-5 only).

This feature is applicable only when the CLS lamp is lit on the controlling telephone.

The CLS key on an Attendant Console can be used only on an idle loop. (The loop lamp is lit; source and destination lamps are dark.)

Feature interactions

Attendant Administration

This feature cannot change Controlled Class Service restrictions (CCRS), ECC1 or ECC2, but can assign CLS keys to certain telephones.

Attendant Supervisory Console

When the attendant is in the supervisory mode, CCOS programming is prohibited.

Authorization Codes

The Authorization Code can override a telephone's CCOS restriction level.

Conference

If CCOS is activated at a telephone on a conference call, established Public Exchange/Central Office or toll calls are not affected. The CCOS restriction level is applied immediately; however, no new calls can be initiated from the conference. That telephone remains in the CCOS state after the end of the conference.

Coordinated Dialing Plan

The internal DN is used for programming the CLS level for Coordinated Dialing Plan (CDP) from the controlling telephone.

Multiple Appearance Directory Number

All CCOS restriction levels are activated and canceled from the Prime Directory Number (PDN) for CCOS controlling telephones. The PDN for an SL-1 telephone is made CCOS active, and all DNs for that telephone are restricted as well. If that DN is a PDN on other telephones, they are also restricted (if they have CCSA Class of Service).

Pretranslation

The DN used to program the CCOS should be the actual DN before pretranslation. When programming CCOS, the DN entered is not pretranslated.

Feature packaging

Enhanced Controlled Class of Service (ECCS) package 173 requires:

- Controlled Class of Service (CCOS) package 81.

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

1 LD 15 – Define the Class of Service restrictions for the system.

2 LD 11 – Assign keys for the controller telephone.

3 LD 10 – Configure controlled analog (500/2500 type) telephones.

4 LD 11 – Configure the controlled Meridian 1 proprietary telephones.

5 LD 12 – Assign ECCS keys for Attendant Console.

LD 15 – Define the Class of Service restrictions for the system.

Prompt	Response	Description
REQ:	CHG	Change.
TYPE:	CCS	gate opener.
CUST	0-99 0-31	Customer number. For Option 11C.
Note: Input restrictions apply when CCSA is active. When CCSA is inactive, the telephone has the CLS assigned in LD 10/11.		

- CCRS		CCOS restrictions.
	(UNR) CTD CUN FRE FR1 FR2 SRE TLD	Unrestricted service. Conditionally Toll Denied. Conditionally Unrestricted. Fully Restricted. Fully Restricted level 1. Fully Restricted level 2. Semi-Restricted. Toll Denied.
- ECC1	xxx	Enhanced Controlled Class of Service, Level 1. xxx = (UNR), CTD, CUN, FRE, FR1, FR2, SRE, TLD.
- ECC2	xxx	Enhanced Controlled Class of Service, Level 2. xxx = (UNR), CTD, CUN, FRE, FR1, FR2, SRE, TLD.
Note: Input restrictions apply when CCSA is active. When CCSA is inactive, the telephone has the CLS assigned in LD 10/11.		

LD 11 – Assign keys for the controller telephone.

Prompt	Response	Description
REQ:	CHG	Change.
TYPE:	aaaa	Telephone type, where: aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, or 3000.
TN	l s c u c u	Terminal Number. For Option 11C.
KEY	xx COS	Key number for CCOS key on controller telephone (for the M3000, the key must be 0-5).

LD 10 – Configure controlled analog (500/2500 type) telephones.

Prompt	Response	Description
REQ:	CHG	Change.
TYPE:	500	Telephone type.

TN	l s c u c u	Terminal Number. For Option 11C.
CLS	(CCSD) CCSA	(Deny) allow CCOS.

LD 11 – Configure the controlled Meridian 1 proprietary telephones.

Prompt	Response	Description
REQ:	CHG	Change.
TYPE:	aaaa	Telephone type, where: aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, or 3000.
TN	l s c u c u	Terminal Number. For Option 11C.
CLS	(CCSD) CCSA	(Deny) allow CCOS.

LD 12 – Assign ECCS keys for Attendant Console.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	ATT 1250 2250	Console type.
TN	l s c u c u	Terminal Number. For Option 11C.
KEY	xx COS	Key number for CCOS controller key on Attendant Console. xx = key number (must be greater than 1).

Feature operation

To activate Enhanced Controlled Class of Service (ECCS) from a Meridian 1 proprietary telephone with the feature currently inactive, follow these steps:

1 Press **CCOS** to begin the activation sequence.

Note that this is a toggle: if CCOS is already active, pressing the key will change the CCOS state to inactive. Check the CCOS lamp to determine if CCOS is already active.

2 Dial the PDN of the telephone to be changed and press **CCOS**. The controlling telephone's display, if equipped, shows the DN of the changed telephone and a 0 (zero).

3 To select ECC1, dial # 1.
Note that the octothorpe (#) is required. The controlling telephone's display, if equipped, shows the DN of the changed telephone and a 1.

To select ECC2, dial # 2.
Note that the octothorpe (#) is required. The controlling telephone's display, if equipped, shows the DN of the changed telephone and a 2.

4 Press **Rls**.

To activate ECCS from an Attendant Console, follow these steps:

1 Select an idle loop key.

2 Press **CCOS**.

Note that this is a toggle: If CCOS is already active, pressing the key will change the CCOS state to inactive. Check the CCOS lamp to determine if CCOS is already active.

3 Dial the PDN of the telephone to be changed and press **CCOS**. The console's display shows the DN of the changed telephone. A 0 (zero) is displayed if the telephone is active in the original CCOS mode.

If the telephone does not have CCOS or ECCS active, the console does not acknowledge that you have successfully entered a valid CCOS DN.

4 To select ECC1, dial # 1.
Note that the octothorpe (#) is required. The console's display shows the DN of the changed telephone and a 1.

To select ECC2, dial # 2.
Note that the octothorpe (#) is required. The console's display shows the DN of the changed telephone and a 2.

5 Press **Rls**.

To deactivate Enhanced Controlled Class of Service (ECCS), follow these steps:

1 Select an idle loop key.

2 Press **CCOS**.

3 Dial the PDN of the telephone to be returned to its original Class of Service and press **CCOS**.

4 Press **Rls**.

CTI Trunk Monitoring and Control

Contents

The following are the topics in this section:

Reference list

The following are the references in this section:

- “Incremental Software Management” on page 1725

Feature description

The Computer Telephony Integration (CTI) Trunk Monitoring and Control feature expands the existing functionality of Meridian CTI Interface (Meridian Link). CTI Trunk Monitoring and Control allows the Meridian 1, in conjunction with the Meridian Link interface, to provide the host application with the capability to monitor and control trunk-to-trunk calls.

The CTI Trunk Monitoring and Control feature introduces the concept of Associated trunks (AST). Previously, only Associated sets existed. An Associated trunk is configured by setting the AST prompt to YES in the Trunk Data Block. When AST = YES, the trunk can be monitored and controlled from a host CTI application via the AML interface. AST includes both Associated sets and Associated trunks. The number of AST sets and trunks that can be configured on one system is subject to Incremental Software Management (ISM) limitation.

The CTI Trunk Monitoring and Control feature includes the following four functionalities:

- Trunk Monitoring
- Trunk Call Disconnect
- Warning Tone
- Route Member Information Element (IE)

Trunk Monitoring

With the Trunk Monitoring functionality, Unsolicited Status Messages (USM) are generated to report the Associated trunk status to the CTI application via the AML interface. The status of the Associated trunk is reported when the trunk is answered at the far-end and when the trunk is disconnected at the far-end.

Trunk Call Disconnect

With the Trunk Call Disconnect functionality, the Call Disconnect Request (CALLDIS) message is enhanced to disconnect a trunk call. Trunk Call Disconnect allows the CTI application to disconnect a trunk call given either the Disconnect Party TN (in packed format) or the route and member number of the trunk. In order for the trunk call to be disconnected, all of the following conditions must be met:

- Either the Disconnect Party TN or the trunk route and member number must be valid.
- The trunk must belong to the Customer group, as indicated by the Customer number in the CALLDIS message.

- The trunk must be an Associated trunk (AST = YES in Overlay 14).
- The call must be a 2-party call, and the call state must be established.

Warning Tone

With the Warning Tone functionality, the Connection Request (CON) message is enhanced so that a short tone is provided to the originating party of a call. The Warning Tone functionality is not limited to trunk calls. This functionality also applies when the originating party is internal to the Meridian 1 system. The warning tone is provided if either the originating TN (in packed format) or the trunk route and member number is known. All of the following conditions must be met to receive this tone:

- Either the Calling Party TN or the trunk route and member number in the Calling Party DN field must be valid. If the value of the Calling Party TN field is zero, the trunk route and member number is obtained from the Calling Party DN field.
- The specified call must belong to the Customer group, as indicated by the Customer number in the CON message.
- The trunk must be an Associated trunk (AST = YES in Overlay 14).
- The call must be a 2-party call, and the call state must be established.

Route Member Number Information Element (IE)

The Route and Member Number Information Element (IE) contains the trunk route and member number on which a call arrives. The Route and Member Number IE is added to the following two AML messages:

- Present Call Indication (PCI) message: for incoming trunk calls that terminate to ACD sets
- USM (Ringing) message: for incoming trunk calls that terminate to non-ACD sets

The Trunk Call Disconnect and Warning Tone functionalities require either the packed TN or the CTI application to identify the trunk by route and member number. The new Route and Member Number IE ensures that the route and member number of the trunk involved in a trunk call is passed to the CTI application.

Incremental Software Management (ISM)

With the CTI Trunk Monitoring and Control feature, the AST ISM limit now includes the count of both Associated sets and trunks. This limits the total number of AST sets and trunks allowed on one system. When this limit is reached, no more associated sets and trunks can be configured, and an error message is displayed. If a customer requires more Associated sets or trunks once the limit is reached, an increased AST limit must be ordered and installed.

The existing ISM header in Overlay 14 is modified to indicate the number of Associated sets and trunks allowed for the system. AVAIL shows the system's ISM limits for Associated sets and trunks. USED shows the number of configured Associated sets and trunks. TOT shows the maximum number of Associated sets and trunks that can be supported on one system.

Figure 36 is an example of the updated header in Overlay 14.

Figure 36
ISM header in Overlay 14

TNS	AVAIL: xxxxx	USED: xxxxx	TOT: xxxxx
AST	AVAIL: xxxxx	USED: xxxxx	TOT: xxxxx

For further information on ISM, refer to the "Incremental Software Management" on page 1725.

Operating parameters

The CTI Trunk Monitoring and Control functionalities are supported on the following trunk signaling protocols:

- R2MFC
- 2.0 Mbit E1 DTI
- Loop Start Analog
- 1.5 Mbit T1 DTI
- ISDN PRI (for selective Asia Pacific countries)
- ISDN PRI (for SS-7 conversion in China)
- QSIG

- DASS
- DPNSS
- EuroISDN ETSI
- Numeris
- Swissnet
- 1TR6
- MCDN
- UK Analog

The design and operation of the above trunk signaling protocols are not modified by the CTI Trunk Monitoring and Control feature.

Ground Start Analog and ISDN Basic Rate Interface (BRI) trunks are not supported for CTI Trunk Monitoring and Control.

The CTI Trunk Monitoring and Control functionalities are supported on the LAPB AML interface only. They are not supported on the TCP/IP AML interface.

This feature modifies the Connection Request (CON), Connection Request Response (CRS), Unsolicited Status Message (USM), Call Disconnect Request (CALLDIS), and Present Call Indication (PCI) AML messages.

Configuration procedures for CTI Trunk Monitoring and Control are similar to those for Set Monitoring and Control.

For CTI Trunk Monitoring and Control, the Associated trunk for CTI Trunk Monitoring and Control (AST) prompt must be defined in Overlay 14. This prompt designates a trunk as an Associated Trunk. Also, the Event Group for USM messages (IAPG) prompt must be configured in Overlay 14. This prompt assigns an event group to a specific trunk, in order to control the USM messages for Trunk Monitoring.

If a Customized Event Group is needed, the GPXX prompt must be defined in Overlay 15.

The existing USM message format is used for the trunk status USM messages.

With Trunk Monitoring, when the AML interface is down, USM messages are not sent. No error messages, other than general maintenance messages, are generated for this condition.

The Trunk Monitoring feature mainly monitors the events of far-end answer and far-end disconnect. It is not intended to be used for monitoring the trunk state transition from idle to active or vice versa.

Trunk status USM messages are sent only when trunk status is detected. That is, when the trunk is equipped with Answer Supervision and Disconnect Supervision.

Trunk Call Disconnect functions on a trunk that is involved in an established two-party call or multi-party conference call, and in cases where the trunk is either active or on hold on an established call or a call which is in a half-disconnect state, due to far-end disconnect control.

The format of the CALLDIS message for disconnecting a trunk is the same as that for disconnecting a set.

When Trunk Call Disconnect fails, the call is not disconnected, and a CALLDIS response message is sent to the AML interface.

If more than one failure condition occurs for Trunk Call Disconnect, only one CALLDIS message is sent.

With Warning Tone functionality, when the warning tone fails, a tone is not provided, and a CRS message is sent to the AML interface.

For the Warning Tone functionality, if more than one failure condition occurs, only one Connection Request Response (CRS) message is sent.

Feature interactions

Call Detail Records

Trunk Call Disconnect, performed via the AML interface, generates the same Call Detail Records (CDR) as regular call disconnect.

Customer Controlled Routing

The modified AML messages are not supported by Customer Controlled Routing (CCR). With the Trunk Disconnect functionality, it is possible to disconnect a trunk call to a CCR Control DN. This operates in the same manner as a disconnect initiated on behalf of an Associated set currently supported by Meridian Link.

Meridian 911

The modified AML messages are not supported by Meridian 911 (M911).

Meridian Link

The CTI Trunk Monitoring and Control feature introduces new Trunk Monitoring and Control functionalities for CTI Services. These new Trunk Monitoring and Control features are made available to the host CTI application through Meridian Link. For more information on Meridian Link, refer to the Meridian Link documentation.

The modified AML messages are not supported by Meridian Mail.

Meridian MAX

If ACD is involved, Trunk Call Disconnect could potentially impact the High Speed Link (HSL) interface. However, from the HSL interface there should be no difference between an AML initiated Trunk Call Disconnect and a regular call disconnect.

Feature packaging

The Trunk Monitoring and Control feature requires the following packages:

- Integrated Message System (IMS) package 35
- Command Status Link (CSL) package 77
- Application Module Link (IAP3P) package 153
- Meridian Link Module (MLM) package 209)

The following packages are also required:

- Basic Automatic Call Distribution (BACD) package 40
- Automatic Call Distribution Package B (ACDB) package 41
- Automatic Call Distribution Package A (ACDA) package 45

- Automatic Call Distribution Package C (ACDC) package 42
- Automatic Call Distribution Load Management Reports (LMAN) package 43
- Automatic Call Distribution Package D (ACDD) package 50
- Dialed Number Identification Service (DNIS) package 98
- Integrated Services Digital Network (ISDN) package 145
- 1.5 Mbps Primary Rate Access (PRA) package 146
- Integrated Service Digital Network Signaling Link (ISL) package 147
- Network Automatic Call Distribution (NACD) package 207
- Enhanced Automatic Call Distribution Routing (EAR) package (214)
- Call Identification (CALLID) package 247

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

1 LD 15 – Define Customized Event Groups.

2 LD 14 – Configure the Associated Trunk and Event Group.

LD 15 – Define Customized Event Groups.

Prompt	Response	Description
REQ:	CHG	Change existing data.
TYPE:	CDB	Customer Data Block.
CUST	xx	Customer number.
...		
GPXX	x	Unsolicited status events 1,2,3,4,5, or 6. XX can be 02 to 15, specifying the group. x can be 1 to 15, but only events 3 (Ringing) and 4 (Active) are applicable to Trunk Monitoring.

LD 14 – Configure the Associated Trunk and Event Group.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	aaaa	Trunk type.
TN	l s c u c u	Terminal Number. For Option 11C.
...		
AST	YES	Associated trunk for CTI Trunk Monitoring and Control. NO = Not an Associated trunk for CTI Trunk Monitoring and Control (default).
IAPG	(0)-15	Event Group for USM messages.
TGAR	(0)-31	Trunk Group Access Restriction.

Feature operation

No specific operating procedures are required to use this feature.

D-channel Expansion

The D-channel Expansion feature increases the total number of possible D-channels in a multiple group Meridian 1 system. The D-channel Expansion feature increases the number of physical I/O addresses permitted for D-channel application to 16 for each network group. For each MSDL physical I/O address, up to four ports are available for D-channel use. With the D-Channel Expansion feature, the X11 software supports up to 255 D-channels.

For more information on the D-Channel Expansion feature, please refer to *Networking Features and Services* (553-2901-301).

Departmental Listed Directory Number

Contents

The following are the topics in this section:

Feature description

The Departmental Listed Directory Number (DLDN) feature allows specified telephones sharing the same numbering plan to belong to one subgroup out of a possible six subgroups within a Meridian 1 customer group. Each Departmental Listed Directory Number (DLDN) subgroup is identified by one of the customer's Listed Directory Numbers (LDNs). Calls to specific Listed Directory Numbers (LDN), or dial-0 calls from subgroup telephones, are directed to the Attendant Console or consoles assigned to that LDN.

When the Departmental Listed Directory Number (DLDN) feature is implemented, a departmental Attendant Console is presented with calls from the following sources:

- Incoming external trunk calls routed to the LDN from:
  - an auto-terminate trunk (CO, FX, or WATS) whose Auto-Terminate Number (ATDN) is the LDN

— a Direct Inward Dialing (DID) trunk whose DID number is the same as the LDN

- Calls that originate from internal telephones or TIE trunks when:

  — a telephone user dials the LDN

  — a telephone user associated with a departmental Attendant Console dials 0, or

  — a TIE-line user dials the LDN.

The DLDN feature associates Attendant Consoles with an LDN. Up to 63 Attendant Consoles can be associated with one LDN.

For call distribution purposes, all Attendant Consoles within a subgroup are made members of a circular list. When a call is received, it is presented to the next listed console after the one that was last offered a call, thus ensuring that LDN calls are distributed in an equitable way. LDN calls, dial-0 calls, and associated timed recalls are serviced according to a circular list for the particular LDN.

On receiving an LDN type call, the Meridian 1 searches for an idle Attendant Console and tests whether or not that console is configured to answer a call for the dialed Directory Number (DN). If the Attendant Console is not configured to answer calls for that LDN, the next idle Attendant Console is tested. If an Attendant Console that can answer the call is found, the call is presented with the appropriate Loop and Incoming Call Indicator (ICI) lamps lit. If no idle Attendant Console for the LDN is found, the call is placed in the incoming call queue for all Attendant Consoles within the customer group.

The Call Waiting indication is provided to all Attendant Consoles within the customer group. If an Incoming Call Indicator (ICI) key has been provisioned for the LDN, a lamp indication (with no buzz) is provided to all idle Attendant Consoles within the customer group and may be answered by pressing the appropriate key.

When an attendant presses the Release key, the Meridian 1 checks to see if there are any calls waiting in the queue. If there are calls waiting, it tests whether or not the Attendant Console, if it is next in the circular list, can answer the first call in the queue. If the call can be answered, it is presented to the Attendant Console. Otherwise it is put back into the queue and another call is sought. If no calls for the LDN are found, the Attendant Console is idled and the Release lamp is lit.

Operating parameters

An optional assignment of ICI keys is allowed to provide a visual indication of the LDN (LD 15).

If the DN Expansion package is equipped, all LDNs can have up to seven digits.

Feature interactions

Attendant Overflow Position

LDN calls that have been waiting in the queue longer than the specified threshold period will be routed to the Attendant Overflow Position.

Attendant Position Busy

If all Attendant Consoles in a LDN group are in position busy, calls to that LDN are not automatically presented to any Attendant Console in the customer group and will enter the attendant queue for that customer group. Other attendants outside the LDN queue may only answer LDN calls in the attendant queue by pressing the relevant LDN ICI key, if configured. No buzz is provided as the call is in the attendant queue and not the loop key.

Attendant Supervisory Console

The supervisory capabilities extend to all Attendant Consoles defined within the customer group. The Attendant Console serving as supervisor should be a member of every DLDN group so that it can serve all groups when operating in the Normal mode.

Call Forward Busy
Call Forward No Answer
Call Forward

Call Forward No Answer to the attendant and Call Forward Busy operate like Call Forward to 0, and are routed to any idle Attendant Console in the customer group.

Centralized Attendant Service

LDN calls are not screened for Centralized Attendant Service (CAS). When a CAS key is pressed at a CAS remote Attendant Console, LDN calls will be handled at the CAS main as if the DLDN feature did not exist.

Console Operations

DLDN is a way of directing attendant calls. The feature has some similarities to MTS, but it overrides Multi-tenant Service (MTS) and is therefore not affected by Console Presentation.

Directory Number

With the Network-Wide LDN feature, telephones using DLDN have access to two additional LDNs, even though DLDN is not supported over a network.

Interdepartmental Attendant Transfers

Interdepartmental Attendant Transfers operate normally, except that if there is a recall, it will be to the appropriate department rather than to the last attendant that extended the call.

Listed Directory Numbers, Network Wide

Departmental LDN is not supported over the network; however, this feature does provide two more LDNs for the DLDN feature.

Multiple Console Operation

Departmental Listed Directory Number (DLDN) supports the assignment of 63 consoles per DLDN.

Network-Wide Listed Directory Number

DLDN is not supported over a network; however, Network-Wide LDN provides two additional LDNs for DLDN.

Night Service

DLDN does not affect Night Service (including TAFAS). Calls presented to the LDN from an external source will queue for the night bell. All other attendant calls receive busy treatment if the night Directory Number (DN) is busy.

Feature packaging

Departmental Listed Directory (DLDN) package 76 has no other package dependencies.

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

1 LD 15 – Enable the Departmental Listed Directory Number feature for a customer.

2 LD 10 – Configure Departmental Listed Directory Number for analog (500/2500 type) telephones.

3 LD 11 – Configure Departmental Listed Directory Number for Meridian 1 proprietary telephones.

LD 15 – Enable the Departmental Listed Directory Number feature for a customer.

Prompt	Response	Description
REQ:	CHG	Change.
TYPE:	LDN	Gate opener.
CUST	0-99 0-31	Customer number. For Option 11C.
- OPT	NLDN	Network wide LDN allowed. XLDN = Network wide LDN denied (default).
- DLDN	(NO) YES	(Disable) enable DLDN.

- LDN0	xxxx	Listed Directory Number Zero.
- LDA0	1 - 63 ALL	Attendant Consoles associated with LDN 0.
- LDN1	xxxx	Listed Directory Number One.
- LDA1	1 - 63 ALL	Attendant Console number associated with LDN 1.
- LDN2	xxxx	Listed Directory Number Two.
- LDA2	1 - 63 ALL	Attendant Console number associated with LDN 2.
- LDN3	xxxx	Listed Directory Number Three.
- LDA3	1 - 63 ALL	Attendant Console number associated with LDN 3.
- LDN4	xxxx	Listed Directory Number Four.
- LDA4	1 - 63 ALL	Attendant Console number associated with LDN 4.
- LDN5	xxxx	Listed Directory Number Five.
- LDA5	1 - 63 ALL	Attendant Console number associated with LDN 5.
- ICI	xx LD0 xx LD1 xx LD2 xx LD3 xx LD4 xx LD5	Incoming Call Indication for Listed Directory Numbers Zero to Five (xx = key number 00-19).
Note: To remove an LDN, enter an X before the Directory Number. An LDN cannot be removed if any Attendant Consoles are associated with it. To remove an associated Attendant Console, enter an X at the LDA prompt before the attendant number.		

LD 10 – Configure Departmental Listed Directory Number for analog (500/2500 type) telephones.

Prompt	Response	Description
REQ:	CHG	Change.
TYPE:	500	Telephone type.

TN	l s c u c u	Terminal Number. For Option 11C.
LDN	(NO) 0-3	Telephone associated with LDN (0-3 or none). Choose NO to remove this telephone from the group.

LD 11 – Configure Departmental Listed Directory Number for Meridian 1 proprietary telephones.

Prompt	Response	Description
REQ:	CHG	Change.
TYPE:	aaaa	Telephone type, where: aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, or 3000.
TN	l s c u c u	Terminal Number. For Option 11C.
LDN	(NO) 0-3	Telephone associated with LDN (0-3 or none). Choose NO to remove this telephone from the group.

Feature operation

No specific operating procedures are required to use this feature.

Dial Access to Group Calls

Contents

The following are the topics in this section:

Reference list

The following are the references in this section:

- “Group Call” on page 1587

Feature description

This feature allows attendants and users of analog (500/2500 type) telephones, and Meridian 1 proprietary telephones to make a Group Call by dialing a Flexible Feature Code (FFC). Meridian 1 telephone users may continue to use a Group Call key. The customer can define whether or not the originator of the Group Call has control of the active call. In the Group Call List, if GRPC = YES, the originator has control: when the originator goes on hook, the call is terminated. If GRPC = NO and the originator goes on hook, the Group Call acts like a conference call: the call remains active until all members go on hook.

For more information on group calls, see the “Group Call” on page 1587 description contained in this guide.

Operating parameters

All group stations must have Warning Tone Allowed (WTA) Class of Service.

Because analog (500/2500 type) telephones have no lamp state, there is no indication to the call originator that all group members have answered.

If a Group Call is originated via a FFC from a DN key of a Meridian 1 proprietary telephone, or a loop key on an Attendant Console, the DN lamp state does not display the status of the Group Call.

A Group Call member that has disconnected from the call cannot be reconnected to the call.

Feature interactions

The following features cannot be applied to a Group Call:

- Call Forward No Answer
- Call Forward Busy
- Call Join
- Call Park
- Conference
- Hunting
- Privacy Release, and
- Ring Again.

AC15 Recall: Transfer from Norstar

If Norstar sends a recall signal in order to initiate a consultation, the consultation will not be authorized because it is not possible to put a group call on hold. It is however possible to transfer a party to a group call using an AC15 trunk.

On Hold on Loudspeaker

If a group call is initiated from a set with Dealer Allowed (Class of Service), the conference is built up on the assigned loop of the loudspeaker or speech monitor system channel since this is a potential On Hold on Loudspeaker call.

Feature packaging

Dial Access to Group Call requires the following packages:

- Group Call (GRP) package 48
- Flexible Feature Codes (FFC) package 139

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

1 LD 18 – Configure the Group Call List table for Group Call control.

2 LD 57 – Configure Flexible Feature Codes for Group Calls.

LD 18 – Configure the Group Call List table for Group Call control.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	GRP	Group Call data block.
CUST	0-99 0-31	Customer number. For Option 11C.
GRNO	0-63	Number of the Group Call list.
STOR	xx yyy...y	Group member number (xx) and associated DN (yyy...y).

LD 57 – Configure Flexible Feature Codes for Group Calls.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	FFC	Flexible Feature Codes.
CUST	0-99 0-31	Customer number. For Option 11C.
GRPF	xxxx	Group Call code.
- GRCL	0-63	Group Call List number.

Feature operation

To make a Group Call,

- Press the **Group Call** key. All group members are automatically called. The LCD indicator beside the Group Call key flashes until all members have answered. Then it lights steadily.

or

- Dial the Group Call FFC. All group members are automatically called. When an originating station makes a Group Call using an FFC, all idle stations in the group are rung. Busy stations are given Call Waiting or Camp-On, if equipped, along with a special warning tone.

Dial Intercom

Contents

The following are the topics in this section:

Feature description

Dial Intercom (DI) allows a customer to arrange stations within the Meridian 1 into separate Dial Intercom Groups (DIGs). A total of 100 stations can belong to each Dial Intercom Group (DIG). One-digit dialing is required for a Dial Intercom Group (DIG) of up to 10 stations, and two-digit dialing is required for a DIG of up to 100 stations.

Meridian 1 proprietary telephones can be equipped with a separate DIG key/lamp pair for each DIG of which it is a member. Single-line telephone users can belong to only one DIG and may not have any non-DIG Directory Numbers (DNs).

Voice or ring may be specified on a DIG basis for Meridian 1 proprietary telephones. If voice is specified, an idle station rings once for two seconds. The calling party is then connected and may make a voice announcement. If ring is implemented, normal ringing is received until the called party answers. This feature provides the option of an announcement or a two-way speech path.

The ring option must be used if a 500 telephone is a member of the group.

Distinctive ringing for Dial Intercom

This feature allows a user to differentiate between an incoming call and a Dial Intercom (DI) call. The Dial Intercom (DI) ringing has a different cadence than the regular Directory Number (DN) ringing and Distinctive Ringing.

Distinctive Ringing for DI is assigned on a per-customer basis. The cadence is 0.5 sec. on and 0.5 sec. off, repeatedly.

Dial Intercom Handsfree Voice Call

Dial Intercom Handsfree Voice Call can be used with the following telephones: M2112, M2317, and M2616.

Handsfree Voice Call provides the option of configuring VCC/DIG (with voice option) to be answered in either handsfree mode or loudspeaker only mode. Calls answered in handsfree (HVA) mode establish a two-way voice path, while those answered in loudspeaker only (HVD) mode establish only a one-way voice path from the calling telephone to the destination telephone.

Dial Intercom Handsfree Voice Call applies only to voice option DIG calls.

Operating parameters

A maximum of 2046 DIGs can be established per customer.

Calls are restricted to stations within the DIG only. Trunks cannot be accessed using the DIG key, and cannot be added to a DIG call using the Conference feature.

A DIG member number must be a single appearance Directory Number (DN) within a specified DIG.

DI analog (500/2500 type) telephones cannot dial the attendant or be dialed by the attendant.

A DI telephone cannot be assigned a member number that conflicts with the Special Prefix (SPRE) code. In the case of double-digit DIG values, the first digit cannot be the same as the SPRE code. For example, if the SPRE code is 7, the member number cannot be 7 or any number from 70 through 79. A two-digit SPRE code, such as 77, allows 99 DIG member numbers (00, 01-76, and 78-99). With no SPRE code defined, 100 DIG members are possible.

Call Transfer and Conference cannot take place to telephones outside the DIG.

Handsfree Voice Call allowed/denied is set at the system level and can only be used with digital telephones that have handsfree capabilities (such as 2112, 2317, and 2616), and requires Class of Service Handsfree Allowed (HFA) on the destination telephone, which is set at the telephone level.

Basic Rate Interface (BRI), M3000, and SL-1 telephones do not support the Handsfree feature.

Feature interactions

Auto Answer Back (AAB)

This feature is not affected by the Handsfree Voice Call feature.

Autodial
Speed Call

The Dial Intercom code may be dialed using Autodial or Speed Call.

Automatic Line Selection

A Dial Intercom DN is selected by Incoming Ringing Line Selection and Outgoing Line Selection.

Call Forward
Call Waiting

The Call Forward and Call Waiting features do not apply to a Dial Intercom appearance.

Call Party Name Display

The display on telephones connected by Dial Intercom shows the group member's DIG number plus Call Party Name Display information.

Call Pickup

Call Pickup may be used by Meridian 1 proprietary telephones if the telephones are all in the same DIG and Call Pickup Group and the ring option is specified for the DIG.

Call Pickup Network Wide

The Dial Intercom feature is not supported network wide. Any pickup attempt from a distant node to a local intercom call will be rejected, because the far-end user is considered as not being in the same intercom group.

Conference
Call Transfer

When using Conference or Transfer, the voice option is not provided if the call is terminated before the conference or transfer is completed. If an analog (500/2500 type) telephone is part of a Dial Intercom Group (DIG), the user of the telephone can conference only with another user whose telephone is within the same Dial Intercom Group (DIG).

Digit Display

The digit display will be cleared when the DIG key is pressed. When the user dials the DI code, the digits of the code are displayed. When the call is answered, the DI code of the calling party appears on the display of the called party.

If either party presses the Release key or goes on hook during a DIG call, the displays of both parties are cleared. If either party presses the Hold key, the display of the holding station is cleared but the display of the other station remains unchanged. When the held call is reestablished, the holding station redisplays the DIG number of the other party.

Display of Calling Party Denied

Display information on sets that are involved in a Dial Intercom Group (DIG) call is based on the individual Class of Service of each set. If a DN is denied for a set involved in a DIG call, the DIG number for that set is replaced by one dash (–) in the case of 10 DIG stations. For 100 DIG stations, the DIG number is replaced by two dashes (– –).

Hot Line

The analog (500/2500 type) Hot Line telephones cannot be members of Dial Intercom Groups (DIGs).

Station features

DI can be used in combination with the following features:

Feature	Meridian 1 proprietary telephones	Analog (500/2500 type) telephones
Autodial	•	
Speed Call	•	
Digit Display	•	
Make Set Busy	•	
Override	•	
Release	•	
Hold	•	
Call Pickup	•	•
Conference	•	•
Call Transfer	•	•
Ring Again	•	•

Tones, Flexible Incoming

For Dial Intercom Group (DIG) calls with the voice (V) option, if the telephone receiving the call is busy, the user hears one buzz followed by a flashing indicator. This is how DIG works with or without FIT.

Feature packaging

Dial Intercom (DI) package 21 has no other package dependencies.

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

1 LD 15 – Enable Dial Intercom for a customer.

2 LD 10 – Configure Dial Intercom for analog (500/2500 type) telephones.

3 LD 11 – Configure Dial Intercom for Meridian 1 proprietary telephones.

4 LD 15 – Configure Handsfree Voice Call for the Meridian 1 system.

LD 15 – Enable Dial Intercom for a customer.

Prompt	Response	Description
REQ:	CHG	Change.
TYPE:	FTR	Gate opener.
CUST	0-99	Customer number.
- DGRP	0-2046	Maximum number of DIGs that can be defined for the customer. The maximum number of DIGs allowed is 2046.

LD 10 – Configure Dial Intercom for analog (500/2500 type) telephones.

Prompt	Response	Description
REQ:	NEW CHG	Add, or change. Single line telephones cannot have both a Dial Intercom Group number and a standard DN. To add this feature, you must remove the telephone from the database and build it again, as a Dial Intercom Group member.
TYPE:	500	Telephone type.
TN	l s c u c u	Terminal Number. For Option 11C.
DES	a...x	ODAS set designator. a...x = one-to-six character alphanumeric designator.
CUST	0-99	Customer number.
DIG	xxxx yy	xxxx = Dial Intercom group number (0-2046). yy = member number (0-99) within the group. The maximum number of DIGs allowed is to 2046.

LD 11 – Configure Dial Intercom for Meridian 1 proprietary telephones.

Prompt	Response	Description
REQ:	CHG	Change.
TYPE:	aaaa	Telephone type, where: aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, or 3000.
TN	l s c u c u	Terminal Number. For Option 11C.
KEY	xx DIG aaa bb c	Add a Dial Intercom key, where: xx = key number aaa = group number (0-2046) bb = member number (0-99), and c = r (ring) or v (voice). The maximum number of DIGs allowed is to 2046.

LD 15 – Configure Handsfree Voice Call for the Meridian 1 system.

Prompt	Response	Description
REQ:	CHG	Change.
TYPE:	FTR	Gate opener.
CUST	0-99 0-31	Customer number. For Option 11C.
- OPT	(HVD) HVA	Handsfree Voice Call (Denied) allowed.

Feature operation

An example of a Dial Intercom call is listed below.

Dial Intercom Call

To make a Dial Intercom call:

1 Lift the handset and dial the **Intercom** key.

2 Dial the one- or two-digit code for the DIG member.

If your phone and the phone you are calling are configured for the voice option, you can deliver a voice message after two seconds of ringing.

To answer a Dial Intercom call when you are on a line other than your DIG line:

1 Release the current call or place it on hold.

2 Press **Intercom**.

Dial Intercom Handsfree Voice Call

Examples of both Handsfree Voice Call options are listed below.

HVA option

The originating telephone (telephone A) places a DIG call to the destination telephone (telephone B).

- Telephone B rings once.
- After one ring, telephone B automatically answers the call in Handsfree mode.

  The DN and handsfree LCDs are lit and a two-way voice path is established.

HVD option

Telephone A places a call to telephone B.

- Telephone B rings once.
- After one ring, telephone B automatically answers the call in loudspeaker only mode.

  The DN LCD is lit and the handsfree LCD remains dark, establishing a one-way voice path from telephone A to telephone B. At this point, telephone A is unable to hear the person at telephone B.

  To establish a two-way voice path, telephone B must either go off hook, or press the Handsfree button.

Dial Pulse/Dual-tone Multifrequency Conversion

Contents

The following are the topics in this section:

Feature description

With the Dial Pulse/Dual Tone Multifrequency Conversion feature, Dial Pulse (DP) signals from analog (500/2500 type) telephones, Dial Pulse (DP) TIE lines, Meridian 1 proprietary telephones, or Attendant Consoles are automatically converted to Dual-tone Multifrequency (DTMF) signals for transmission over trunks equipped for Dual-tone Multifrequency (DTMF) service. Dual-tone Multifrequency (DTMF) signals from single-line 2500 telephones are automatically converted for transmission over rotary-dial-only trunks, such as TIE lines. This eliminates the need for duplicate dials.

DTMF calling allows the use of 2500 telephones, equipped with push-button dials, to transmit digits through audible tones to the Meridian 1 equipment. This feature provides the ability to use any combination of telephones. However, 2500 telephones cannot use DTMF to control dictation equipment when the dictation trunk is specified as Dial Pulse (DP).

Operating parameters

There are no operating parameters associated with this feature.

Feature interactions

There are no feature interactions associated with this feature.

Feature packaging

This feature is included in base X11 System Software.

Feature implementation

There are no specific implementation procedures for this feature.

Feature operation

No specific operating procedures are required to use this feature.

Dial Tone Detection

Contents

The following are the topics in this section:

Feature description

The Dial Tone Detection (DTD) feature is needed because the first digit cannot be sent until the dial tone is detected on calls to a Public Switched Telephone Network (PSTN). This avoids the outpulsing of digits before the PSTN is ready to accept them, thus avoiding either the loss of digits or the misrouting of calls. The possibility of circumventing code dialing restrictions is also minimized by the feature.

The feature is configurable on a route basis for all types of routes.

The time-out for the route is statistically averaged over the last eight times that Dial Tone Detection was involved. Either the running-average time or the pre-overlay programmed minimum time is used as the trunk time out, whichever is greater. Dial Tone Detection can be invoked every time an outgoing trunk route is selected, regardless of the selected feature.

Operating parameters

There are no operating parameters associated with this feature.

Feature interactions

Digital Trunk Interface (DTI) – Commonwealth of Independent States (CIS)

Dial tone detection is supported in the CIS, but with the limitation of low reliability of the tone provided by the Public Exchange.

ISDN Semi Permanent Connections for Australia

To convey D-channel signaling over an ISPC link, the route associated to the link at the Meridian 1 configured as MASTER must detect a dialtone.

Three Wire Analog Trunk – Commonwealth of Independent States (CIS)

Dial Tone detectors are supported with the limitations of the reliability of the tone provided by the Public Exchange.

Feature packaging

Dial Tone Detector (DTD) package 138.

Feature implementation

Gather data for each customer's number to be configured for the DTD feature.

Task summary list

The following is a summary of the tasks in this section:

1 LD 13 – Create or modify data blocks for Digitone Receivers:

2 LD 16 – Create or modify data for trunk routes:

3 LD 17 – Modify the system hardware and software parameters:

LD 13 – Create or modify data blocks for Digitone Receivers:

Prompt	Response	Description
...		
TYPE	DTD	Dial Tone Detection.

LD 16 – Create or modify data for trunk routes:

Prompt	Response	Description
...		
DTD	(NO) YES	Dial Tone Detection is (is not) to be performed on this route.

LD 17 – Modify the system hardware and software parameters:

Prompt	Response	Description
...		
DTDT	NO	No Dial Tone Detection tests are required.

Feature operation

No specific operating procedures are required to use this feature.

Dialed Number Identification Service

The Automatic Call Distribution (ACD) Dialed Number Identification Service (DNIS) shows the last three or four digits of the dialed DN received from auto-terminated Direct Inward Dialing (DID) and TIE trunks on the display for ACD agents. The maximum number of characters allowed is 27, including spaces.

In telemarketing environments, DNIS can reduce the time needed to serve a call. For example, the dialing plan can be configured so the DNIS digits represent product lines or services. The ACD agent can then answer incoming calls with the correct response

For further information on Dialed Number Identification Service, please refer to *Automatic Call Distribution: Feature Description* (553-2671-110).

Digit Display

Contents

The following are the topics in this section:

Feature description

There are two types of Digit Displays: Attendant Console Digit Display and Meridian 1 proprietary telephone Digit Display.

Attendant Console Digit Display

QCW Attendant Consoles can be equipped with either an 8- or a 16-digit display. This display indicates the following:

- Dialed digits
  On attendant-originated calls, Busy Verify (BVR), or Barge-In, the digits dialed by the attendant are displayed. If the dialed number hunts, the Hunt destination and the dialed Directory Number (DN) are displayed. If the dialed number is call forwarded, the forwarded DN and the dialed DN are displayed.

- Incoming calls
  On incoming calls and forwarded Direct Inward Dialing (DID) calls, the trunk access code and member number are displayed. For all station dial-0 calls, the calling station DN is displayed. For recalls, the destination DN is displayed.
- Display Source/Display Destination keys
  Two keys are provided to allow the attendant to display the source and destination numbers for any connection completed through the console.
- Night assignment
  During the assignment of night numbers, the Display Source key may be pressed after the trunk access code and member numbers have been dialed to display the correct night assignment.
- Autodial
  The DN stored against an Autodial key may be displayed by pressing the Autodial key, then the Display Source key. If using an eight-digit display assignment and if the stored DN consists of more than eight digits, the Display Source key must be pressed a second time to display the remainder of the DN. When the Autodial number is changed, the new number may be displayed by pressing the Display Source key.
- Speed Call
  The DN stored against a Speed Call code may be displayed by pressing the Speed Call key, dialing the Speed Call code, and then pressing the Display Source key. When the Speed Call list is changed, an entry may be displayed by pressing the Display Source key.
- Time and Date
  The time may be displayed by pressing the Display Time key on the Attendant Console. The date is displayed by pressing the Display Date key.

Meridian 1 proprietary telephone Digit Display

This feature allows the automatic display of information relevant to normal call processing and feature activation on any Meridian 1 proprietary telephone equipped with a 16-digit display. A key/lamp pair is also provided to enable the station user to obtain information manually, independent of call processing activity.

Time and Date are displayed with an additional Time and Date (TAD) key.

CAUTION

This option should not be used when a Prime DN appears on another telephone as a Prime DN. Severe real-time penalties will occur (ERR040 message).

The following display options are available:

- No Digit Display (NDD)
  This is the default option.
- Automatic Digit Display (ADD)
  This option allows the display of digit information during call processing. ADD allows the automatic display of a calling party number on an incoming call to the Prime DN on a telephone.
- Standard Delayed Display (DDS)
  Provides calling party information, displayed after answer only.
- Touchphone Digit Display (TDD)
  With this option, when a call is presented to a busy M3000 Touchphone, the user of the Touchphone can press the Display key to see the Calling Line Identification information of the new incoming call.
- Tandem Digit Display (TDD)
  This option is introduced in X11 Release 23. With this option, when an incoming call is presented to a busy Meridian 1 proprietary telephone with display, the Calling Line Identification and Call Party Name Display information is automatically displayed on the busy telephone.

Automatic displays will show the following:

- Number dialed
- Number of calling party
- Call Pickup
- Call Waiting party, and
- Time and date.

Press the Display (DSP) key, then the feature key to display information associated with these features:

- ACD in-calls
  If the Display Key is used to view information defined on the ACD DN key of an agent serving multiple queues, then the ACD DN displayed will be the current queue being served if the agent is active on a call. The last queue is served if the agent is not serving an ACD call or the Primary ACD DN if the agent is logged out.
- Autodial number
  When the telephone is inactive and the DSP key is pressed, followed by the autodial key, the number stored against the key will be displayed.
- Autoline
  To display the DN programmed for the Autoline key, the attendant presses the Autoline key when the console is idle or in Position Busy. On an analog console, to display a DN that is longer than eight digits, the attendant presses the display key after pressing the Autoline key.
- Buzz DN
  When the telephone is inactive and the DSP key is pressed, followed by the Buzz DN key, the number stored against the key will be displayed.
- Call Forward party
  When the telephone is inactive and the DSP key is pressed, followed by the Call Forward key, the number stored against the key will be displayed.
- Call Park
  The Park DN of the most recently parked call can be re-displayed on Meridian 1 proprietary telephones equipped with displays, a Park key, and a Display key. This is done by pressing the Display key, then the Park key. The attendant can display the last call parked by pressing the Park key when no loop key is active.
- Call Pickup
  To display Call Pickup, press the Display key, followed by the Call Pickup key.

- Call Waiting party
  Pressing the Call Waiting key to answer a waiting call makes that call active. The call can be placed on hold by pressing the Call Waiting key again, or by pressing any idle DN key on the set. If the Display key is pressed before the Call Waiting key, the call waiting party information is displayed.
- Conference
  While in a conference call, the Display (DSP) key can be used to obtain information on other keys. However, the Display key is blocked when the CSD key is active.
- DN key (SL-1 and Meridian Modular telephones)
  While the key is active (established, outgoing ringing) will show the source of the destination. While the key is active but not answered (i.e. ringing) will show the source of the originator. While inactive will show the number stored that will be used for the 'last number redial' function (if configured).
- Hot Line
  Hot Type I calls are supported by the Display key feature; pressing the Display key and then the Hot Type I key will show the target DN on the originating station's display.
- Message Waiting
  When the telephone is inactive and the DSP key is pressed, followed by the Message Waiting key, the number stored against the key will be displayed.
- Ring Again party
  When the telephone is inactive and the DSP key is pressed, followed by the Ring Again key, the number stored against the key will be displayed.
- Speed Call number
  To display a stored entry the user presses the Display key and the Speed Call key and dials the list number. The list number cannot be abbreviated.
- Voice Call party
  When the telephone is inactive and the DSP key is pressed, followed by the Voice Call key, the number stored against the key will be displayed.

Operating parameters

Digit Display must be enabled for all console types in LD 15, using the prompt OPT.

Only telephones equipped with a Digit Display module can use this feature.

The Display Time and Display Date key cannot be assigned to key 0.

Feature interactions

Attendant Break-In

During Attendant Break-In, the Attendant Console Digit Display shows the DN of the incoming call and the destination DN until the Attendant extends the incoming call to the destination DN and releases the connection.

Autodial Tandem Transfer

Digit Display allows the automatic display of information relevant to normal call processing if the sets have display capability and the Class of Service is ADD or DDS. When the THF key is pressed the display gets cleared, and pressing the ADL key causes the ADL digits to be displayed. However, no ADL digits will be displayed if no Tone and Digit Switch (TDS)/XCT is available to generate the Dual-tone Multifrequency (DTMF) tones for the ADL digits.

Automatic Redial

Dialed numbers are displayed when the Automatic Redial (ARDL) feature is activated. The calling party can dial digits even though a busy tone indication is given.

Digits dialed while on hold are not displayed.When the calling party accepts a redialed call, the dialed numbers are displayed. If the Display (DSP) key and appropriate RGA key are pressed while a call is on hold, the number redialed is displayed.

China – Flexible Feature Codes - Outgoing Call Barring Enhanced Flexible Feature Codes - Outgoing Call Barring

Meridian 1 proprietary telephones with displays do not display the OCB level and the Station Control Password (SCPW) when OCB FFCs are dialed. This protects the security of the SCPW.

Centralized Multiple Line Emulation

The digit display of the station picking up a parked call recall shows the parked call's access code followed by the parked call's access-identification code. If the picked-up call is a group member call, the display shows the group number of the picked-up station.

Dial Intercom

The digit display will be cleared when the Dial Intercom Group (DIG) key is pressed. When the user dials the DI code, the digits of the code are displayed. When the call is answered, the DI code of the calling party appears on the display of the called party.

If either party presses the Release key or goes on hook during a DIG call, the displays of both parties are cleared. If either party presses the Hold key, the display of the holding station is cleared but the display of the other station remains unchanged. When the held call is reestablished, the holding station redisplays the DIG number of the other party.

Digital Private Network Signaling System (DPNSS1)/Digital Access Signaling System (DASS2) Uniform Dialing Plan (UDP) Interworking

The digit display rules for DPNSS1 UDP are based on what is currently done in an MCDN.

Group Hunt

Until a call is answered, the calling party will see the dialed DN. When the call is answered, the caller will see the dialed DN appended with the DN and name, if Calling Party Name Display (CPND) is equipped, of the called party. The terminating set will always see the originating DN appended by a Pilot DN

Hot Line

A Display key on a telephone with a Hot Line appearance will display the Hot Line target DN data stored for that key.

INIT ACD Queue Call Restore

Call information associated with Digit Display is lost after system initialization and call restoration.

LOGIVOX Telephone

During manual dialing or last number redial, the display shows the dialed digits, even if the set has display denied Class of Service. If the set has LOGIVOX denied Class of Service, each digit is shown twice.

Override
Override, Enhanced
Override, Priority

The Digit Display of the telephone being overridden changes to the Directory Number (DN) of the overriding telephone once Priority Override is accomplished.

Pretranslation

The Pretranslation digit is displayed as it was dialed, but if the call is put on hold, the digits of the pretranslated DN are displayed

Feature packaging

Digit Display (DDSP) package 19 has no other feature package dependencies.

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

1 LD 15 – Configure Digit Display for Attendant Consoles for each customer.

2 LD 11 – Configure Digit Display for Meridian 1 proprietary telephones.

3 LD 12 – Configure Digit Display for each Attendant Console.

LD 15 – Configure Digit Display for Attendant Consoles for each customer.

Prompt	Response	Description
REQ:	CHG	Change.
TYPE:	CDB ATT	Customer Data Block. Gate opener.

CUST	0-99 0-31	Customer number. For Option 11C.
- OPT	(XDP) IDP	(Exclude) include Digit Display capability for Attendant Consoles of this customer.

LD 11 – Configure Digit Display for Meridian 1 proprietary telephones.

Prompt	Response	Description
REQ:	CHG	Change.
TYPE:	aaaa	Telephone type, where: aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, or 3000.
TN	l s c u c u	Terminal Number. For Option 11C.
CLS	(NDD) DDS ADD	Telephone is not equipped with a Digit Display. Calling Party information is displayed after call is answered (delayed display source). Calling Party information is displayed during call processing (Automatic Digit Display).
KEY	xx DSP xx TAD	Add a Digit Display key (must be key/lamp pair). Add a Time and Date key (must be key/lamp pair). xx = key number.

LD 12 – Configure Digit Display for each Attendant Console.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	ATT 1250 2250	Console type.
TN	l s c u c u	Terminal Number. For Option 11C.

DLEN	(8) 16	Digit Display entry length (the default is 8). This prompt applies to QCW consoles only.
KEY	xx DCW xx DDT xx DPD xx DPS xx DTM xx MDT xx MTM	Add display Call Waiting key. Add display Date key. Add display Destination key. Add display Source key. Add display Time key. Add display/change Date key. Add display/change Time key.

Feature operation

No specific operating procedures are required to use this feature.

Digital Private Network Signaling System

British Telecom's Digital Private Signaling System No. 1 (DPNSS1) is the open signaling protocol standard for intelligent private network digital connections. DPNSS1 provides the signaling capability to establish simple telephony and data calls, as well as supplementary features.

The following DPNSS1 features have been introduced:

- DASS2/DPNSS1 – Integrated Digital Access
- DPNSS1 Attendant Call Offer
- DPNSS1 Attendant Timed Reminder Recall and Attendant Three-party Service
- DPNSS1 Call Back when Free and Next Used
- DPNSS1 D-channel Handler Interface Expansion
- DPNSS1/DASS2 to ISDN PRI Gateway
- DPNSS1 Extension Three-party Service
- DPNSS1 Loop Avoidance
- DPNSS1 Redirection
- D-Channel Interface Expansion for DASS2/DPNSS1
- DPNSS1 Route Optimization
- DPNSS1 Step Back on Congestion
- DPNSS1 Executive Intrusion , and
- DPNSS1/DASS2 Uniform Dialing Plan Interworking.

For more information on DPNSS1, see *DPNSS1: Product Overview Guide* (553-3921-100).

Digital Trunk Interface – Commonwealth of Independent States

Contents

The following are the topics in this section:

Feature description

The information presented in this section does not pertain to all market regions. Contact your system supplier or your Nortel Networks representative to verify support of this product in your area.

The Commonwealth of Independent States (CIS) Digital Trunk Interface (DTI) feature allows the Meridian 1 to connect to Direct Inward Dialing (DID)/Central Office Trunk (COT) trunks to a CIS Public Exchange/Central Office and to a CIS toll exchange.

To satisfy the unique requirements of CIS DTI signaling, two new trunk cards have been introduced: a dual 2 Mbps Enhanced Network (ENET) styled digital trunk card (CDTI2); and a 2 Mbps digital trunk card (CSDTI2) for use with Option 11C systems. The CDTI2 card provides 60 voice or data 64 kbps channels, whereas the CSDTI2 card provides 30 voice or data 64 kbps channels. Each card occupies one card slot on the common equipment shelf (CDTI2), or on the Option 11C base cabinet (CSDTI2)

In addition to most of the features provided by digital trunks, the CDTI2 and CSDTI2 cards provide the following features intended for the CIS market:

- CIS digital trunk signaling (outgoing, incoming toll, and incoming local calls)
- Automatic Number Identification (ANI) transmission for outgoing calls on request from the Public Exchange
- Special disconnect procedure (two-way release) on incoming local answered calls initiated by the Public Exchange to provide Malicious Call Trace
- Unanswered free special service calls – outgoing calls that remain unanswered are recognized in a special manner to allow the called party (special service operator) to disconnect the calls
- CIS transmission plan
- Downloading the required firmware mode per loop, and
- Dial tone provided internally to the calling party by the Meridian 1 after seizure of an outgoing CIS trunk. However, for outgoing call terminating to a busy, vacant, invalid, or restricted DN, the Meridian 1 does not provide busy/overflow tone. The Public Exchange will send the tone on the speech path.

The CIS DTI trunk provides significant improvement on real-time impact for dial pulse outpulsing and digit collection by transferring these processes from the software to the firmware. The trunk state change validation timing is performed by the firmware. A Firmware Unproductive Timer is used to prevent a call on a CIS trunk from remaining unanswered for too long.

Operating parameters

CDTI2 and CSDTI2 cards do not support Periodic Pulse Metering, continuous pulse detection, or echo suppression.

The only line signaling supported for CIS is a two-bit ABCD protocol.

The data in ANI always refers to the originator of the outgoing call. If the call is transferred, the ANI information is not changed and therefore may be different than that of the set currently involved in the call.

On outgoing toll calls, there is no delay. On outgoing local calls, there is a 700 millisecond delay in the Answer signal recognition before the call is established.

Incoming and outgoing trunks cannot be mixed within the same route.

Toll Operator Break-In/Trunk Offer is not supported.

Toll Operator Manual Ringing is not supported.

MF Shuttle Register Signaling is not supported.

CSDTI2 cards are required for the Option 11C, while CDTI2 cards are required for all other machine types.

Only ANI transmission is supported.

Feature interactions

Authorization Code

An extension may refer to an Authorization Code to seize an outgoing CIS DTI trunk. The Authorization Code category is used to build the Automatic Number Identification (ANI) message. Thus, a set having a CIS restricting call category can complete a call to the Public Network using the Authorization Code.

Automatic Trunk Maintenance

This feature is not supported on CSDTI2 due to the absence of tone detectors on the Option 11C.

Called Party Disconnect Control

This feature may not be used in the CIS market because of its signaling requirements.

Computer to PBX Interface

Computer to PBX Interface (CPI) is not supported on CDTI2/CSDTI2 because the protocol conversion is not supported.

Call Detail Recording

If ANI is requested to be output in the Call Detail Recording (CDR) record, it will not refer to the CIS DTI2 ANI.

Data Transmission

All features connected with Data Transmission must be used with caution, because the ANI interaction can happen at any time during an outgoing call, thus destroying the transmitted data and disrupting the call.

Dial Tone Detection

Dial tone detection is supported, but with the limitation of low reliability of the tone provided by the Public Exchange.

Incoming Digit Conversion Enhancement
Incoming DID Digit Conversion

The construction of an ANI message does not care if Incoming Digit Conversion is used. The DN sent as ANI is the actual DN of the set, not necessarily the Direct Inward Dialing (DID) number to dial to reach the set. Therefore, if an external party uses a DN, delivered in an ANI message, for making a call to the corresponding extension, the call may fail.

Japan DTI2

All features related to Japan DTI2 may not be used, because the proper Scan and Signaling Distributor (SSD) messages are not supported in the CDTI2/ CSDTI2 firmware.

Multiple Appearance Directory Number

Since the ANI category is defined on a per set basis, two stations with the same Multiple Appearance Directory Number (MADN) can be assigned different ANI categories.

Periodic Pulse Metering

Periodic Pulse Metering is not supported.

Pulsed E&M DTI2 Signaling

Pulsed E&M is not supported.

R2MFC Calling Number Identification

The category (CAC) used to build the R2MFC Calling Number Identification (CNI) for the analog, digital, and Basic Rate Interface (BRI) sets is also used to build the CIS Automatic Number Identification (ANI). The meaning of CAC is different between the R2MFC CNI signalization and the CIS signalization (analog BRI and digital). R2MFC CAC prompt values are in the range of 0-10, with the default value of 0. CIS CAC prompt values are in the range of 0-9, with the default value of 3.

If the MFC package is equipped, but not the CIST package, the CAC prompt uses the R2MFC range and default. If the CIST package is equipped, whether or not the MFC package is equipped, the CAC prompt uses the CIS range and default.

Special Dial Tones after Dialed Numbers

Special Dial Tones can be used to provide dial tone after the Meridian 1 user has dialed the digit “9” (Local Exchange access code).

Tandem Switching

If an ISDN TIE incoming trunk (MCDN, QSIG, DPNSS1) with Calling Line Identification (CLID) and Originating Line Identification (OLI) available seizes the CIS DTI2 outgoing trunk, the ANI DN to be used for sending to the CIS Public Exchange is extracted from this CLID/OLI.

In any other case, the ANI sent to the CIS Public Exchange is based on the local Meridian 1 node (i.e., tandem node) definitions.

Virtual Network Services

Virtual Network Services via CIS DTI2 is not supported.

Feature packaging

This feature is packaged as Commonwealth of Independent States Trunk Interface (CIST) package 221.

The following packages are required:

- Flexible Tones and Cadences (FTC) package 125
- 2 Mbps Digital Trunk Interface (DTI2) package 129
- International Supplementary Features (SUPP) package 131
- Flexible Numbering Plan (FNP) package 160
- Meridian 1 Extended Peripheral Equipment (XPE) package 203
- Meridian 1 Extended Conference, TDS and MFS (XCT0) package 204, and
- Meridian 1 Superloop Administration (XCT1) package 205.

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

1 LD 17 – Change system configuration data.

2 LD 73 – Define DTI2 data.

3 LD 73 – Define the SICA table for CDTI2/CSDTI2.

4 LD 97 – Define dial pulse make-break ratio.

5 LD 15 – Define busy tone/overflow tone time out.

6 LD 16 – Add or change route data for CIS DTI2 trunks.

7 LD 16 – Add or change route data for an incoming, non CIS DTI2, trunk.

8 LD 14 – Add or change trunk data for CIS DTI2 incoming and outgoing trunk.

9 LD 10 – Specify ANI category for CIS DTI2 calls.

10 LD 11 – Specify ANI category for CIS DTI2 calls.

11 LD 12 – Specify ANI category for CIS DTI2 calls.

12 LD 27 – Add or change Digital Subscriber Loop (BRI set) for CIS.

13 LD 88 – Add or change the Authcode data block.

14 LD 56 – Configure the dial tone.

15 LD 56 – Configure Tone to Last Party.

16 LD 18 – Add or change Speed Call lists, System Speed Call lists, Group Call lists, Enhanced Hot Line lists, Pretranslation lists, and Special Service lists. Special Service lists can now handle the Special Service Unanswered Call (SSUC) call type.

LD 17 – Change system configuration data.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	CFN PARM	Configuration Record. Gate opener.
...		
PARM	YES	
...		
- PCML	(MU) A	System Companding Law.
TYPE	CEQU	Gate opener.
...		
CEQU	YES	Enter YES to change Common Equipment.
...		
- DTI2	<loop> <loop>...	Define CDTI2/CSDTI2 loops exactly like existing DTI2/ SDC2.

LD 73 – Define DTI2 data.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	DTI2	DTI2 Data Block.
FEAT	LPTI	Loop timers and some other per DTI2 loop defined parameters.
LOOP	<loop>	DTI2 loop number.
CDTI2	YES	CDTI2/CSDTI2 card.
P DIGIT (S)	PXXX	DP outpulsing will be sent on signaling bit A.
P METR (R)	NO	Pulse Metering.
SASU	1024	Seize Acknowledgment Supervision timer is defined in milliseconds (rounded to the closest multiple of 128 milliseconds).
MFAO	YES	Multi-frame alignment option used.
SZNI	NO	Seize Not Idle option not used.
LCLB	NO	Lockout Clear Back option (send CLR-BK signal to DID in lockout) not used.
UCFS	1101	Unequipped Channel Fault Signal – ABCD bits to be sent on unequipped channel. The default value of 1101 is acceptable.
MFF	(AFF) CRC	Alternate Frame Format or CRC4 may be chosen.
...		
FRFW	NO	Prompted only if French Type Approval (FRTA) package 197 is equipped.
CISFW	YES	Prompted only if Commonwealth of Independent States – Digital Trunk Interface (CIST) package 221 is equipped and CDTI2 = YES.

LD 73 – Define the SICA table for CDTI2/CSDTI2.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	DTI2	DTI2 Data Block.
FEAT	ABCD	Signaling category.
SICA	2-16	SICA table number.
...		
Incoming/ Outgoing Calls		
IDLE(S)	0101, 1101	Idle on backward sent, where: 0101 = incoming trunks (local and toll), and 1101 = outgoing trunks.
IDLE(R)	0101, 1101	Idle on backward sent, where: 0101 = incoming trunks (local and toll), and 1101 = outgoing trunks.
FALT(S)	1101	Fault (referred to as blocked in CCITT terminology).
FALT(R)	1101	Fault (referred to as blocked in CCITT terminology).
Incoming Calls		
E_SEZ(R)	1001	Seize.
SEZD(R)	NO	Seize for voice calls.
P CALL (R)	NO	Signal sent during seize by an incoming CO trunk.
SEZA (S)	1101	Seize Acknowledge.
- TIME	150	Time in milliseconds.
P DIGT(R)	Pxxx	DP Digits received decadic pulses.
NRCV(S)	NO	Number received.

P EOSF(S)	NO	Pulsed End of Selection Free is not used.
EOSF(S)	NO 1001	Steady End of Selection Free, where: NO = local trunk, and 1001 = incoming toll trunk.
P EOSB(S)	NO	Pulsed End of Selection Busy is not used.
EOSB (S)	0001	Steady End of Selection Busy.
P OPCA(R)	NO	Operator calling.
E_CONN(S)	1001 1101	Connect Send (Answer), where: 1001 = local trunk, and 1101 = incoming toll trunk.
CONN(R)	1001 0001	Connect received, where: 1001 = local trunk, and 0001 = incoming toll trunk.
P RRC(S)	NO	Register recall.
P BURS(S)	NO	Bring up receiver for L1 networking.
P BURS(R)	NO	Bring up receiver for L1 networking.
CLRB(S)	0001 1001	Clear Back (B Ring Off), where: 0001 = local trunk, and 1001 = incoming toll trunk.
CLRF(R)	0001 NO	Clear Forward (A Ring Off), where: 0001 = local trunk (used only to start two-way release), and NO = incoming toll trunk.
P OPRS(R)	NO	Operator manual recall.
P NXFR(S)	NO	Network transfer.
P ESNW(S)	NO	ESN wink.
P CAS(S)	NO	Centralized attendant.
Outgoing Calls		

E_SEZ(S)	1001	Seize.
SEZD(S)	NO	Seize for data calls.
SEZA(R)	1101	Seize Acknowledge.
P WNKS(R)	NO	Wink start.
P EOS(R)	NO	End of selection busy.
E_CONN(S)	NO	Connect.
E_CONN(R)	1001	Connect Receive (Answer).
P OPRC(R)	NO	Operator recall for special services.
P BURS(S)	NO	Bring up receiver for L1 networking.
P BURS(R)	NO	Bring up receiver for L1 networking.
CLRB(R)	0001	Clear Back (B Ring Off).
CLRF(S)	NO	Clear Forward (the same as the IDLE(S) signal).
P NXFR(R)	NO	Network transfer.
P ESNW(R)	NO	ESN wink.
P CAS(R)	NO	Centralized Attendant Service.

LD 97 – Define dial pulse make-break ratio.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	SYSP	System parameters.
INTN	YES	A-law should be used as system companding law.
...		
P10R	(50)-70	Make-break ratio for primary 10 pulses per second dial pulse dialing.
P12R	(50)-70	Make-break ratio for secondary 10 pulses per second dial pulse dialing.
P20R	(50)-70	Make-break ratio for 20 pulses per second dialing.

LD 15 – Define busy tone/overflow tone time out.

Prompt	Response	Description
REQ:	NEW CHG	New or change.
TYPE:	TIM	Gate opener.
...		
- BOTO	30	Busy tone/overflow tone time out (in seconds).

LD 16 – Add or change route data for CIS DTI2 trunks.

Prompt	Response	Description
REQ	NEW CHG	New or change.
TYPE	RDB	Route Data Block.
...		

TKTP	DID COT	Trunk type, where: DID = incoming trunks route, and COT = outgoing trunks route.
...		
DTRK	YES	Digital trunk.
DGTP	DTI2	Digital trunk type for route.
...		
ICOG	ICT OGT	Incoming trunk. Outgoing trunk.
...		
CNTL	YES	Changes to controls or timers.
TIMR	DDL 0	Delay Dial Timer not needed.
TIMR	DSI 49992	Disconnect supervision timer (five-second value, rounded to the nearest 128 ms.).
TIMR	EOD 13952	End of dial timer (default value).
TIMR	SFB 25	Seize Fail Busy timer. The recommended value for trunks with seizure supervision is 25 seconds.
TIMR	GTI 0	Incoming Guard timer must be defined equal to zero. Incoming CIS DTI2 trunks only. For CIS DTI2 trunks no guard timing is necessary on the incoming side. Immediately after sending the ”IDLE” signal, the incoming trunk may be reseized by the CO.
TIMR	ATO 128-(4992)-65408	ANI time out timer in milliseconds. For CIS outgoing trunk routes this defines the time delay performed after the outpulsing of the toll access code. During this delay further outpulsing is temporarily halted until the special message from the card firmware confirms that a successful ANI request/response interaction has been performed.
...		

NEDC	ORG ETH	Near end disconnect control, where: ORG = originating end disconnect control for incoming calls, and ETH = either end control for outgoing calls.
FEDC	ORG ETH	Far end disconnect control, where: ORG = originating end disconnect control for incoming calls, and ETH = either end control for outgoing calls.
CDPC	NO	Meridian 1 is not the only controlling party on incoming calls.
...		
OPCB	NO	External operator features not allowed on this route.
...		
CGPC	NO	Calling party control of calls not enabled.
CDCT	NO	Called party control of call is not enabled.
DDO	NO	Do not delay digit outpulsing for DOD trunks.
...		
DTD	NO	Dial tone detection is not to be performed on this route.
...		
CDR	YES	CDR to output for calls on trunks in this route.
...		
OAL	YES	CDR on all outgoing calls.
...		
OAN	NO	CDR on answered outgoing calls. It is not used because of free special service calls, which are not answered.
NATL	NO	North American toll scheme is not used.

TDG	8	Toll digit (list of digits after the trunk access code which indicate toll calls). This can also be defined in LD 18.
...		
PRDL	YES	Partial dial timing is equipped using EOD.
DNSZ	(0)-7	Number of digits expected on DID routes. 0 (the default) indicates no fixed value. This value must be defined according to the numbering plan.
...		
BTT	30	Duration of busy/overflow tone to be returned on DID route in seconds.
...		
LEC	0-9999999	Local Exchange Code.
ADDG	0-9	Additional digit.
CAC	0-(3)-9	Route ANI category.
ANDN	0-9999999	Route ANI DN.

LD 16 – Add or change route data for an incoming, non CIS DTI2, trunk.

Prompt	Response	Description
REQ	NEW CHG	New or change.
TYPE	RDB	Route Data Block.
...		
ICOG	ICT IAO	Incoming trunk. Incoming and outgoing trunk.
...		
CAC	0-(3)-9	Route ANI category.
ANDN	0-9999999	Route ANI DN.
RDNL	0-(4)-7	Remote DN Length.

Note: This trunk may be any kind of trunk. If this trunk, used as an incoming trunk, originates an outgoing call to a CIS DTI2 trunk, its CAC and ANDN are used in the ANI information sent out.

LD 14 – Add or change trunk data for CIS DTI2 incoming and outgoing trunk.

Prompt	Response	Description
REQ	NEW CHG	New or change.
TYPE	DID COT	Direct Inward Dialing (for incoming trunks), or Central Office Trunk (for outgoing trunks).
...		
SICA	2-16	Signaling category table number. ***Note:*** standard default SICA table (number 1) may not be used for CIS DTI2 trunks. CIS DTI2 trunks for incoming local and incoming toll calls must have different SICA tables.
PDCA	(1)-16	PAD table number.
PCML	A	Only A-law companding may be used on the CIS DTI2 trunk line.
...		
CIST	(NO) YES	This prompt appears for incoming trunks only (ICOG = ICT in LD 16), where: YES = toll trunk, and NO = local trunk.
...		
CLS	(DIPF DIP	Dial pulse execution, where: DIP = outpulsing by firmware, digit collection – traditional, by software, and DIPF = outpulsing and digit collection are performed by firmware.
	(P10) P12	Make-break ratio for dial pulse dialing.

LD 10 – Specify ANI category for CIS DTI2 calls.

Prompt	Response	Description
REQ:	NEW CHG	Add or change.
TYPE:	500	500/2500 telephone data block.
...		
CAC	0-(3)-9	Specify ANI category for CIS DTI2 calls.
CLS	(DNAA) DNAD	DN of set (allowed) not allowed for use in ANI messages.

LD 11 – Specify ANI category for CIS DTI2 calls.

Prompt	Response	Description
REQ:	NEW CHG	Add or change.
TYPE:	aaaa	Telephone data block, where: aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, or 3000.
...		
CAC	0-(3)-9	Specify ANI category for CIS DTI2 calls.
CLS	(DNAA) DNAD	DN of set (allowed) not allowed for use in ANI messages.

LD 12 – Specify ANI category for CIS DTI2 calls.

Prompt	Response	Description
REQ	NEW CHG	Add or change.
TYPE	ATT 1250 2250	Type of Attendant Console.
...		
DNAN	(DNAA) DNAD	For CIS ANI purposes, the ANI DN will be LDN0 (defined in LD 15).

LD 27 – Add or change Digital Subscriber Loop (BRI set) for CIS.

Prompt	Response	Description
REQ	NEW CHG	Add or change.
TYPE	DSL	Digital Subscriber Loop.
...		
CAC	0-(3)-9	Specify ANI category for CIS DTI2 calls.
CLS	(DNAA) DNAD	DN of set (allowed) not allowed for use in ANI messages.

LD 88 – Add or change the Authcode data block.

Prompt	Response	Description
REQ	NEW CHG	New or change.
TYPE	AUB	Authcode data block.
...		
CLAS	(0)-115	Classcode value assigned to Authcode (NAUT).
...		
NCOS	(0)-99	Network Class of Service group number.
CAC	0-(3)-9	ANI category for CIS DTI2 calls.

LD 56 – Configure the dial tone.

Prompt	Response	Description
REQ	NEW CHG	New or change.
TYPE	DTAD	Special dial tone after dialed number.
DDGT	9	Use “9” as the outgoing local access code.
TONE	SRC1	Dial tone to be provided after the dialed digit 9 (Source Tone 1).
...		
REQ	NEW CHG	New or change.
TYPE	FTC	Flexible Tones and Cadences data block.
TABL	0-31	FTC table number.
DFLT	0-31	Default FTC table.
...		
SRC	YES	Change Source Tones (SRC1-SCR8).
SRC1		Source Tone 1.
TDSH	0 0 0 3	Tone number 3 on QPC609 provides 400 Hz, -23 db.
XTON	159	NT8D17 TDS tone code: 420 Hz, -25 db, A-law.
XCAD	0	NT8D17 cadence code for FCAD (steady tone).

LD 56 – Configure Tone to Last Party.

Prompt	Response	Description
REQ	NEW CHG	New or change.
TYPE	FTC	Flexible Tones and Cadences data block.
TABL	0-31	FTC table number.
DFLT	0-31	Default FTC table.
RING	<CR>	
HCCT	YES	Change the TDS card controlled cadence tones.
...		
TLP		Tone to Last Party.
TDSH	0 0 31 3	Cadence 31 in MCAD table will provide repeating 256 ms burst and 256 ms silence. Tone number 3 on QPC609 provides 440 Hz, -23 db.
XTON	159	NT8D17 TDS tone code: 420 Hz, -25 db, A-law.
XCAD	31	NT8D17 cadence code for FCAD.
TLTP	30	Tone to Last Party timer in seconds.
...		
REQ	NEW CHG	New or change.
TYPE	MCAD	Master Cadence table.
WCAD	31	Cadence number.
CDNC	0051 0051	Repeating 256 ms burst and 256 ms silence.
...		
REQ	NEW CHG	New or change.

TYPE	FCAD	Firmware Cadence table.
WCAD	31	Cadence number.
CDNC	0060 0060	Repeating 300 ms burst and 300 ms silence.

LD 18 – Add or change Speed Call lists, System Speed Call lists, Group Call lists, Enhanced Hot Line lists, Pretranslation lists, and Special Service lists. Special Service lists can now handle the Special Service Unanswered Call (SSUC) call type.

Prompt	Response	Description
REQ	NEW CHG	Add, or change.
TYPE	SSL	Special Service List.
SSL	1-15	SSL number.
SSDG	0-999	Special Service Digits combination.
CDPC	(NO) YES	Called Party Control mark.
TOLL	(NO) YES	Toll access code mark.
ALRM	(NO) YES	Alarm digits mark.
TNDM	(NO) YES	Tandem mark. Send MFC “H” tandem signal.
SSUC	(NO) YES	Special Service Unanswered Call mark. If the outgoing call is recognized as SSUC (first 1-4 digits outpulsed to the trunk are equal to the SSDG with SSUC = YES), then such a call requires some specific disconnect treatment.

Feature operation

No specific operating procedures are required to use this feature.

Digitone Receiver Enhancements

Contents

The following are the topics in this section:

Feature description

Digitone Receiver Enhancements feature consists of the Digitone Receiver Time out Enhancement and the Quadruple Density Digitone Receiver Card.

An enhancement to Digitone receiver (DTR) time out prevents the situation in which the far-end of an outgoing call from a Dual-tone Multifrequency (DTMF) telephone or trunk is answered before speechpath can be established.

This problem can occur when trunks without answer supervision are used, and the called party answers quickly. Without answer supervision, the speech path is established upon time out of the end-of-dialing timer. It is possible for the far-end station to answer before this time out.

The timer enhancement will prevent this situation from occurring by holding back outpulsing of the last digit until a half-second before end-of-dialing time out. This leaves only a half-second interval in which the far-end station could answer before speechpath is established.

This DTR timer enhancement applies to DTRs of all densities, and for all trunk calls made from DTMF telephones or trunks, except for:

- MFC or MFE calls
- terminating trunks that have answer supervision
- Electronic Switched Network (ESN) calls

Operating parameters

This feature is not supported on the 1.5 Mbit Digital Trunk Interface (DTI).

Feature interactions

There are no feature interactions associated with this feature.

Feature packaging

This feature is included in base X11 System Software.

Feature implementation

Task summary list

The following task is required:

LD 13 – Create or modify data blocks for Digitone Receivers.

LD 13 – Create or modify data blocks for Digitone Receivers.

Prompt	Response	Description
...		
TN	l s c u c u	Terminal Number. For Option 11C.
CDEN	4D	Enter 4D if the unit is on a quadruple density circuit pack (not allowed if the network loop is not configured for quadruple density).

Feature operation

No specific operating procedures are required to use this feature.

Direct Inward Dialing Call Forward No Answer Timer

Contents

The following are the topics in this section:

Feature description

This feature introduces the Direct Inward Dialing Call Forward No Answer (DFNR) timer that, when expired, allows an unanswered Direct Inward Dialing (DID) call to be routed to the attendant after the last stage of Call Forward No Answer (CFNA) or hunt treatment has been completed (the maximum number of CFNA or hunt steps is two). The DFNR timer is customer-defined as a number of ring cycles in LD 15.

The operation of the DFNR option can be overridden or disabled, depending on the definition of the FNAD option in LD 15. If FNAD has been defined as attendant (ATT), the DFNR timer is overridden, since unanswered DID calls are automatically routed to the attendant. If FNAD has been defined as NO, DFNR is disabled. If FNAD has been defined as Hunt (HNT) or Forward DN (FDN), the DFNR timer is applied after the last stage of CFNA or hunt treatment has been completed.

Operating parameters

DFNR does not apply to Automatic Call Distribution (ACD) calls, nor does it apply to non-DID calls.

The DFNR overrides the Forward Number Allowed (FNA) or Forward Number Denied (FND) Class of Service of the called party.

Feature interactions

Attendant Recall

The Direct Inward Dialing Call Forward No Answer Timer does not apply to an answered DID call that is extended to an unanswered station by the attendant – the call is recalled to the attendant via the Attendant Recall feature.

Call Forward No Answer Hunting

Call Forward No Answer and Hunting take precedence over the Message Center feature.

Call Waiting Redirection

The Direct Inward Dialing Call Forward No Answer Timer is applied after the last stage of Call Forward No Answer or SFNA treatment resulting from the Call Waiting Redirection feature for DID Call Waiting calls.

Feature packaging

Flexible Feature Codes (FFC) package 139.

Feature implementation

Task summary list

The following task is required:

LD 15 – Define the Number of Ring Cycles.

LD 15 – Define the Number of Ring Cycles.

Prompt	Response	Description
REQ:	NEW CHG	Add. Change.
TYPE:	CDB RDR	Customer Data Block. gate opener.
...		
- DFNR	(0)-15	DID Forward No Answer Ring cycles, prompted if the FNAD prompt is not set to ATT or NO. Defines the number of ringing cycles before a DID call is Slow Answer recalled to the Attendant Console after the last stage of CFNA or Hunt treatment has been completed (the maximum number of CFNA or hunt steps is two). If DFNR = 0 then DID CFNA is disabled

Feature operation

No specific operating procedures are required to use this feature.

Direct Inward Dialing Recall Features on DTI2 for Italy

Contents

The following are the topics in this section:

Feature description

Direct Inward Dialing (DID) Recall Features on DTI2 for Italy consists of DID Offering and DID Recall.

DID Offering

When a DID call placed on a DTI2 trunk terminates on a busy set, the system replies by sending an End of Selection Busy (EOSB) signal on the calling channel to inform the Public Exchange/Central Office that no further call modification will be performed. Busy tone is returned while waiting for the release signal from the Central Office (IDLE). The new DID Offering feature enables the external Central Office operator to reroute the call to the attendant by sending the Operator Recall Signal (OPRS) instead of the IDLE signal. Upon receipt of the OPRS signal, the call is presented to the Attendant Console on the Recall (RLL) Incoming Call Indicator (ICI) key.

DID Recall

When an established DID call placed on a DTI2 trunk is released by called party (internal set), the Meridian 1 sends a Clear Backward (CLRB) signal on the calling channel to inform the Central Office that the call has been disconnected. Upon receipt of this signal, the Central Office should reply with the IDLE signal to confirm the disconnection of the call. At this point, the new DID recall feature allows the external Central Office operator to reroute the call to the Attendant Console by sending the OPRS signal instead of IDLE. The Meridian 1 will detect the OPRS as a valid signal and the call will be presented to the Attendant Console on the RLL ICI key.

Operating parameters

Both DID Offering and DID Recall currently only support Type Approval in Italy and are not commercially available.

The QPC536 Digital Trunk Interface and NTAK10 (XDTI) cards are required.

This feature only works on DTI2 trunks.

Feature interactions

Basic Rate Interface (BRI) Special Call Forward Busy

This feature takes precedence over the DID offering; when the conditions for the BRI Special Call Forward Busy are met, the call is diverted to the Attendant Console without waiting for the OPRS signal. When the BRI Special Call Forward Busy feature fails or is not enabled, busy tone is returned to the Central Office and the DID offering can be activated.

Forward Busy

The DID offering is available only after the End of Selection Busy signal has been sent by the Central Office. This signal is provided to the Central Office trunk only if the busy set is configured with Forward Busy Denied (FBD) Class of Service.

Network Attendant Services (NAS)

Incoming DID calls which are Offered or Recalled to the attendant may receive NAS treatment. This feature requires no modification.

Feature packaging

Direct Inward Dialing (DID) Recall Features on DTI2 for Italy are included in the existing 2 Mbit Digital Trunk Interface (DTI2) package 129, which requires International Supplementary Features (SUPP) package 131.

Feature implementation

DID Offering

Task summary list

The following is a summary of the tasks in this section:

1 LDs 10/11 –Set the Class of Service to FBD.

2 LD 16 – Set DID Recall for this Rate.

3 LD 73 – Configure the SICA table for the DID Offering feature.

4 LD 16 – Set DID Recall to Attendant for this rate.

5 LD 73 – Configure the SICA table for the DID Recall feature.

LDs 10/11 –Set the Class of Service to FBD.

Prompt	Response	Description
REQ:	NEW CHG	New or change.
TYPE:	aaaa	Telephone type, where aaaa = 500, SL-1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, or 3000.
TN	l s c u c u	Terminal Number. For Option 11C.
CLS	FBD	Forward Busy Denied.

LD 16 – Set DID Recall for this Rate.

Prompt	Response	Description
REQ	NEW CHG	New, or change.
TYPE	RDB	Route data block.
...		
RCAL	DRA	Set DID Recall to ATTN for this route.

LD 73 – Configure the SICA table for the DID Offering feature.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	DTI2	2 Mbit DTI.
FEAT	ABCD	Digital signaling category table.
SICA	nn	Signaling Category table number.
INCOMING/OUTGOING CALLS		
IDLE(R)	ABCD	(Receive) IDLE signal bits.

INCOMING CALLS		
P EOSB(S)	ABCD	End of Selection Busy (receive) signal.
- TIME	(100)-150	Duration of the EOSB(S) signal in milliseconds.
...		
P OPRS(R)	ABCD	Operator (receive) recall signal.
- TIME	xxxx yyyy	Time for OPRS(R) in milliseconds, where: xxxx = 8-(48)-2040, and yyyy = xxxx-(128)-2040.

DID Recall

LD 16 – Set DID Recall to Attendant for this rate.

Prompt	Response	Description
REQ	NEW CHG	New, or change.
TYPE	RDB	Route data block.
...		
RCAL	DRA	Set DID Recall to attendant for this route.

LD 73 – Configure the SICA table for the DID Recall feature.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	DTI2	2 Mbit DTI.
FEAT	ABCD	Digital signaling category table.
SICA	nn	Sica table number.
...		
INCOMING CALLS		
CLRB(S)	ABCD	Clear Backward (send) signal.
...		
P OPRS(R)	ABCD	Operator (receive) recall signal.
- TIME	xxxx yyyy	Time for OPRS(R) in milliseconds, where: xxxx = 8-(48)-2040, and yyyy = xxxx-(128)-2040.

Feature operation

No specific operating procedures are required to use this feature.

Direct Inward Dialing to TIE Connection

Contents

The following are the topics in this section:

Feature description

This feature allows DID-to-TIE connections, subject to all trunk barring, Trunk Group Access Restrictions (TGAR), Trunk Access Restriction Groups (TARG), and other Class of Service restrictions. When the end-of-dialing timer detects that end-of-dialing is reached for an outgoing TIE trunk the Call Forward No Answer (CFNA) timer is started.

If the CFNA timer expires prior to detecting an answer signal the call is intercepted to the attendant. If a routed call receives a busy signal from an extension, the busy signal is returned to the DID. If the DID does not go on-hook before the CFNA recall timer expires, the call is routed to the attendant.

Operating parameters

The Central Office must be equipped to handle the special signaling requirements associated with the DID-to-TIE Connection feature described above.

The DID-to-TIE Connection feature is not available on 1.5 Mbps digital, Japanese DMI, PRI2 or DPNSS trunks.

Feature interactions

There are no feature interactions associated with this feature.

Feature packaging

International Supplementary Features (SUPP) package 131.

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

1 LD 15 – Allow DID-to-TIE connections.

2 LD 16 – Define the Number of digits expected on DID rate.

LD 15 – Allow DID-to-TIE connections.

Prompt	Response	Description
REQ:	NEW CHG	Add, or change.
TYPE:	CDB NET-DATA	Customer Data Block. ISDN and ESN networking options.
...		
- DITI	(NO) YES	DID-to-TIE connections (are not) are allowed.

LD 16 – Define the Number of digits expected on DID rate.

Prompt	Response	Description
...		
DNSZ	(0)-7	Number of digits expected on DID route. 0 indicates no fixed number.

Feature operation

No specific operating procedures are required to use this feature.

Direct Inward System Access

Contents

The following are the topics in this section:

Feature description

Direct Inward System Access (DISA) allows selected users to access the system from the public or private network by dialing a special Directory Number (DN) assigned by the customer. The number can be dialed from any Digitone telephone outside the network. Once the Direct Inward System Access (DISA) call has been answered, the user can access any of the following features and capabilities offered through Direct Inward System Access:

- Calls to any station within the customer group
- Trunk calls (such as calls to a Public Exchange/Central Office, a TIE trunk, or paging and dictation trunks)
- Basic/Network Authorization Code (BAUT/NAUT)

- Call Detail Recording (CDR) and Call Detail Recording Charge Account, and
- Basic/Network Alternate Route Selection (BARS/NARS) and Automatic Number Identification (ANI) route selection.

Each special Directory Number (DN) dialed by a DISA user is associated with a particular DISA Directory Number. Any number of DISA DNs can be assigned, provided that they are consistent with the numbering plan of the customer. Access rights are determined by the Class of Service and Trunk Group Access Restrictions (TGAR) associated with the DISA number. Calls to DISA can be placed on dedicated, auto-terminate incoming trunks (Central Office [CO], Foreign Exchange [FX], or Wide Area Telephone Service [WATS]) and TIE or Direct Inward Dialing (DID) trunks, all of which must have proper supervision.

As a safeguard against unauthorized use, an authorization code or special security code of one to eight digits can be assigned for each DISA DN. The security code must be entered before any system resources can be used. Additionally, a secure data password can be provided to enable the customer to create, modify, or remove information concerning DISA.

Operating parameters

The features not available to DISA users are those that require a switchhook flash (such as Call Transfer, Conference, Hold, or Ring Again). Also unavailable are features requiring that predefined data be assigned for the DN (e.g., Speed Call), and other features that are not applicable to DISA calls (such as Call Pickup and Call Forward).

Any CO, FX, or WATS trunk route can be designated as an auto-terminate route, allowing incoming calls in the route to terminate on one particular DN rather than going to the attendant. Several trunks can specify the same DISA DN, or each trunk can specify a different DISA DN.

Only trunks that give disconnect supervision can be used to provide access to DISA. Therefore, trunks dedicated to DISA (CO, FX, or WATS) must have a ground start signaling arrangement. Incoming DISA calls on trunks without disconnect supervision will not be allowed. For these calls, overflow tone is given to TIE, DID, and Common Controlled Switching Arrangement (CCSA) trunk calls, and calls on CO, FX, and WATS trunks are intercepted to the attendant.

Trunks dedicated to DISA may also be used as normal outgoing trunks.

Feature interactions

Access Restrictions

Access restrictions are assigned to the DISA DN as they are to any station within the system. Separate access restrictions are also assigned to authorization codes used by DISA callers.

Attendant Busy Verify
Busy Verify

Attendant Busy Verify applies only to DNs within the system. If an attendant tries to use the feature to enter a DISA DN, overflow tone is returned.

Basic/Network Alternate Route Selection (BARS/NARS)

The BARS/NARS features function on a DISA call as if it had been originated from inside the system.

Basic/Network Authorization Code (BAUT/NAUT)

This feature can be used in conjunction with DISA to allow a user access to more resources than are normally available. The Authorization Code must be entered, in addition to the security code (if required), using the applicable Special Prefix (SPRE) code followed by the authorization access code 6, or by an applicable Flexible Feature Code. If authorization codes are required, a valid Authorization Code must be entered after the DISA security code (no SPRE code is needed).

Call Forward/Hunt Override Via Flexible Feature Code

DISA is not supported. Any attempt to dial the Call Forward/Hunt Override via Flexible Feature Code will be ignored and access denied treatment will be returned.

Call Detail Recording

If the customer and trunk route on which the incoming DISA call is being made have the applicable Call Detail Recording (CDR) options in effect, particulars of the call are recorded when it is established. There is no special indication on the CDR record that this was a DISA call. If the incoming trunk route is not specified for CDR options, recording depends on what has been specified by the customer for any outgoing trunks seized by the DISA caller.

China Number 1 Signaling - Called Party Control

If an external station is allowed access to the trunk on which a Special Service resides via Direct Inward System Access (DISA), the station may also access that Special Service. However, Called Party Control is not supported.

Digital Private Network Signaling System (DPNSS1)/Digital Access Signaling System (DASS2) Uniform Dialing Plan (UDP) Interworking

DISA is not supported in a DPNSS1 UDP network.

Electronic Lock Network Wide/Electronic Lock on Private Lines

The Electronic Lock feature cannot be activated or deactivated when accessing the node through DISA.

Generic XFCOT Software Support

This feature allows selected external users to access the Meridian 1 switch by dialing a special directory number, and to use some features of the system as an internal station.

A Direct Inward System Access (DISA) call is allowed on a disconnect supervised or unsupervised loopstart trunk. If a caller on an unsupervised loopstart trunk disconnects during a DISA operation, it is detected by a dial time out or when the call is answered.

Caller disconnection during a DISA operation is detected by a disconnect-supervised loopstart trunk on an XFCOT card and the operation can then be ended.

ISDN QSIG/EuroISDN Call Completion

Call Completion on Busy Subscriber (CCBS) and Call Completion No Response (CCNR) are not supported on Direct Inward System Access (DISA) calls when the call destination is busy.

Line Lockout
Flexible Line Lockout

The defined Flexible Line Lockout treatment is provided to DISA calls.

New Flexible Code Restriction

If the Direct Inward System Access (DISA) DN has a TLD, CUN, or CTD Class of Service, calls made through DISA are eligible for NFCR treatment.

Night Service Enhancements

It is not possible to assign a Night Service Group Number to any trunk that is a member of a route that is set to auto-terminate on a DISA DN.

Pretranslation

Direct Inward System Access calls are automatically assigned XLST 0.

Scheduled Access Restrictions

Direct Inward System Access (DISA) numbers are not assigned to Scheduled Access Restrictions (SAR) groups and therefore are not affected by SAR schedules.

DISA can be used to manually modify the SAR schedule, provided that the correct FFC and Authorization Code are dialed.

Feature packaging

Direct Inward System Access (DISA) is package 22 and has no other feature package dependencies.

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

1 LD 24 – Configure the Direct Inward System Access feature for a customer.

2 LD 16 – Define an auto-terminate trunk route for Direct Inward System Access.

3 LD 14 – Define Direct Inward System Access DNs for trunks in an auto-terminate trunk route.

LD 24 – Configure the Direct Inward System Access feature for a customer.

Prompt	Response	Description
REQ	NEW CHG	Add, or change.
TYPE	DIS	DISA data.
CUST	0-99 0-31	Customer number. For Option 11C.
SPWD	xxxx	System secure data password (0001-9999) allows modifications to the DISA data block. 0000 = disable the password (see LD 15).
DN	xxx...x	DN for DISA access.
SCOD	X xx...xx	DISA security code (1-8 digits). X = remove security code.
AUTR	(NO) YES	Authorization Code is not or is required.
TGAR	xx	Trunk Group Access Restriction to be applied to calls made using DISA (0-15). TGAR can be from 0 to 31.
NCOS	xx	Network Class of Service to be applied to DISA calls.
COS		Class of Service to be applied to DISA calls.
	UNR CUN SRE TLD CTD FRE FR1 FR2	Unrestricted. Conditionally unrestricted. Semi-restricted. Toll restricted. Conditionally toll restricted. Fully restricted. Fully restricted 1. Fully restricted 2

LD 16 – Define an auto-terminate trunk route for Direct Inward System Access.

Prompt	Response	Description
REQ	NEW CHG	Add, or change.
TYPE	RDB	Route data block.
CUST	0-99 0-31	Customer number. For Option 11C.
ROUT	xxx	Trunk route number.
TKTP	aaa	Trunk type.
AUTO	(NO) YES	Route is not or is arranged to auto-terminate incoming calls on the DISA DN.
ICOG	IAO ICT OGT	Incoming and outgoing trunk.
ACOD	xxxx	Trunk route access code.

LD 14 – Define Direct Inward System Access DNs for trunks in an auto-terminate trunk route.

Prompt	Response	Description
REQ	NEW CHG	Add, or change.
TYPE	COT FEX WAT	Trunk type.
TN	l s c u c u	Terminal Number. For Option 11C.
XTRK	XUT	Universal trunk card (prompted for Superloops).
CUST	0-99 0-31	Customer number. For Option 11C.
RTMB	0-511 0-510 0-127 0-510	Route number and member number. For Option 11C.

RTMB	xxx yyy	Route number and member number, where: xxx = 0-511, and yyy = 1-254.
ATDN	xxx...x	DISA DN on which incoming calls are to auto-terminate.
SIGL	GRD	Ground Start signaling.

Feature operation

To dial into the system from the public network:

1 Dial the DISA number. You hear a dial tone.

2 Dial the security code, if required.

3 Dial the Authorization Code, if required.

Direct Inward System Access on Unsupervised Trunks

Contents

The following are the topics in this section:

Reference list

The following are the references in this section:

- “Direct Inward System Access” on page 1301

Feature description

With this enhancement, Direct Inward System Access (DISA) is allowed on Public Exchange/Central Office (CO), FEX, and WATS trunks without disconnect supervision. Without the enhancement, DISA calls on these trunks are intercepted to the attendant. The Timed Forced Disconnect Timer is used to prevent the permanent seizure of the Central Office trunk in cases where the far-end goes on-hook first.

Operating parameters

There are no operating parameters associated with this feature.

Feature interactions

There are no feature interactions associated with this feature.

Feature packaging

Direct Inward System Access (DISA) package 22.

Feature implementation

Task summary list

The following task is required:

LD 16 – Configure the Timed Forced Disconnect Timer.

LD 16 – Configure the Timed Forced Disconnect Timer.

Prompt	Response	Description
...		
MFC	(NO) YES	Respond with YES to enable Multifrequency Compelled Signaling.
- TIMR	TFD (0)-3600	Timed Force Disconnect in 30-second increments.

Note: In addition, make sure the DISA feature is configured as described in the DISA feature description contained within this document.

Feature operation

To dial into the system from the public network:

1 Dial the DISA number. You hear a dial tone.

2 Dial the security code, if required.

3 Dial the Authorization Code, if required.

Direct Private Network Access

Contents

The following are topics in this section:

Feature description

The Direct Private Network Access feature provides enhancements to the processing of Direct Inward System Access (DISA) and Authcode Last Request calls. This feature complements Meridian 1 capabilities to provide an arrangement suitable for long distance resellers. Typically, subscribers to these resellers' services dial in through a DISA port and require some automated digit manipulation, recorded announcements and Authcodes for billing purposes. This feature offers the following capabilities:

DISA Digit Insertion

Once a DISA Directory Number (DN) is accessed, the Meridian 1 automatically inserts from 1 to 31 digits to save the caller from having to manually enter these digits. Dial tone is provided if the system expects to receive more digits from the caller in order to complete the call. If no additional digits are required, the call terminates automatically.

DISA Recorded Announcement (RAN)

A caller may be greeted with a Recorded Announcement once a DISA DN is accessed. The caller can begin dialing anytime during the greeting, in which case the greeting is stopped and the call is processed. If the Recorded Announcement finishes, dial tone is provided if more digits are expected from the caller to complete the call. As with the case of DISA Digit Insertion, the call terminates automatically if no additional digits are required.

Authcode Last Retry Request

For an Authcode Last Request call, if a caller enters an authorization code (Authcode) that is invalid, the caller is prompted to enter an Authcode again. The reprompt for the Authcode takes the form of either an Authcode Last Retry Request dial tone or a RAN before the Authcode Last Retry Request dial tone.

If configured, the RAN indicates to the caller that a wrong Authcode has been entered. While RAN is being given, all dialed digits are ignored.

If a caller realizes they have misdialed, an octothorpe (#) can be pressed which allows the user to immediately re-enter the Authcode. If an invalid Authcode is entered for a second time, the existing invalid Authcode treatment results.

Operating parameters

DISA Digit Insertion, DISA RAN, and Authcode Last Retry can be activated individually or can be combined to work in conjunction with one another.

DISA Digit Insertion and DISA RAN can be optionally assigned on a per DISA basis in LD 24, and are only applicable to DISA calls.

Authcode Last Retry can be optionally assigned on a per customer basis in LD 88, and is applicable to all call types supporting Authcode Last.

All existing DISA limitations apply to the DISA Digit Insertion and DISA RAN functionalities.

All existing RAN limitations apply to the DISA RAN and Authcode Last Retry functionalities.

All existing Authcode Last limitations apply to the Authcode Last Retry functionality.

To support DISA RAN and the Authcode Last Retry RAN function, the Meridian 1 must be equipped with all the necessary RAN hardware.

Feature interactions

Attendant Console Operation

Authcode Last Retry Not Configured

If an invalid Authcode is entered by an attendant, overflow tone is given as soon as a sufficient number of Authcode digits has been entered. If the attendant enters some digits for an Authcode that is less than the number of digits defined in LD 88, silence is heard.

Authcode Last Retry Configured

If the caller is an attendant and the Authcode entered is invalid, once a sufficient number of digits has been entered, the Authcode Last Request dial tone is immediately given to reprompt for the Authcode. If the attendant enters some digits for an Authcode that is less than the number of digits defined in LD 88, silence is heard. Since there is no interdigit time out for an Attendant Console, no Authcode Last Request dial tone will be given for retry.

Authcode Last Request tone will be heard immediately prompting for Authcode Retry if the attendant enters an octothorpe “#” followed by some digits.

Authorization Code Security Enhancement

Only when an Authcode retry fails will a Security Administration (SECA) message be printed to the configured MTC, FIL console and/or the configured History File.

Autodial

If Autodial is programmed with a valid Authcode for Authcode Last followed by an octothorpe "#", the existing Authcode Last operation will reject the Authcode as an invalid Authcode. If Authcode Last Retry is defined, the caller will be reprompted for the Authcode.

Call Detail Recording

Digits inserted by DISA Digit Insertion are reflected in the Call Detail Recording (CDR)record.

When a caller is reprompted for an Authcode due to Authcode Last Retry, and a new Authcode is entered, the second Authcode will overwrite the first entry. Therefore, the CDR record only reflects the last Authcode entered.

Pretranslation

Digits automatically inserted by DISA Digit Insertion are pretranslated during call processing in the same manner as if the caller had manually dialed the digits.

Speed Call

If a Speed Call entry is programmed with a valid Authcode for Authcode Last followed by an octothorpe "#", the existing Authcode Last operation will reject the Authcode as an invalid Authcode. If Authcode Last Retry is defined, the caller will be reprompted for the Authcode.

Feature packaging

This feature is packaged under Direct Private Network Access (DPNA) package 250.

DISA Digit Insertion requires the following additional package:

- Direct Inward System Access (DISA) package 22.

DISA RAN requires the following additional packages:

- Direct Inward System Access (DISA) package 22
- Recorded Announcement (RAN) package 7

Authcode Last Retry requires the following additional packages:

- Basic Authorization Code (BAUT) package 25

- Network Authorization Code (NAUT) package 63
- Recorded Announcement (RAN) package 7 when an Authcode Last Retry RAN is required

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

1 LD 24 – Modify the direct inward system access data block:

2 LD 88 – Modify the authorization code data block.

DISA DN Data

Configure RAN routes (LD 16) and RAN trunks (LD 14) as per existing procedures.

LD 24 – Modify the direct inward system access data block:

Prompt	Response	Description
REQ	NEW CHG	New, or change.
TYPE	DIS	DISA data.
CUST	0-99 0-31	Customer Number. For Option 11C.
...		
RANR	0-511 0-127 (X)	Route number for DISA RAN. For Option 11C. Removes and deactivates DISA RAN.
- RTMR	(0)-10-300	The maximum amount of time (in seconds) that a caller can wait for an available RAN trunk before being removed from the RAN queue and proceeding as if DISA RAN has been completed.
	(0)	Removes and deactivates the timer.

DGTS	x...x	Digits for DISA Digit Insertion. Up to 31 digits can be defined.
	(X)	Removes and deactivates DISA Digit Insertion.
- DLTN	(YES)	Dial tone needed after digit insertion.
	NO	Dial tone not needed after digit insertion.

Authcode Data

Configure RAN routes (LD 16) and RAN trunks (LD 14) as per existing procedures.

LD 88 – Modify the authorization code data block.

Prompt	Response	Description
REQ	NEW CHG	New, or change.
TYPE	AUB	Authcode data.
CUST	0-99 0-31	Customer Number. For Option 11C.
...		
RANR	0-511 0-127	Route number for Authcode Last Retry RAN. For Option 11C.
RTRY	(NO)	Disable Authcode Last Retry.
	YES	Enable Authcode Last Retry.
- RAN2	0-511 0-127 (X)	Route number for Authcode Last Retry RAN. For Option 11C. Removes and deactivates Authcode Last Retry RAN.
CLAS	xx	Class code value assigned to authcode.

Feature operation

Operational Sequence of a DISA Call

Step	User Action	Result
1.	Dials DISA DN.	If DISA Security Access Code is required, special dial tone is given, and the caller continues to Step 2. Otherwise the caller skips to Step 3.
2.	Enters the Security Access Code.	The dial tone is removed as soon as the first digit is dialed. If the security access code entered is valid, the caller continues to Step 3. Otherwise, the existing treatment for invalid Security Access code is given when the interdigit timer expires.
3.	<no user action>	If Authcode is required, normal dial tone is given, and the caller continues to Step 4. Otherwise, the caller skips to Step 5.
4.	Enters an Authcode.	The dial tone is removed as soon as the first digit is dialed. If the Authcode entered is valid, the caller continues to Step 5. Otherwise, the existing invalid Authcode treatment is given when the interdigit timers times out.
5.	<no user action>	If DISA Digit Insertion is not configured, the caller immediately continues to Step 6. Otherwise, the digits defined for DISA Digit Insertion are automatically inserted into the call register before the caller continues to Step 6.
6.	<no user action>	If DISA RAN is configured, a RAN greeting is provided, and the caller continues to Step 7. Otherwise, the caller skips to Step 8.
7.	a) The caller listens to the RAN greeting; or	a) If DISA Digit Insertion is not defined, or DISA Digit Insertion specifies to give dial tone to prompt the caller to enter more digits, the caller continues to Step 8. Otherwise, the inserted digits are immediately processed for call completion.
	b) begins dialing before the RAN is finished.	b) The RAN greeting is stopped as soon as the first digit is dialed. The dialed digits are appended into the call register (i.e., if DISA Digit Insertion is defined, the dialed digits are stored after the inserted digits), and the call is processed for call completion.

8.	<no user action>	Dial tone is given and the caller continues to Step 9.
9.	Dials digits to originate the call.	Dial tone is removed as soon as the first digit is dialed. The dialed digits are appended into the call register (i.e., if DISA Digit Insertion is defined, the dialed digits are stored after the inserted digits), and the call is processed for call completion.

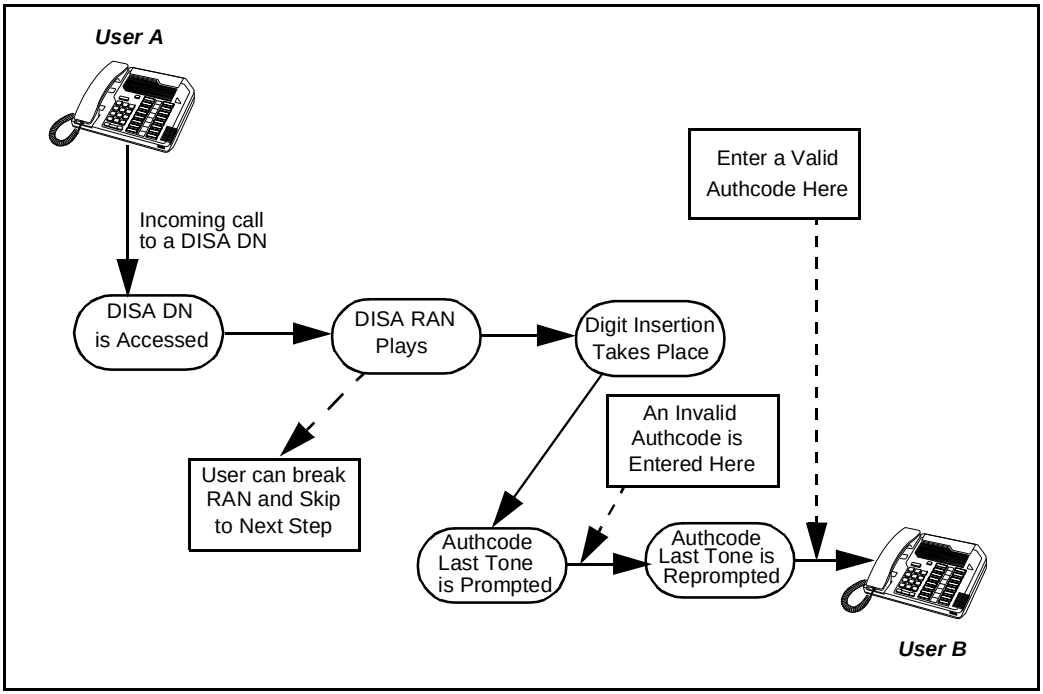
Operational Sequence of Authcode Last

Step	User Action	Result
1.	Makes an outgoing call that requires Authcode Last.	Authcode Last Request dial tone is given. If Authcode Last RAN is defined, RAN precedes the dial tone. The caller continues to Step 2.
2.	Dials one of the following:	The Authcode Last Request dial tone is removed as soon as the first digit is dialed. Then depending on the digit input, one of the following occurs:
	a) A valid Authcode.	a) The call is processed for call termination.
	b) An invalid Authcode followed by "#".	b) If Authcode Last Retry is defined, Authcode Last Request dial tone is immediately given (if Authcode Last Retry RAN is defined RAN precedes the dial tone), and the caller continues to Step 3. If Authcode Last Retry is not defined, when the interdigit timer expires the existing invalid Authcode treatment is given.
	c) An invalid Authcode.	c) If Authcode Last Retry is defined: — If the caller is an attendant, Authcode Last Request dial tone is immediately given (if Authcode Last Retry RAN is defined RAN precedes the dial tone), and the caller continues to Step 3. — If the caller is not an attendant, when the interdigit timer expires Authcode Last Request dial tone is again given (if Authcode Last Retry RAN is defined RAN precedes the dial tone), and the caller continues to Step 3. If Authcode Last Retry is not defined, when the interdigit timer times out the existing invalid Authcode treatment is given.
3.	Dials one of the following:	The Authcode Last Request dial tone is removed as soon as the first digit is dialed. Then depending on the digit input, one of the following occurs:
	a) A valid Authcode	a) The call is processed for call termination.
	b) An invalid Authcode followed by "#".	b) When the interdigit timer times out, the existing invalid Authcode treatment is given.
	c) An invalid Authcode.	c) When the interdigit timer times out, the existing invalid Authcode treatment is given.

Example of a DPNA Call Using All Three Functions

In this example, User A calls from home to a DISA DN and subsequently to an ESN number as defined in the DISA Digit Insertion. When prompted for an Authcode, User A initially enters an invalid one, before being reprompted for the authcode (See Figure 37).

Figure 37
DPNA call using all three functions



Directory Number Delayed Ringing

Contents

The following are the topics in this section:

Feature description

There are two types of Directory Number keys: ringing and non-ringing. The Directory Number Delayed Ringing (DNDR) feature offers the ability to provide an audible notification (e.g., ringing, buzzing, etc.) after a specified delay to non-ringing keys for a particular Terminal Number (TN). These keys can be either Single Call Non-Ringing (SCN) or Multiple Call Non-Ringing (MCN).

When an incoming call is presented to an SCN/MCN key, the associated lamp starts flashing. If Directory Number Delayed Ringing is defined for the set, an audible notification is given after a defined number of seconds (from 1 to 120 seconds). The DNDR value is defined in LD 11, and the feature is disabled if zero is selected as the delay value. When the feature is disabled, all Single Call Non-Ringing (SCN) or Multiple Call Non-Ringing (MCN) keys for this particular TN will not receive audible notifications.

Operating parameters

Only Meridian 1 proprietary telephones with DN key type SCN or MCN may use this feature; analog (500/2500 type) telephones are not supported.

When enabling the Directory Number Delayed Ringing feature and zero is entered as delay value, the desired Single Call Ringing or Multiple Call Ringing key must to changed to Single Call Non-Ringing (SCN) or Multiple Call Non-Ringing (MCN).

The DNDR feature is enabled on a TN basis. Thus, all or none of the SCN/ MCN keys for the TN will receive the audible notification.

For a single call, two appearances of a Multiple Appearance Directory Number (MADN) may ring simultaneously if their DNDR values differ by two seconds or less.

The DNDR value can be different for multiple TNs with the same DN appearance; therefore, the audible notification may begin at different times for a single call.

Feature interactions

Any feature that works with non-ringing keys works with the DNDR feature whether or not the key is ringing.

Attendant Administration
Automatic Wake-Up

Attendant Administration and the Automatic Wake-Up features are not supported.

Attendant Blocking of Directory Number

The Attendant Blocking of DN feature will override the Directory Number Delayed Ringing feature and ring the blocked DN immediately when the SACP key is pressed to ring the blocked DN.

Attendant Recall
Automatic Timed Reminder Recalls

If a dialed set has DNDR defined, and an attendant re-extends a call without releasing it, the DNDR timing is not reset. If the value of the recall timer is less than that of the DNDR timer, the call is recalled to the attendant before audible notification begins.

Attendant Recall Enhancement

With this feature, when a call to a set is recalled to the attendant, the ringing is stopped on that set. If the attendant re-extends the call and ringing is applied again, the DNDR delay is also applied.

Buzzing

If a set is defined with DNDR delay and there is an incoming call to another SCN/MCN DN key on the same set, buzzing (or short buzzing) is applied after the DNDR delay timer expires.

Call Forward No Answer
Call Forward No Answer, Second Level

The DNDR feature allows the SCN/MCN (non ringing keys) to actually ring after a definable period of time (DNDR prompt in LD 11). If the time before CFNA takes effect is less than the DNDR time for a particular set, CFNA will forward this call before any SCN/MCN keys can ring on this set. Note that CFNA is defined in the number of rings and DNDR is defined in seconds.

If the Forward DN set is busy or invalid when the call is forwarded, the call will return to the originally called set. However, the DNDR delay timer will be reapplied to the called set if DNDR is defined.

If a call is forwarded, as per existing operation, this call will be treated as a new incoming call to the forward DN. For example, if the forward DN has a DNDR value defined, a new timer will begin timing according to the forward DN's DNDR delay.

Call Waiting

Call Waiting tones apply to SCN/MCN keys as per existing operation. The DNDR delay does not apply, and the user is informed of the incoming call immediately.

Data Calls
Private Line Ringing (PVN)
Private Line Non-Ringing
Set-Based Administration Enhancements

These features are not supported by the Directory Number Delayed Ringing feature.

Distinctive/New Distinctive Ringing

The DNDR feature applies to the Distinctive Ringing feature; what applies to normal ringing with DNDR also applies to distinctive ringing.

Flexible Incoming Tones

If DNDR is enabled, the Flexible Incoming Tones buzz is delayed as with any type of audible notification.

Group Call

When a group call is made to an SCN/MCN key with Directory Number Delayed Ringing (DNDR) defined, audible notification will be given after the DNDR delay has expired.

Ringing Change Key

If an SCR/MCR key is toggled from “ringing” to “non-ringing”, the DNDR feature will apply to the key. If an SCR/MCR key is toggled again from “non-ringing” to “ringing”, the key will be rung immediately and DNDR will no longer apply.

If an SCN/MCN key is toggled from “non-ringing” to “ringing”, the DNDR key will ring immediately and DNDR will no longer apply. If an SCN/MCN is toggled again from “ringing” to “non-ringing”, the key will not ring immediately and the DNDR feature will apply to the key.

Short Buzz for Digital Telephones

If a set is defined with DNDR delay and there is an incoming call to another SCN/MCN DN key on the same set, buzzing (or short buzzing) is applied after the DNDR delay timer expires.

Spanish KD3 Forced Disconnect

Spanish KD3 Digital Trunk Signaling Direct Inward Dialing (DID) disconnects an incoming call if the destination does not answer in 60 seconds. If the DNDR delay is set to a value of more than 60 seconds, the KD3 DID will terminate the call and the destination never receives the audible notification.

User Selectable Call Redirection

With User Selectable Call Redirection (USCR) a user can change the number of CFNA/DFNA ringing cycles. If the user changes the CFNA/DFNA value so that CFNA takes place before the DNDR timer runs out, none of the SCN/MCN keys will receive an audible notification. See the interaction with Call Forward No Answer.

Feature packaging

This feature is included in base X11 System Software.

Feature implementation

Task summary list

The following task is required:

LD 11 – Configure the delay value (in seconds).

LD 11 – Configure the delay value (in seconds).

Prompt	Response	Description
REQ	NEW CHG	Add, or change.
TYPE	aaaa	Telephone type, where: aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, or 3000.
TN	l s c u c u	Terminal Number. For Option 11C.
...		
DNDR	(0)-120	Delay value in seconds. A DNDR value of zero disables the feature. If the DNDR value is an odd number, it is rounded up to the next even number. If REQ = NEW, the delay value is 0 (the default); otherwise the existing value appears.
...		
KEY	xx SCN yyyy xx MCN yyyy	Key number, Single Call Non-Ringing, DN. The key must be SCN or MCN.

Feature operation

No specific operating procedures are required to use this feature.

Directory Number Expansion

Contents

The following are the topics in this section:

Reference list

The following are the references in this section:

- *ISDN PRI/BRI: Feature Description and Administration* (553-2901-301)

Feature description

This feature increases the number of digits allowed for internal Directory Numbers (DNs), from a maximum of four digits per DN to seven digits per DN. The following internal DNs have been expanded:

- Single-line telephone DNs
- Multi-line telephone DNs
- Trunk Group Access codes
- Attendant DNs (including local attendant in Centralized Attendant Service)
- Listed Directory Numbers (LDNs)

- Coordinated Dialing Plan (CDP) steering codes
- Automatic Call Distribution (ACD) DNs
- ACD position IDs
- Direct Inward System Access (DISA) DNs
- Centralized Attendant Service (CAS) hold DNs
- Release Link Trunk (RLT) DNs in Centralized Attendant Service)
- System Park DNs
- Test line DNs, and
- Data service DNs.

The following DN types are not expanded:

- Special Prefix (SPRE)
- Basic/Network Alternate Route Selection (BARS/NARS) access codes
- Route Selection Automatic Number Identification (RSANI) access code, and
- Automatic Modem Pooling (AMP) all-digital-connection prefix.

Along with Directory Number Expansion (DNXP), Call Detail Recording Expansion (CDRE) package 151 is available to allow Call Detail Recording (CDR) records to accommodate the increased digit field lengths. Call Detail Recording (CDR) package 4 and Directory Number Expansion (DNXP) package 150 are required for CDRE.

Operating parameters

The number of DNs that can be configured is limited by the available protected data store in the system.

DNXP does not enhance existing feature capability other than allowing an internal DN with up to seven digits.

If DNXP is equipped, the system communicates with any attached Auxiliary Processor (AUX), except ACD-D, in a new message format containing expanded DN fields. Therefore, the respective Auxiliary Processor (AUX) software must be upgraded to handle longer DNs in new messages.

If a message is sent to an Auxiliary Processor (AUX) that is not capable of handling expanded DNs, only the last four digits are included in the message.

Incoming Digit Conversion (IDC) translates a maximum of four digits only.

The Automatic Number Identification (ANI) calling number is always seven digits long. It is obtained by combining the Automatic Number Identification Listed Directory Number (ANI LDN) with one of the following:

- DN of the analog (500/2500 type) telephone
- Prime DN of the SL-1 telephone
- Automatic Number Identification (ANI) attendant number, specified on a per customer basis, and
- Automatic Number Identification (ANI) trunk number, specified on a per trunk group basis.

With the DNXP package equipped, if an Automatic Number Identification Listed Directory Number (ANI LDN) is not defined, then the full seven digits of an internal DN can be used as the ANI calling number. If an ANI LDN is defined and internal DNs are longer than four digits, only the leading digits of the DNs are retained in the ANI calling number.

CDRE must be equipped to allow the printing of seven-digit DNs in the CDR records. CDRE is not supported by Mini-CDR.

An Automatic Identification of Outward Dialing (AIOD) station identification number remains four digits long. If a DN is longer, only the leading digits are retained as the Automatic Identification of Outward Dialing (AIOD) station identifier.

Service-change and print overlays with DN-related prompts and commands have been modified to accommodate seven-digit DNs if the DNXP package is equipped.

Feature interactions

ACD-C Reports

When the DNXP package is equipped, each DN-related field is expanded to seven digits.

ACD Load Management

ACD Load Management commands have been modified to allow longer DN-related fields (ACD DN, position ID, route access code).

Automatic Identification of Outward Dialing

The Automatic Identification of Outward Dialing (AIOD) station identifier and trunk identifier remains four digits long. If the total number of digits in the AIOD prefix and internal DN exceeds four, only the leading digits of the station DN are retained as the AIOD identifier.

Automatic Number Identification

If the DN Expansion package is equipped, the Automatic Number Identification billing number (ANAT) can have up to seven digits. The total number of digits for ANAT and Automatic Number Identification listed DN (ANLD) cannot exceed seven.

Auxiliary processors

Any AUX or application processor that shares or exchanges Meridian 1 internal DN-related information with the system must be modified to handle the longer DN format. Otherwise, only the four trailing digits will be included in the message.

The presence of DNXP has an impact on the following types of AUX:

- Auxiliary Processor Link (APL)
- Application Module Link (AML)
- Standard Serial Data Interface (SDI) with application interface to the Meridian 1, and
- Standard SDI without application interface to the Meridian 1.

Background Terminal Interface

When the DNXP package is equipped, any background terminal command, response, or display containing a DN is allowed to have a DN of up to seven digits.

Coordinated Dialing Plan

Coordinated Dialing Plan (CDP) steering codes are expanded to a maximum of seven digits. The maximum number of digits for a complete CDP DN has increased from seven to ten (a three-digit steering code followed by a seven-digit internal DN).

With DNXP, the maximum number of leading digits to be deleted from a Local Steering Code (LSC) is expanded to seven digits, due to longer CDP numbers.

Digit and Name Display

If longer DNs are defined, the left most digits may be scrolled out on a digit display, depending on the size of the display window.

Direct Inward Dialing

Depending on the number of Direct Inward Dialing (DID) digits outpulsed by the Public Exchange/Central Office (CO), the system can insert a unique string of prefix digits to the incoming Direct Inward Dialing (DID) digits on a per DID trunk group basis to form a final internal DN. The number of digits that can be inserted for a DID (or TIE) trunk group has been expanded from six to eight digits.

Do Not Disturb

If the Directory Number Expansion (DNXP) package is equipped, DNs can have up to seven digits.

Electronic Switched Network

With DNXP, a seven-digit Location Code (LOC) call to an Electronic Switched Network (ESN) switch can be terminated to an internal DN of up to seven digits. A Digit Manipulation Index associated with a Home Location Code is used to properly terminate the calls.

Flexible Attendant Directory Number

The attendant DN can have up to seven digits if the Directory Number Expansion (DNXP) package is equipped.

Integrated Services Digital Network

Refer to *ISDN PRI/BRI: Feature Description and Administration* (553-2901-301).

Night Service

If the Directory Number Expansion (DNPX) package is equipped, the Night DNs can be up to seven digits; otherwise, the DN can be a maximum of four digits.

Single Appearance Directory Number

The DN can have up to seven digits if the Directory Number Expansion package is equipped.

Feature packaging

Directory Number Expansion (DNXP) package 150 has no other feature package dependencies.

Feature implementation

There are no specific implementation procedures for this feature.

Feature operation

No specific operating procedures are required to use this feature.

Directory Number

Refer to the following feature modules in this book for information on Directory Number:

- “Directory Number Delayed Ringing” on page 1321
- “Directory Number Expansion” on page 1327
- “Flexible Attendant Directory Number” on page 1499
- “Listed Directory Numbers” on page 1911
- “Multiple Appearance Directory Number” on page 2209
- “Prime Directory Number” on page 2599
- “Single Appearance Directory Number” on page 2891

For Network-Wide Listed Directory Number, refer to *Networking Features and Services* (553-2901-301).

Distinctive Ringing by DN

Contents

The following are the topics in this section:

Feature description

Distinctive Ringing by DN (DRDN) allows a distinctive ringing cadence to be configured for each DN key. The ability to have sets with a distinctive ring is useful for distinguishing calls with different DNs and is only available on Meridian Modular sets.

Distinctive ringing is an enhancement to the existing Executive Distinctive Ringing (EDRG) feature. This existing feature supports a distinctive ringing cadence when a call is made from an executive set. The Distinctive Ringing by DN feature enhances the EDRG feature by introducing two new functionalities.

The EDRG feature is determined by Class of Service as executive and it will ring distinctively. The existing functionality of EDRG is modified to allow the ringing cadence to be defined on a DN key basis rather than a TN basis.

A sub prompt for every DN key configures distinctive ringing index for incoming and outgoing calls. There are two available features for incoming and outgoing calls:

- **Distinctive Ringing by call source, per DN-key:** The distinctive ringing given to the called set is determined by the call source (calling set). This functionality is the same as the EDRG feature, except it is DN-key based rather than set based
- **Distinctive Ringing by call destination, per DN-key:** The distinctive ringing given to the called set is determined by the call destination (called set) and is also based on the DN-key of the called set.

With these enhancements, a DN-key can be configured to give a distinctive ring to the terminating set, and receive a distinctive ring for incoming calls.

Operating parameters

The precedence order for the different distinctive ringing cadences to ring the terminating set in a call is:

- Distinctive Ringing for an Incoming trunk call
- Distinctive Ringing by DN by call source
- Executive Ringing by DN call destination
- Distinctive Ringing by DN by call destination

The Private Line Ringing (PVR)/ Non-Ringing (PVN) keys are not supported by the DRDN features.

No DRDN functionality is supported on the Voice Call (VCC) keys since no DN is assigned to a VCC key.

The QPC609D Fast Tone and Digit Switch card, or a later version of this card, is required to implement the New Distinctive Ringing feature.

A total of five distinctive ringing cadences used by DRDN are supported. Therefore a set with more than five DNs will have at least two DN-keys with the same distinctive ringing cadences.

The functionality of DRDN is limited to the following DN-keys; otherwise, normal ringing is given.

- Single Call Ringing (SCR)
- Single Call Non-ringing (SCN)
- One-way HOTLine (HOT)
- Two-way HOTLine
- Conference Hotline (CH)

The following Meridian sets can support DRDN:

- M2006
- M2008
- M2008HF
- M2616
- M2016
- M2216
- M2317
- M3000

Feature interactions

Attendant Extended Call

A call from a set with DRDN extended from the attendant to the called set rings distinctively with the DNRO ringing cadence as configured on the originating set. It the attendant set is not configured for DRDN and the called set is equipped with DRDN then the called set rings with the DNRI ringing cadence as configured on the called set. If DRDN is not configured, normal ringing is given.

Call Forward All Calls

The forwarded call rings distinctively the called set if the originating set is configured with DRDN. If DRDN is not configured on the originating set then the called set rings distinctively, otherwise normal ringing is given.

Call Forward No Answer, Second Level

The ringing cadence for all telephones in a chain of call redirections remains the same as for the original DN called. When CFNA is activated for a set, distinctive ringing is given to the called set if the originator set is configured with DRDN, otherwise normal ringing is given.

Call Transfer

The ringing of the redirected call is determined by the set that has originated the call and not by the set transferring the call. The transferred call distinctively rings the called set if the originating set is configured with DRDN. If the originating set is not configured with DRDN then the ringing of the transferred call is determined by the called set.

Conference

The conference call is either scanned for a call marked as distinctive or a set designed as an executive set. The conferee with the highest index determines the ringing for the new call. The index of the conferees across the network checks if the network supports NAS supplementary messaging.

Dial Intercom Call

A Dial Intercom call is distinguished from a normal call since it has a different cadence configured in the FTC table. Dial Intercom takes precedence over the existing EDRG feature.

Distinctive Ringing

Existing Distinctive Ringing by DN (defined by the Class of Service in LD 11) specifies the frequency and the tone rate where the DRDN features supports the cadences.

Distinctive Ringing by an Incoming Trunk Call

All calling sets marked as distinctive rings the called set with a distinctive ring. The distinctive ring is determined by the index configured for the calling set. This takes precedence over DRDN.

Group Call

Distinctive ringing takes priority over the ringing cadence selected by the DRDN feature.

Hunting

Hunting occurs when the called set is busy. If the originating set is configured with DRDN the called set rings distinctively. A called set on a network call will ring distinctively with the cadence determined by the ringing index received across the network.

Enhanced Hotline

Enhanced Hotline DN-keys are required to support the functionality of the DRDN feature. A call made from Hotline DN-keys rings the called set with the index as configured for DNRO of the key. An incoming call to the HOT key rings the set with the index configured for DNRI.

Flexible Tones and Cadences

With the Flexible Tones and Cadences package 125 equipped, the Call Park Recall Ring Cadence (RBCS) specified in LD 56 has precedence over the Distinctive feature and Distinctive Ringing by DN given for Call Park recall.

Multiple Appearance DN

Distinctive Ringing by DN does not support Multiple Appearance DNs. Therefore, each appearance of a DN configured on a different set cannot be configured to allow different ringing cadences.

Night Service

Incoming calls terminating on a night Directory Number (DN) that has been set up with DRDN ring distinctively. If DRDN is not configured on the calling set, the night DN rings distinctively, otherwise normal ringing is given.

Feature packaging

The following packages are required for Distnctive Ringing by DN:

- Distinctive Ringing (DRNG) package 74
- Flexible Tones and Cadences (FTC) package 125
- Executive Distinctive Ringing (EDRG) package 185

Network Distinctive Ringing (NDRG) for feature functionality over the ISDN requires:

- Distinctive Ringing (DRNG) package 74

- Integrated Service Digital Network (ISDN) package 145
- Integrated Service Digital Network International (ISDN_INTL_SUP), package 161

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

1 LD 56 – Define the ringing cadence for analog (500/2500 type) sets, network and the distinctive ringing tone for Meridian 1 proprietary sets.

2 LD 11 – Define the distinctive ringing cadence/tone to be used for Meridian 1 proprietary telephones and define Class of Service.

LD 56 – Define the ringing cadence for analog (500/2500 type) sets, network and the distinctive ringing tone for Meridian 1 proprietary sets.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	FTC	Flexible Tones and Cadence table.
TABL	0-31	FTC table number.
RING	YES	Tones and cadences for ringing.
...	...	
NDR1 PBX	0-(2)-15	Network Distinctive Ring 1 cadence for analog (500/2500 type) sets.
NDR1 BCS		Network Distinctive Ring 1 cadence for Meridian 1 proprietary sets.
- XTON	0-(2)-15	NT8D17 TDS Tone code.
- XCAD	0-(2)-15	NT8D17 TDS Cadence code.
NDR2 PBX	0-(2)-15	Network Distinctive Ring 2 cadence for analog (500/2500 type) sets.

NDR2 BCS		Network Distinctive Ring 2 cadence for Meridian 1 proprietary sets.
- XTON	0-(2)-15	NT8D17 TDS Tone code.
- XCAD	0-(2)-15	NT8D17 TDS Cadence code.
NDR3 PBX	0-(2)-15	Network Distinctive Ring 3 cadence for analog (500/2500 type) sets.
NDR3 BCS		Network Distinctive Ring 3 cadence for Meridian 1 proprietary sets.
- XTON	0-(2)-15	NT8D17 TDS Tone code.
- XCAD	0-(2)-15	NT8D17 TDS Cadence code.
NDR4 PBX	0-(2)-15	Network Distinctive Ring 4 cadence for analog (500/2500 type) sets.
NDR4 BCS		Network Distinctive Ring 4 cadence for Meridian 1 proprietary sets.
- XTON	0-(2)-15	NT8D17 TDS Tone code.
- CAD	7	NT8D17 TDS Cadence code.

LD 11 – Define the distinctive ringing cadence/tone to be used for Meridian 1 proprietary telephones and define Class of Service.

Prompt	**Response**	**Description**
REQ:	NEW CHG	Add new data. Change existing data.
TYPE:	xxxx	Telephone type xxxx = 2006, 2008, 2016, 2216, 2317, 2616, 3000.
TN	l s c u c u	Terminal Number. For Option 11C. Terminal Number. l = loop, s = shelf, c = card, u= unit for Options 51C - 81C c = card, u = unit for Option 11C.

DES	d...d	Office Data Administration System (ODAS) Station Designator of 1-6 alphanumeric characters.
CUST	xx	Customer number as defined in LD 15. xx = 0-99 for Options 51C - 81C. xx = 0-31 for Option 11C.
...		
CLS	DRDA	Distinctive Ringing by DN enabled. (DRDD) is the default.
...	...	
KEY	xx aaa yyyy	Telephone function key assignments for this feature, where: • xx = key number. • aaa = key type for this feature. These key types include: HOT D (one way and two way hotline), MCR, MCN, SCR, SCN and CH D. • yyyy = Directory Number. ***Note 1:*** The maximum number of distinctive ringing cadences is five. Therefore, a set configured with more than five DNs, say six, can provide distinctive ringing for five of the six DNs. ***Note 2:*** Any call originating from other than the above mentioned keys gives the default ring to the terminating sets.
- MARP	NO	Multiple Appearance DN Redirection Prime.
- DNRO	(0)-4	Distinctive Number Ringing index for outgoing calls.
- DNRI	(0)-4	Distinctive Number Ringing index for incoming calls.

Feature operation

No specific operating procedures are required to use this feature.

Distinctive/New Distinctive Ringing

Contents

The following are the topics in this section:

Feature description

In commercial applications, the ability to have telephones with a distinctive ring is useful for distinguishing various call types. The Distinctive Ringing capability is enabled for specific trunk groups.

The Tone and Digit Switch (TDS) card provides Meridian 1 proprietary telephones with distinctive ringing cadence. This card provides a distinctive ringback tone of 440 Hz + 480 Hz on incoming calls on the designated trunks, timed for 1.64 on and 0.36 off. On single-line telephones, the normal ringing pattern is 2 on and 4 off. Distinctive Ringing for single-line telephones is 1.54 on and 0.38 off.

New Distinctive Ringing

This feature provides a new ringing cadence of 0.512 on and 0.512 off, followed by 1.024 on and 4.096 off, for all telephone types.

Distinctive Ringing for Dial Intercom

This feature allows a user to differentiate between an incoming call and a Dial Intercom call. The Dial Intercom ringing has a different cadence than regular Directory Number (DN) ringing or Distinctive Ringing.

Distinctive Ringing for Dial Intercom is assignable on a per-customer basis. The cadence is 0.5 on and 0.5 off, repeatedly.

Operating parameters

Distinctive Ringing requires 2.5 times as much “on” ringing time as routine ringing. The number of simultaneously ringing lines per ringing generator is reduced according to the proportion of incoming calls that receive Distinctive Ringing. For example, if 50 percent of all calls receive Distinctive Ringing, the number of simultaneous ringing lines is reduced from 20 to 14 per ringing generator.

The QPC609D Fast Tone and Digit Switch card, or a later version of this card, is required to implement the New Distinctive Ringing feature.

Feature interactions

Attendant calls

When an incoming trunk call is extended by an attendant, the terminating extension rings distinctively.

Call Forward Busy

Calls modified by Call Forward Busy are not given Distinctive Ringing as they terminate on the Attendant Console.

Call Forward No Answer, Second Level

The ringing cadence for all telephones in a chain of call redirections remains the same as for the original DN called.

Call Waiting Redirection

The existing Distinctive Ringing Call Forward No Answer feature is applied to calls from a Distinctive Ringing enabled trunk. If such an incoming call is receiving Call Waiting treatment on sets with Distinctive Ringing, Call Forward No Answer (CFNA), and the Call Waiting Redirection feature enabled, the DFNA timer is applied to the call instead of the CFNA timer. The Call Waiting warning tone, if enabled, is not changed by Distinctive Ringing. If that call is not answered before the expiration of the DFNA timer, CFNA treatment is given via the Call Waiting Redirection feature.

Directory Number Delayed Ringing

The Directory Number Delayed Ringing (DNDR) feature applies to the Distinctive Ringing feature; what applies to normal ringing with DNDR also applies to distinctive ringing.

Flexible Tones and Cadences

With the Flexible Tones and Cadences package equipped, the SL-1 Call Park Recall Ring Cadence (RBCS) specified in LD 56 has precedence over the Distinctive or New Distinctive Ringing given for Call Park recall.

ISDN Semi Permanent Connections for Australia

For ISDN Semi Permanent Connections for Australia (ISPC) calls, Distinctive/New Distinctive Ringing is provided according to the configuration of the route associated to the phantom trunk TN. This configuration is independent of the route associated to the real TN.

Night Service

Incoming calls terminating on a night Directory Number (DN) ring distinctively.

Telephones

The Meridian digital telephone Distinctive Ringing (defined by the Class of Service in LD 11) specifies the frequency and the warble-tone rate, and does not pertain to the Distinctive Ringing feature as referred to in this feature description.

For example, suppose New Distinctive Ringing is enabled and a call comes in from a Distinctive Ringing enabled trunk. If the call terminates on a Meridian digital telephone with DR2 Class of Service, it rings with DR2 (frequency and warble tone), but with a cadence of 0.512 on and 0.512 off, followed by 1.024 on and 4.096 off. This also applies to the M3000 Touchphone. If the M3000 custom ringing option is selected, Distinctive Ringing is overridden.

Telephone features

Calls modified by the following features receive Distinctive or New Distinctive Ringing:

- Call Forward All Calls
- Call Forward No Answer
- Flexible Call Forward No Answer
- Call Park
- Call Transfer
- Conference
- Hunting

User Selectable Call Redirection

The single parameter previously used to define distinctive ringing cycles (DFNA) is expanded to three (DFN0-2), with the Ringing Cycle Options (RCO) parameter used to select the specific DFNA entry for each telephone.

Virtual Network Services

An incoming call using VNS on a Bearer trunk defined with the prompt DRNG = YES will ignore this value and will perform the treatment as if the value of this prompt was DRNG = NO.

Feature packaging

Distinctive/New Distinctive Ringing (DNRG) package 74 has no other feature package dependencies.

Distinctive Ringing for Dial Intercom is included in Dial Intercom (DI) package 21.

Distinctive Ringing for digital telephones is included in Digital Telephones (DSET) package 88.

Feature implementation

Task summary list

The following is a summary of the tasks in this section

1 LD 15 – Enable or disable Distinctive Ringing for Dial Intercom calls and specify Call Forward No Answer timing for trunks with Distinctive Ringing.

2 LD 17 – Specify Distinctive or New Distinctive Ringing.

3 LD 16 – Enable or disable Distinctive Ringing for each incoming or incoming/outgoing trunk route.

4 LD 11 – Specify Distinctive/New Distinctive Ringing Class of Service for Meridian 1 proprietary telephones.

LD 15 – Enable or disable Distinctive Ringing for Dial Intercom calls and specify Call Forward No Answer timing for trunks with Distinctive Ringing.

Prompt	Response	Description
REQ:	CHG	Change.
TYPE:	CDB FTR	Customer Data Block. Features and Options.
CUST	0-99 0-31	Customer number. For Option 11C.
- IRNG	(NO) YES	(Disable) enable Distinctive Ringing for Dial Intercom calls.
DFNA	1-(4)-15	The number of distinctive ringing cycles before Call Forward No Answer is activated for calls with Distinctive Ringing (the default is 4).

LD 17 – Specify Distinctive or New Distinctive Ringing.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	CFN PARM	Configuration Record. System parameters.
PARM	(NO) YES	Change system parameters.
- NDRG	(NO) YES	(Disable) enable New Distinctive Ringing (DRNG). Prompted only if DRNG is equipped.

LD 16 – Enable or disable Distinctive Ringing for each incoming or incoming/outgoing trunk route.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	RDB	Route Data Block.
CUST	0-99 0-31	Customer number. For Option 11C.
ROUT	0-511 0-127	Route number. For Option 11C.
DRNG	(NO) YES	(Disable) enable Distinctive Ringing for incoming calls.

LD 11 – Specify Distinctive/New Distinctive Ringing Class of Service for Meridian 1 proprietary telephones.

Prompt	Response	Description
REQ:	CHG	Change.
TYPE:	aaaa	Telephone type, where: aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, or 3000.
TN	l s c u c u	Terminal Number. For Option 11C.
CLS	DRGX	Distinctive ring type (DRG1), DRG2, DRG3, DRG4, where: DRG1 = high fast tone, frequency 667/500 Hz. DRG2 = high slow tone, frequency 667/500 Hz. DRG3 = low fast tone, frequency 250/333 Hz. DRG4 = low slow tone, frequency 250/333 Hz. The DRG3/4 distinctive ringing for M2006 and M2008 telephones are different: DRG3 = low fast tone, frequency 1600/2000 Hz. DRG4 = low slow tone, frequency 1600/2000 Hz.

Feature operation

No specific operating procedures are required to use this feature.

Do Not Disturb

Contents

The following are the topics in this section:

Feature description

Individual Do Not Disturb (DNDI) allows the attendant to place a particular Directory Number (DN) in Do Not Disturb (DND) mode. A DN in this mode is free to originate calls, but appears busy to incoming calls. An attendant dialing a Directory Number in Do Not Disturb mode receives a visual indication and can override it temporarily by using Busy Verify (BVR) and signal source. To activate Individual Do Not Disturb (DNDI), a separate Individual Do Not Disturb (DNDI) key/lamp pair must be assigned to each applicable Attendant Console.

Analog (500/2500 type) telephones can be equipped with a Do Not Disturb lamp. Common Control Switching Arrangement (CCSA) and LPA Class of Service must be allowed.

Calls will receive the customer-specified intercept treatment (e.g., busy tone, Recorded Announcement (RAN), or attendant). An enhancement to DND provides the ability to route calls to the Hunt DN instead of to the intercept treatment. Table 41 lists possible intercept treatments based on responses to the prompts Do Not Disturb Intercept Treatment (DNDT) and Do Not Disturb Hunt (DNDH) in LD 15.

Table 41
Do Not Disturb intercept treatments (Part 1 of 2)

Call type	Hunt	DNDT = BST		DNDT = RAN		DNDT = ATT	
		DNDH No	DNDH Yes	DNDH No	DNDH Yes	DNDH No	DNDH Yes
DID							
Analog (500/ 2500 type) telephone	Allow	H	H	R	H	H	H
	Deny	A	A	R	R	A	A
Meridian 1 proprietary telephone	Allow	A	H	R	H	A	H
	Deny	A	A	R	R	A	A
Attendant							
Analog (500/ 2500 type) telephone	Allow	H	H	B	H	H	H
	Deny	B	B	B	B	B	B

H = Follow Hunt Directory Number (DN)
A = Intercept to attendant
B = Busy tone
R = RAN treatment

Table 41
Do Not Disturb intercept treatments (Part 2 of 2)

Call type	Hunt	DNDT = BST		DNDT = RAN		DNDT = ATT	
		DNDH No	DNDH Yes	DNDH No	DNDH Yes	DNDH No	DNDH Yes
Meridian 1 proprietary telephone	Allow	B	H	B	H	B	H
	Deny	B	B	B	B	B	B
Internal							
Analog (500/ 2500 type) telephone	Allow	H	H	R	H	H	H
	Deny	B	B	R	R	A	A
Meridian 1 proprietary telephone	Allow	B	H	R	H	A	H
	Deny	B	B	R	R	A	A

H = Follow Hunt Directory Number (DN)
A = Intercept to attendant
B = Busy tone
R = RAN treatment

Group Do Not Disturb (DNDG) allows an attendant to place predefined groups of DNs in DND mode. A DN can belong to many DND groups.

If a DN belongs to more than one DND group, the DND status of the DN might not be consistent with the DND status of each group. For example, if one of the DN's groups is removed from DND mode, the DN is also removed from DND mode even if another group to which the DN belongs is still in DND mode.

To enable Group Do Not Disturb (DNDG), the DNDI package must be equipped. DNDI allows the user to activate, cancel, and verify the presence of the feature. A separate Group Do Not Disturb (DNDG) key is assigned to each Attendant Console for activating the DNDG feature.

Operating parameters

A maximum of 100 groups (0-99) can be defined per customer. Each group can contain up to 127 DNs.

A maximum of 20 DNDG keys can be equipped on an M2250 Attendant Console. Ten DNDG keys can be equipped on a QCW or M1250 Attendant Console. Alternatively, the DNDI key plus dial-access can be used to activate DND for up to 100 groups.

To activate DNDG using a DNDG key, a group of telephones must be defined for that key (see LD 26).

For Individual Do Not Disturb (DNDI), a Direct Inward Dial (DID) call to a DN with DND active goes to the attendant if DNDT in LD 15 is set to BST or ATT. If the attendant is in Night Service, DID calls go to the night DN, if one is specified.

For Group Do Not Disturb (DNDG), if a DN is busy or has DND active, a DID caller gets a busy tone. If DNDT in LD 15 is set to CDB or RAN, and a DN is busy or has DND active, the DID caller gets RAN and then goes to the attendant.

Feature interactions

Attendant Alternative Answering

A DN in the DND mode is free to originate calls but appears busy to incoming calls. Call Forward All Calls takes precedence over DND indication on Attendant Alternative Answering (AAA) DNs.

Attendant Blocking of Directory Number

The Attendant Blocking of DN feature will override the Do Not Disturb feature. If the dialed DN of the set that has the Do Not Disturb feature active is idle, the DN will be blocked and if the DN is busy, busy tone will be heard.

Attendant Break-In

For a telephone with Do Not Disturb in effect, Break-In is temporarily denied to the attendant. The Break-In lamp uses slow flash to indicate this situation. Using the Break-In key prior to dialing the destination DN circumvents this situation. After the Break-In, the telephone returns to its prior status.

Attendant Break-In to Inquiry Calls

The operation of Do Not Disturb is overridden on a analog (500/2500 type) telephone that has inadvertently been placed on-hook during a Break-In conference to allow it to be re-rung by the attendant.

If the controlling party goes on hook in a Break-In conference, and is being re-rung by the attendant, the ringing takes precedence over Do Not Disturb that may be applied to the set.

Automatic Wake Up

When a telephone is configured for Do Not Disturb, a wake up call can still be presented.

Call Forward All Calls
Hunting

If activated, Call Forward All Calls, Call Forward, Internal Calls and Hunting take precedence over DND busy indication.

Call Forward/Hunt Override Via Flexible Feature Code

Do Not Disturb is not overridden by the Call Forward/Hunt Override Via FFC feature.

Call Park

Calls can be parked on and by DNs in DND mode. When a telephone in DND mode parks a call, the call will not return to the DND telephone. It recalls to the attendant.

Camp-On, Forced

Telephones with Do Not Disturb enabled cannot be camped on to with Forced Camp-On. Overflow tone is returned to telephones attempting Forced Camp-On.

China – Attendant Monitor

If an attendant attempts to monitor a DN which has Do Not Disturb activated and is idle, idle DN treatment is given.

Digital Private Signaling System #1 (DPNSS1) Executive Intrusion

Executive Intrusion is not allowed if either of these features is active at the requested party.

Directory Number Expansion

If the Directory Number Expansion (DNXP) package is equipped, DNs can have up to seven digits.

Group Hunt

Do Not Disturb (DND) has priority over Group Hunting. Group Hunting will skip over sets with DND active.

Hunting

If activated, Hunting takes precedence over Do Not Disturb busy indication.

Idle Extension Notification

It is not possible to request for Idle Extension Notification towards an extension that has the Do Not Disturb feature activated.

The Idle Extension Notification feature is not supported on DPNSS networks.

It is not possible to request Idle Extension Notification towards an extension that is Second Degree Busy. Idle Extension Notification is only possible on an extension that is First Degree Busy.

It is not possible to set Idle Extension Notification towards a pilot DN.

Intercept Computer Dial from Directory

This feature can be activated for an extension DN as follows:

- Press an idle Loop key, and press the Do Not Disturb Individual (DND IND) key on the Attendant Console.

- Dial a DN from the ICT.
- Press the DND IND key once more, and terminate the procedure by pressing the Release key on the Attendant Console.

The same approach applies when cancelling Do Not Disturb for a set.

To override Do Not Disturb for an extension DN:

- Press an idle Loop key on the Attendant Console.
- Dial a DN from the Intercept Computer (ICT).

Press the DND IND key on the Attendant Console.

ISDN QSIG/EuroISDN Call Completion

An incoming notification overrides a set with Do Not Disturb (DND) activated. Call Completion requests can be applied to sets with the DND feature activated. However, this request does not advance until the DND feature is deactivated.

Last Number Redial

A Hot Line key cannot be redialed using the Last Number Redial feature.

Make Set Busy and Voice Call Override

Voice calls are not allowed on a set with attendant-activated Do Not Disturb.

Meridian Hospitality Voice Services

Individual Do Not Disturb (DND) allows the attendant to place a Directory Number into DND mode. A DN in this mode is free to originate calls, but appears busy to incoming calls. With MHVS equipped, a new prompt (DNDH) allows callers to be redirected to Meridian Mail for voice mail services. A called telephone must have Hunting Allowed (HTA) class of service, and Hunt to Meridian Mail and DNDH in LD 15 must both be set to YES.

Network Individual Do Not Disturb

An attendant may receive a visual indication of the state of a set belonging to Group Do Not Disturb mode, whether this set is located on the local node or any other network node.

Network Intercom

Hot Type I calls ignore the Do Not Disturb feature. Hot Line calls are presented to the defined target, even when DND is activated.

Night Station

A Night Station DN can be placed in DND mode.

Override

Priority Override

Telephones with DND enabled cannot be overridden. Overflow (fast busy) tone is returned to telephones attempting Priority Override.

Private Line Service

DND cannot be used on Private Lines.

Feature packaging

Do Not Disturb, Individual (DNDI) package 9 has no feature package dependencies.

Do Not Disturb, Group (DNDG) package 16 requires DNDI package 9.

Do Not Disturb Hunt requires Meridian Hospitality Voice Services (MHVS) package 179.

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

1 LD 15 – Specify the treatment received by calls to a number in Do Not Disturb mode.

2 LD 26 – Add or change a Group Do Not Disturb.

3 LD 26 – Merge one or more defined Do Not Disturb groups into another DND group, retaining their status as groups.

4 LD 26 – Print Do Not Disturb group data.

5 LD 12 – Add or change Individual or Group Do Not Disturb keys on an Attendant Console.

6 LD 10 – Enable or disable lamp for analog (500/2500 type) telephones.

LD 15 – Specify the treatment received by calls to a number in Do Not Disturb mode.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	CDB FTR	Customer Data Block. Gate opener.
CUST	0-99 0-31	Customer number. For Option 11C.
- DNDL	(NO) YES	Do Not Disturb lamp for analog (500/2500 type) telephones.
TYPE	INT	Intercept Treatment Option.
- DNDT	(BST) ATT RAN	Busy tone treatment for Do Not Disturb (DND) numbers. Attendant treatment for DND numbers. Recorded announcement for DND numbers.
- - RRT	xxx	Route number for the recorded announcement for calls to a DND number (prompted if DNDT = RAN).
TYPE	RDR	Call Redirection.
- DNDH	(NO) YES	(Disallow) Allow Do Not Disturb Hunt.

LD 26 – Add or change a Group Do Not Disturb.

Prompt	Response	Description
REQ	CHG REM	Change, remove DN in DND group.
TYPE	DND	Do Not Disturb Group data block.
CUST	0-99 0-31	Customer number. For Option 11C.
GPNO	0-99	DND group to be added or changed.
STOR	xxx...x	DN to be added or changed in the DND group; repeat to add other DNs.
RMOV	xxx...x	DN to be removed from a DND group. Prompted if REQ = REM.

LD 26 – Merge one or more defined Do Not Disturb groups into another DND group, retaining their status as groups.

Prompt	Response	Description
REQ	MRG CHG REM OUT	Merge DND groups. Add a DND group from a list of merged DND groups. Remove DND group from a merged group. Remove a DND group that consists of a list of merged DND groups.
TYPE	DND	Do Not Disturb Group data block.
CUST	0-99 0-31	Customer number. For Option 11C.
GPNO	0-99	Number of the DND group to be created through merging of other DND groups.
GRP1	G0-G99	Number of the first DND group to be merged (total number of members in all merged DND groups cannot exceed 127). Prompted if REQ = MRG.
GRP2	G0-G99	Number of the second DND group to be merged (total number of members in all merged DND groups cannot exceed 127). Prompted if REQ = MRG.
GRP	G0-G99	Number of the DND group to be merged (total number of members in all merged DND groups cannot exceed 127). Prompted if REQ = MRG.
STOR	G0-G99	Specify the number of the DND group to be added to a list of merged DND groups. Prompted if REQ = CHG.
RMOV	G0-G99	Specify the number of the DND group to be removed from a list of merged DND groups. Prompted if REQ = REM.

LD 26 – Print Do Not Disturb group data.

Prompt	Response	Description
REQ	PRT	Print.
TYPE	DND	Do Not Disturb Group data block.
CUST	0-99 0-31	Customer number. For Option 11C.
GPNO	0-99 <CR>	DND group to be printed. Print all DND group data.

LD 12 – Add or change Individual or Group Do Not Disturb keys on an Attendant Console.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	ATT 1250 2250	Console type.
TN	l s c u c u	Terminal Number. For Option 11C.
KEY	xx DDL	Add an Individual Do Not Disturb key, where: xx = 0-19 for M2250 consoles, and xx = 0-9 for M1250 consoles.
KEY	xx GND 0-99	Add a DND group key, where: xx = 0-19 for M2250 consoles, and xx = 0-9 for M1250 consoles.

LD 10 – Enable or disable lamp for analog (500/2500 type) telephones.

Prompt	Response	Description
REQ:	CHG	Change.
TYPE:	500	Telephone type.
TN	l s c u c u	Terminal Number. For Option 11C.
CLS	(LPD) LPA (CCSD) CCSA	(Disable) enable lamp. Controlled Class of Service (denied) allowed.

Feature operation

Individual Do Not Disturb

To activate DNDI using the DNDI key (Attendant Console):

1 Select an idle loop key.

2 Press **DNDI**.

3 Dial the DN of the telephone to place into DND mode.

4 Press **DNDI** again. (Ignore status of indicator.)

5 Press **Rls**.

To deactivate DNDI, follow the same steps.

Group Do Not Disturb

There are two ways to activate DNDG: with the DNDG key or with the DNDI key.

To activate DNDG using the DNDG key (Attendant Console):

1. Press **DNDG**. This key already has a defined group assigned to it. The associated indicator remains steadily lit to indicate that all telephones in that DND group are in DND mode.
2. Press **Rls**.

To deactivate DNDG:

- Press **DNDG**.

To activate DNDG using the DNDI key (Attendant Console):

1. Select an idle loop key.
2. Press **DNDI**.
3. Press the **octothorpe (#)** key.
4. Dial the group number.
5. Press **#** again.
6. Press **DNDI** again.
7. Press **Rls**.

Dual Signaling on Analog Trunks

Contents

The following are the topics in this section:

Feature description

A telephone user can select any interexchange carrier for any given call by using a Carrier Access Code (CAC). A CAC comprises an Equal Access identifier and a Carrier Identification Code (CIC). Nortel Networks refers to a call preceded by a CAC as an Equal Access call.

The Dual Signaling on Analog Trunks feature allows Dial Pulse signaling and Digitone signaling to be applied separately to incoming and outgoing calls on one trunk. It reduces the number of Digitone Receiver (DTR) units required on the system since these units are no longer necessary for incoming calls on trunks programmed with the new DPDT Class of Service.

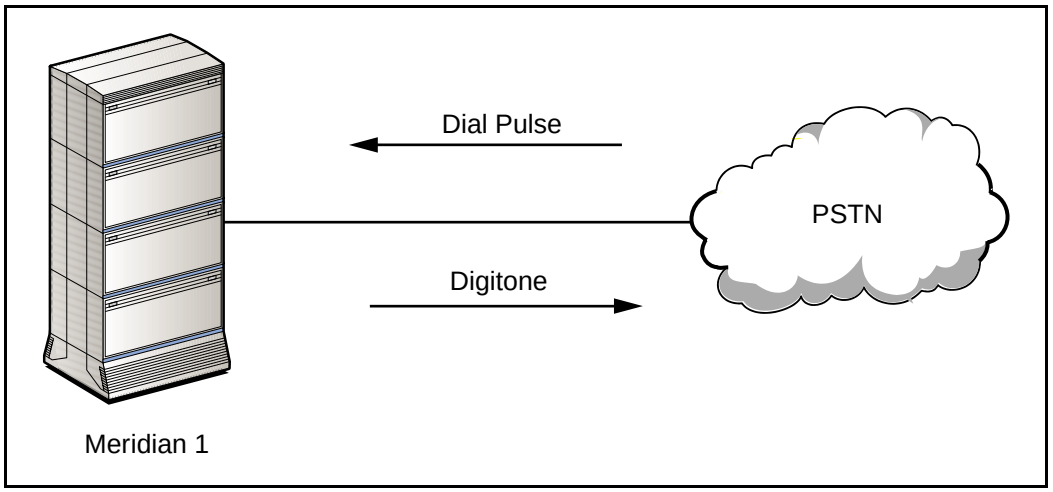
The new trunk Classes of Service in LD 14 are:

- DPDT = digit information is received as Dial Pulse and sent as Digitone
- DTDP = digit information is received as Digitone and sent as Dial Pulse

Prior to the introduction of Dual Signaling on Analog Trunks, a similar functionality was available when trunks were programmed for DTMF signaling. Dial Pulse calls, if received, were analyzed and handled by the Tone and Digit Switch or Extended Conference and Tone Service card. A DTR was reserved, needlessly, for the duration of the signaling.

The following diagram shows one application of the feature.

Figure 38
Meridian 1 connected to the C.O. through analog trunks interface



This feature enables a trunk to be configured in one of the following ways:

- incoming Dial Pulse - outgoing Dial Pulse
- incoming DTMF - outgoing DTMF
- incoming Dial Pulse - outgoing DTMF
- incoming DTMF - outgoing Dial Pulse

Operating parameters

The new Classes of Service (DPDT and DTDP) are mutually exclusive with DIP, DTN, MFC, MFE, MFK, MFR and MFX.

If Dual Signaling on Analog Trunks is used on a trunk with DPDT programmed, a DTR is not involved with incoming trunk traffic.

This feature is available on analog DID and TIE trunks only.

CLS DPDT/DTDP can only be configured on routes with the ICOG prompt set to IAO (incoming and outgoing).

Feature interactions

There are no feature interactions associated with this feature.

Feature packaging

This feature is included in base X11 System Software.

Feature implementation

Task summary list

The following task is required:

LD 14 – Configure the trunk with the Dual Signaling on Analog Trunks Class of Service.

LD 14 – Configure the trunk with the Dual Signaling on Analog Trunks Class of Service.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	aaa	Trunk type. xxx = DID, TIE.
TN	l s c u c u	Terminal Number. Terminal Number of Option 11C.
CLS	(DIP) DPDT DTDP	Dial Pulse. Incoming Dial Pulse -outgoing Digitone. Incoming Digitone - outgoing Dial Pulse.

Electronic Switched Network

Contents

The following are the topics in this section:

Reference list

The following are the references in this section:

- *Basic and Network Alternate Route Selection: Description* (553-2751-100)
- *Network Queuing: Description* (553-2751-101)
- *Coordinated Dialing Plan: Description* (553-2751-102)
- *Administration* (553-3001-311)

Feature description

The Electronic Switched Network (ESN) group of features is designed to support voice and circuit-switched voiceband data telecommunications needs for multiple-location customer applications.

Basic Authorization Code

The Basic Authorization Code (BAUT) feature provides up to 5000 authorization codes of 1 to 14 digits that allow selected users to temporarily override system access restrictions by dialing a Special Service Prefix (SPRE) code, the digit 6, and the Basic Authorization Code (BAUT). The Basic Authorization Code (BAUT) is used for general applications and is described in the *Basic and Network Alternate Route Selection: Description* (553-2751-100).

Basic Alternate Route Selection

Basic Alternate Route Selection (BARS) enables calls placed to another location to be routed automatically over the least expensive route. After the Basic Alternate Route Selection (BARS) access code and the desired number have been dialed, Basic Alternate Route Selection (BARS) automatically tries alternate routes to the destination and completes the call over the least expensive route available at the time of dialing. BARS is described in detail in the *Basic and Network Alternate Route Selection: Description* (553-2751-100).

Call Back Queuing

Call Back Queuing (CBQ) is an optional feature available to systems equipped with the Basic/Network Alternate Route Selection (BARS/NARS) or Coordinated Dialing Plan (CDP) features. If all facilities are busy when an individual places a BARS, NARS, or CDP call, Call Back Queuing (CBQ) enables the individual to invoke the Ring Again (RGA) feature and receive a callback from the system when a facility becomes available. Call Back Queuing (CBQ) is described in detail in Network Queuing description or *Basic and Network Alternate Route Selection: Description* (553-2751-100).

Call Back Queuing to Conventional Mains

Call Back Queuing to Conventional Mains (CBQCM) enables call originators at a Conventional Main (any type of switch, including switches that are part of an Electronic TIE Network [ETN]) to access the CBQ feature at the serving ESN Node. When offered CBQ by the Node, users at the Conventional Main dial their extension number to accept the CBQ offer. When facilities become available at the Node, it initiates a CBQ callback to the call originator at the Conventional Main. Refer to *Network Queuing: Description* (553-2751-101) for a detailed description of Call Back Queuing to Conventional Mains (CBQCM).

Coordinated Call Back Queuing

Coordinated Call Back Queuing (CCBQ) enables telephones eligible for Ring Again (RGA) at the Main to be offered CBQ when network calls are blocked at the serving Node. When facilities become available at the Node, the call originator at the Main is alerted by a callback (identical to an RGA callback) from the Node. Coordinated Call Back Queuing (CCBQ) requires that the Main and associated Node be equipped with Network Signaling. Refer to *Network Queuing: Description* (553-2751-101) for a detailed description of Coordinated Call Back Queuing (CCBQ).

Coordinated Call Back Queuing Against Main

Coordinated Call Back Queuing Against Main (CCBQAM) is an enhancement to the CCBQ feature that allows a station at the Node to be offered CBQ if a call is blocked at the Main. When facilities become available at the Main, the call originator at the Node is alerted by a callback from the Main. The Network Signaling feature must be equipped at both the Main and the Node for Coordinated Call Back Queuing Against Main (CCBQAM) implementation.

Coordinated Dialing Plan

Coordinated Dialing Plan (CDP) enables a customer with a number of switches to coordinate the dialing plan of stations at these switches. The Coordinated Dialing Plan (CDP) feature allows the telephone user to call any other telephone within a CDP group by dialing a three- to seven-digit number assigned to the station. CDP can be arranged to provide a centralized public exchange network capability that channels access to the public network through a single Meridian 1 switch within the CDP group.

CDP routes Direct Inward Dialed (DID) calls over Central Office (CO) and Wide Area Telephone Service (WATS) trunks using a Distant Steering Code (DSC). The feature is controlled by the Customer Data Block (LD 15). This applies to CO, WATS, Data Terminal Interface (DTI), and Integrated Services Digital Network (ISDN) trunks.

CDP is described in detail in the *Coordinated Dialing Plan: Description* (553-2751-102).

Flexible ESN “0” Routing

Flexible ESN “0” Routing allows the routing of calls on different routes based on a few predefined non-leftwise unique dialing sequences. “Leftwise unique” means that each entry cannot match the left most portion of any other entry in the table. For example, if “123” is an entry in the table, then no other entry may begin with “123.”

The ESN translation table will allow any or all of the following non-leftwise unique numbers (along with their associated route lists) to be entered into the ESN translation table:

- 0

- 00
- 01
- 011

Flexible ESN “0” Routing is part of the existing BARS (57) and Network Alternate Route Selection (NARS) (58) packages and has no interaction with other features besides these. Since NARS has two translation tables, two Flexible ESN “0” Routing data blocks will be included in NARS. This means that a call could be configured to route in two different ways.

This feature is applicable to all route types and network types supported by ESN. For information on the appropriate prompts and responses in Service Change (LD 90), refer to the *Software Input/Output Guide - X11 Administration* (553-3001-311).

Network Alternate Route Selection

Network Alternate Route Selection (NARS) is an integral part of Nortel Networks’s ESN. Network Alternate Route Selection (NARS) is designed for large business customers with numerous distributed operating locations, enabling the customer to tie together the switches at the various operating locations to create a private telecommunications network. NARS is described in detail in the *Basic and Network Alternate Route Selection: Description* (553-2751-100).

BARS/NARS Incoming Trunk Group Exclusion

Incoming Trunk Group Exclusion (ITGE) is an enhancement to the BARS/ NARS feature. Standard call blocking is applied on outgoing calls to a specific Numbering Plan Area (NPA), NXX, Special Number (SPN), or Location Code (LOC) at the ESN node if the call is from a specific incoming trunk group.

This prevents loopback routing through the caller’s home switch (home NPA, NXX). Calls that should have been made off-net from the caller’s home switch are blocked outgoing at the Node. Main users are prevented from using the ESN to make calls to certain NPA, NXX, SPN, or Location Codes (LOC) that they are restricted from making at the home switch.

Incoming Trunk Group Exclusion (ITGE) provides full ten-digit restriction for NPA and SPN codes, seven-digit restriction for NXX codes, and three-digit restriction for Location Code (LOC) codes.

Detailed information on this enhancement is provided in the *Basic and Network Alternate Route Selection: Description* (553-2751-100).

NARS Multiple DID Office Code Screening

Multiple DID Office Code Screening is an enhancement to the On-Net to Off-Net Overflow capability of the NARS feature. This enhancement permits network calls that undergo on-net to off-net conversion to terminate at any Directory Number (DN) that has been defined in the LOC data block of memory. This data block allows the definition of multiple office codes (NXX) and/or multiple Directory Number (DN) ranges of the following types:

- single office code/single Directory Number (DN) range
- single office code/multiple DN ranges
- multiple office codes/single DN range
- multiple office codes/multiple DN ranges

NARS Multiple DID Office Code Screening operates within the following parameters:

- Only one Numbering Plan Area (NPA) per LOC is allowed.
- Ranges defined within a LOC must be unique. Overlapping or duplication of ranges is not permitted.
- The number of digits must be the same in each Direct Inward Dialing (DID) range.
- A maximum of 20 Direct Inward Dialing (DID) ranges may be defined per location code.

BARS/NARS Off-Net Number Recognition

Off-Net Number Recognition is an enhancement to the Basic/Network Alternate Route Selection (BARS/NARS) feature for ESN, and for the BARS feature for standalone applications.

Off-Net numbers that terminate at an ESN Node or Main, or at a Conventional Main, can be routed through the private network by means of TIE trunks. BARS/NARS Off-Net Number Recognition prevents unnecessary TO and FROM terminations through CO trunks, at the terminating end, when a caller dials a DID or Direct Distance Dialing (DDD) call to a location in the private network. Calls are handled on the basis of customer-defined parameters stored in Network Translation Tables and Supplementary Digit Recognition/Restriction Blocks.

Detailed information is provided in *Basic and Network Alternate Route Selection: Description* (553-2751-100).

BARS/NARS 11-Digit Translation

This feature expands the ESN BARS/NARS translation capabilities from a maximum of four digits to a maximum of 11 digits for route selection.

Possible conflicts between translatable codes (NPA, NXX, LOC, SPN) are eliminated by 11-Digit Translation. By allowing translation of more than four leading digits, unique nonconflicting routing to a destination is possible. More than one route list can exist for each specific code of a type. For example, the NXX 727 could only translate into one route list previously.

With 11-Digit Translation, up to 128 route lists for BARS and up to 256 for NARS may be defined, extending translation deeper into the dialed code. The codes must be leftwise unique. If an NXX of 7271 is defined, any other 727 entries must be extended to four digits.

BARS/NARS 11-Digit Translation is discussed in greater detail in the *Basic and Network Alternate Route Selection: Description* (553-2751-100).

Network Authorization Code

The Network Authorization Code (NAUT) feature provides up to 50,000 authorization codes. Network Authorization Code (NAUT) incorporates all the features of the BAUT feature, adds a conditionally last option for entering an Authorization Code after dialing an ESN call, and enables the attendant to enter an Authorization Code. Network Authorization Code (NAUT) is described in detail in *Basic and Network Alternate Route Selection: Description* (553-2751-100).

Network Call Transfer

Network Call Transfer (NXFER) enhances the operation of Call Transfer (XFER) between two switches when a call is transferred back to the originating switch. The regular Call Transfer feature requires two TIE trunks to complete the call. With Network Call Transfer (NXFER), if the call is transferred back to the originating switch as the same TIE trunk group, the originating switch completes the transfer within itself and the TIE trunks are dropped. For a detailed description of Network Call Transfer (NXFER) refer to *Basic and Network Alternate Route Selection: Description* (553-2751-100). The benefits derived from the NXFER feature include:

- minimal use of access TIE lines
- improved transmission performance, since TIE lines are not used for the completed connection
- operation identical to that of Call Transfer (XFER)

NXFER operates within the following parameters:

- Meridian 1 proprietary telephones must be equipped with a Call Transfer key.
- Network Signaling (NSIG) must be provided on both switches.

Network Signaling

Network Signaling (NSIG) provides a proprietary signaling protocol for transmission of network call information between switches that operate in a private network environment with Basic/Network Alternate Route Selection (BARS/NARS) or CDP. Network Signaling (NSIG) can be equipped at the Node and Main switches. For a detailed description of Network Signaling, refer to *Basic and Network Alternate Route Selection: Description* (553-2751-100).

NSIG supports transmission or reception of information between the following switch types:

- Meridian 1 Node to Meridian 1 Node
- Meridian 1 Node to Meridian 1 Main
- Meridian 1 Node to an Electronic TIE Network (ETN) switch
- Meridian 1 Main to Meridian 1 Node

- ETN switch to Meridian 1 Node

Information transmitted and received from one switch to another can include the following:

- Call type
- Called number
- Network Class of Service (NCOS)
- Traveling Class of Service (TCOS)
- Traveling Class Mark (TCM)
- Queue identification number (for CCBQ)

NSIG operates within the following parameters:

- A Main can connect to only one Node, and both switches must be equipped with the NSIG feature.
- TIE trunks between Nodes and Mains must be arranged for Dual-tone Multifrequency (DTMF) sending/receiving and wink-start operation.
- Meridian 1 Node compatibility with Electronic TIE Network (ETN) switches is limited to seven-digit on-network and ten-digit off-network calls.

Network Traffic

The Network Traffic (NTRF) feature enables traffic data related to BARS, NARS, and CDP to be retrieved and output at a traffic TTY. The network traffic measurements (in addition to the switch traffic measurements) are described in detail in the Nortel Networks technical publication (NTP), *Traffic Measurement Format and Output* guide.

Network Speed Call

Network Speed Call (NSC) enables a user who is normally restricted from making network calls to make such a call through BARS/NARS, provided that the destination is a number defined in a System Speed Call (SSC) list. When such a call is placed, the CLS and TGAR restrictions are lifted and a Network Class of Service (NCOS), associated with the SSC list, is assigned for the duration of the call. NSC is described in detail in the *Basic and Network Alternate Route Selection: Description* (553-2751-100).

Off Hook Queuing

Off Hook Queuing (OHQ) is an optional feature available at any switch equipped with BARS, NARS, or CDP. If all facilities are busy when an individual places a BARS, NARS, or CDP call, the OHQ feature enables the individual to wait off hook for a programmed length of time until a facility becomes available. OHQ is described in the *Network Queuing: Description* (553-2751-101).

Operating parameters

Refer to the appropriate Nortel Networks technical publication for each ESN feature.

Feature interactions

Refer to the appropriate Nortel Networks technical publication for each ESN feature.

Feature packaging

Basic Authorization Code (BAUT) package 25 requires:

- Charge Account/Authorization Code (CAB) package 24.

Basic Alternate Route Selection (BARS) package 57 requires:

- Basic Routing (BRTE) package 14
- Network Class of Service (NCOS) package 32

Coordinated Dialing Plan (CDP) package 59 requires:

- Basic Routing (BRTE) package 14
- Network Class of Service (NCOS) package 32
- Flexible Call Back Queuing (FCBQ) package 61

Network Alternate Route Selection (NARS) package 58 requires:

- Basic Routing (BRTE) package 14
- Network Class of Service (NCOS) package 32

Network Authorization Code (NAUT) package 63 requires:

- Charge Account/Authorization Code (CAB) package 24
- Basic Authorization Code (BAUT) package 25

and at least one of the following:

- Basic Alternate Route Selection (BARS) package 57
- Network Alternate Route Selection (NARS) package 58 or
- Coordinated Dialing Plan (CDP) package 59

Network Call Transfer (NXFR) package 67 requires:

- Network Class of Service (NCOS) package 32
- Network Signaling (NSIG) package 37

Network Signaling (NSIG) package 37 requires:

- Network Class of Service (NCOS) package 32

Network Traffic (NTRF) package 29 requires at least one of the following:

- Basic Alternate Route Selection (BARS) package 57
- Network Alternate Route Selection (NARS) package 58
- Coordinated Dialing Plan (CDP) package 59
- Priority Queuing (PQUE) package 60
- Flexible Call Back Queuing (FCBQ) package 61, or
- Off Hook Queuing (OHQ) package 62

Network Speed Call (NSC) package 39 requires:

- System Speed Call package (SSC) package 34

and at least one of the following:

- Basic Alternate Route Selection (BARS) package 57, or
- Network Alternate Route Selection (NARS) package 58

Off Hook Queuing (OHQ) package 62 requires

- Basic Queuing (BQUE) package 28

and at least one of the following:

- Basic Alternate Route Selection (BARS) package 57, or
- Network Alternate Route Selection (NARS) package 58

Feature implementation

Refer to the appropriate Nortel Networks technical publication for each ESN feature.

Feature operation

Refer to the appropriate Nortel Networks technical publication for each ESN feature.

Electronic Brandlining

Contents

The following are the topics in this section:

Reference list

The following are the references in this section:

- *Software Conversion Procedures* (553-2001-320)
- “Incremental Software Management” on page 1725

Feature description

The Electronic Brandlining (EBLN) feature enhances the display functionality of Meridian Modular sets. This feature allows the second line on the idle[1] display screen of a Meridian Modular set to show a custom display.

1.Previous to the Electronic Brandlining feature, when a Meridian Modular set is in the idle state, only the time and date is shown on the first line of the display screen and the second line is blank.

The display screen of a Meridian Modular set contains two lines with 24 character spaces on each line. Previously, the second line on the display screen of an idle Meridian Modular set was blank. With the Electronic Brandlining feature, however, a custom display is shown left justified on the second line of the idle display screen.

Incremental Software Management

An Incremental Software Management (ISM) parameter is introduced with the Electronic Brandlining feature. This ISM parameter is used to transfer custom display information from the Order Management System to X11 software. The Electronic Brandlining ISM value is copied from the appropriate tape/keycode/file into X11 software during sysload. The X11 software then sends the custom display to the display screen of a Meridian Modular set.

The Electronic Brandlining ISM value contains one of the following:

- a Terminal Text Broadcast customized text string value
- a default value

The value of the Electronic Brandlining ISM parameter determines the content of the Electronic Brandlining custom display.

Overlay 22 is modified to print the Electronic Brandlining ISM parameters. When REQ = SLT (Print System Limits: Incremental Software Management) in Overlay 22, the ISM parameters and system limits are printed. The printing of the Electronic Brandlining custom display output is added after the ISM parameters, if applicable. For Option 11C, ISM keywords are printed, in addition to the ISM system limits.

Option 11C and Input-Output Disk Unit with CD-ROM (IODU/C) customers can deliver ISM parameters via keycode. A keycode is a machine-generated digitally signed list of customer capabilities and authorized software release. A security keycode scheme protects ISM parameters.

In order for Option 11C and IODU/C customers to expand ISM limits, they must order and install a new keycode. This installation is performed using the Keycode Management feature. All Keycode Management commands are executed in Overlay 143. To make the expansion effective, the customer must sysload. For further information on keycode installation, please refer to *Software Conversion Procedures* (553-2001-320).

For customers without Option 11C or IODU/C, ISM parameters are delivered as per existing operation.

For further information on ISM, refer to the "Incremental Software Management" on page 1725 in this book.

Custom Displays

The Electronic Brandlining feature provides the following two custom displays:

- Terminal Text Broadcast Customized Text
- Default "NORTEL" or blank display

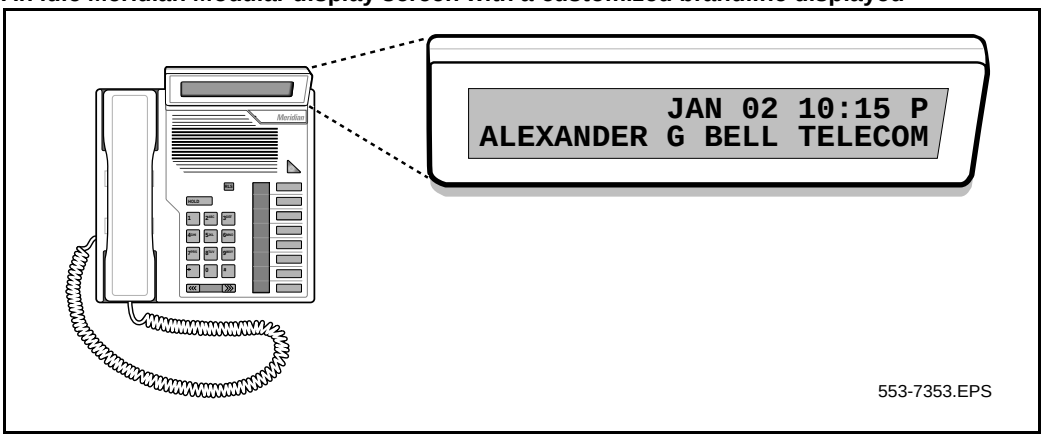
Terminal Text Broadcast Customized Text

When the Electronic Brandlining ISM parameter is equal to the Terminal Text Broadcast value, the customized brandline to be displayed is initially defaulted to NORTEL. This brandline can then be configured to display a different customized brandline.

The customized brandline can have a maximum of 24 characters, each of which must be supported by the North American Meridian Modular set display firmware. Version 18 firmware supports 7-bit ASCII Roman characters and 8-bit non-ASCII Roman characters (See Tables 42 and 43). Alphanumeric and punctuation characters are supported.The customized brandline is configured on a system basis (Overlay 17).

Figure 39 shows an example of a customized brandline displayed on the idle screen of a Meridian Modular set.

Figure 39
An idle Meridian Modular display screen with a customized brandline displayed



In addition to displaying a customized brandline, the Terminal Text Broadcast functionality can also be used to broadcast a customized text string on the idle display screen of a Meridian Modular set. The text string can have a maximum of 24 supported characters (See Tables 42 and 43). The customized text string is configured on a system basis (Overlay 17).

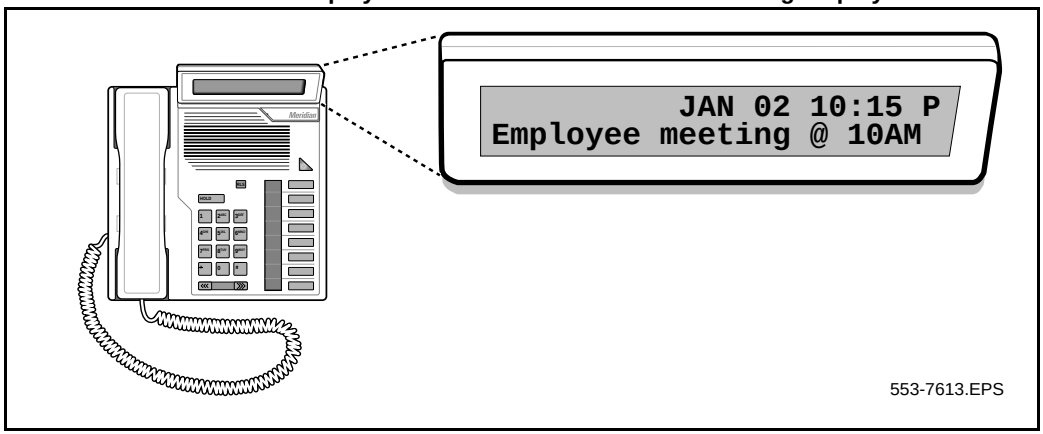
The customized text string can be composed of a single blank space. In this case, the second line of the idle display screen is blank, as per existing functionality.

To enter the customized brandline or text string in Overlay 17, use one of the following methods:

- Enter a line of supported characters followed by a Carriage Return (<CR>) at the IDLE_DISP_STRING prompt in Overlay 17.
- Enter a valid character one at a time using either a supported character or its two digit hexadecimal representation at the IDLE_DISP_CHAR prompt in Overlay 17. The end of input is indicated when only a <CR> is entered or when the 24th character is entered.

Figure 40 shows an example of a customized text string displayed on the idle screen of a Meridian Modular set.

Figure 40
An idle Meridian Modular display screen with a customized text string displayed



Supported characters

Table 42 lists the 7-bit ASCII Roman characters and the corresponding hexadecimal representations that are supported by the Electronic Brandlining feature.

Table 42
Valid 7-bit ASCII Roman Characters

20 <space>	21 !	22 "	23 #	24 $	25 %
26 &	27 ’	28 (	29)	2A *	2B +
2C ,	2D -	2E .	2F /	30 0	31 1
32 2	33 3	34 4	35 5	36 6	37 7
38 8	39 9	3A :	3B ;	3C <	3D =
3E >	3F ?	40 @	41 A	42 B	43 C
44 D	45 E	46 F	47 G	48 H	49 I
4A J	4B K	4C L	4D M	4E N	4F O
50 P	51 Q	52 R	53 S	54 T	55 U
56 V	57 W	58 X	59 Y	5A Z	5B [
5C \	5D]	5E ^	5F _	60 `	61 a
62 b	63 c	64 d	65 e	66 f	67 g
68 h	69 i	6A j	6B k	6C l	6D m
6E n	6F o	70 p	71 q	72 r	73 s
74 t	75 u	76 v	77 w	78 x	79 y
7A z	7B {	7C |	7D }	7E ~	7F ¿

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Table 43 lists the 8-bit non-ASCII Roman characters and the corresponding hexadecimal representations that are supported by the Electronic Brandlining feature.

Table 43
Valid 8-bit non-ASCII Roman Characters

A0	<NASP>	A1	Ľ	A2	¢	A3	£	A4	Ń	A5	¥
A6	Ś	A7	Ď	A8	¨	A9	©	AA	Ň	AB	Ť
AC	Ź	AD	Ÿ	AE	®	AF	Ż	B0	°	B1	±
B2	Ą	B3	Ł	B4	Ř	B5	Ľ	B6	Ć	B7	Č
B8	Ě	B9	Š	BA	º	BB	Ę	BC	Ŕ	BD	Ů
BE	Ž	BF	¿	C0	À	C1	Á	C2	Â	C3	Ã
C4	Ä	C5	Å	C6	Æ	C7	Ç	C8	È	C9	É
CA	Ê	CB	Ë	CC	Ì	CD	Í	CE	Î	CF	Ï
D0	Đ	D1	Ñ	D2	Ò	D3	Ó	D4	Ô	D5	Õ
D6	Ö	D7	×	D8	Ø	D9	Ù	DA	Ú	DB	Û
DC	Ü	DD	Ý	DE	Þ	DF	ß	E0	à	E1	á
E2	â	E3	ã	E4	ä	E5	å	E6	æ	E7	ç
E8	è	E9	é	EA	ê	EB	ë	EC	ì	ED	í
EE	î	EF	ï	F0	ò	F1	ñ	F2	ò	F3	ó
F4	ô	F5	õ	F6	ö	F7	÷	F8	ø	F9	ù
FA	ú	FB	û	FC	ü	FD	ý	FE	þ	FF	ÿ

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Note: Characters that are listed in Tables 42 and 43 are available with North American Version 18 firmware. Individual TTYs may not match the characters and hexadecimal representations in the same way as shown in Tables 42 and 43.

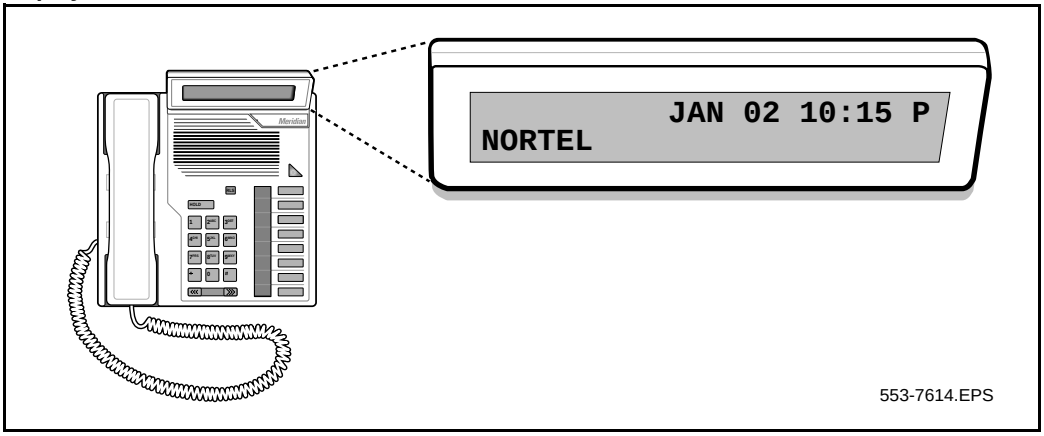
Default Electronic Brandlining Display

If the Terminal Text Broadcast custom display is not chosen, then the Electronic Brandlining ISM parameter value indexes into a default brandline. The default brandline is “NORTEL”, the Meridian Modular set manufacturer (Nortel Networks). This default brandline is displayed left justified on the second line of the idle display screen of a Meridian Modular set.

The default brandline is enabled/disabled on a system basis (Overlay 17). When the NORTEL_BRAND prompt is set to NO, the second line of the idle Meridian Modular display screen is blank, as per existing functionality.

Figure 41 shows the default brandline (NORTEL) displayed on an idle Meridian Modular set.

Figure 41
An idle Meridian Modular display screen with the Default Electronic Brandlining, “NORTEL” displayed



Operating parameters

The Electronic Brandlining feature applies to Meridian Modular sets that are equipped with a display screen and the appropriate Meridian Modular display firmware. Meridian Modular sets include: M2008, M2016, M2616, M2216ACD1, and M2216ACD2.

The Meridian Modular display firmware, North American Version 18 (Three Language Display) or later, is required for Meridian Modular sets to use the Electronic Brandlining feature. North American Version 18 firmware supports English, French, and Spanish.

The North American Version 18 firmware stores and displays the custom display. If the custom display is sent to a Meridian Modular set without the new firmware, the extra Scan and Signal Distributor (SSD) messages are ignored.

There is an incremental impact of sending SSD messages for a customized brandline. Therefore, it is recommended that no brandlining be done for heavily loaded systems experiencing delays on the High Speed Link (HSL). Instead, the default EBLN brandline can be chosen. Only one SSD message is sent whether the NORTEL_BRAND prompt is set to YES or NO. To minimize the number of SSD messages with the Terminal Text Broadcast custom display, a blank display can be configured. In this case, the customized text string is composed of a single blank space, and only one SSD message is sent for the same real time impact as the default EBLN custom display.

The custom display can have a maximum of 24 characters. Each character must be supported by North American Version 18 firmware.

Version 18 firmware supports 7-bit ASCII Roman characters and 8-bit non-ASCII Roman characters, regardless of whether or not the Multi-language TTY Input/Output (MLIO) package 211 is equipped. Alphanumeric and punctuation characters are supported.

When the MLIO package is restricted, if the “Valid 8-bit non-ASCII Roman Characters” that are supported are used in a custom display, then a 7-bit TTY may not be able to print the characters. If not, then each character is replaced with an underscore character.

If the MLIO package is not restricted and a 7-bit TTY is used, the 8-bit supported characters cannot be printed correctly. Instead, the service change administration interfaces may print garbage characters and/or the interfaces may lock.

When the MLIO package is not restricted, the system sends the valid 8-bit characters to the TTY, rather than the underscore characters. With the MLIO package equipped, it is assumed that the TTY is capable of handling 8-bit characters. If the TTY is capable of entering the "¿" 7-bit character and all other supported 8-bit characters directly, then these characters are accepted by the system, without using the hexadecimal values for the Terminal Text Broadcast customized text. The hexadecimal values can, however, still be used for entries.

The "!" character cannot be entered directly from the TTY keyboard. It can be entered, however, through character-by-character input (IDLE_DISP_CHAR nn prompt in Overlay 17), using its hexadecimal value.

When the system does not recognize a temporary power outage on a Meridian Modular set, the screen may remain blank until the custom display information, along with the time and date information, is downloaded again.

If the new Electronic Brandlining ISM parameter has an invalid value, the default display is shown. In this case, conversion should have defaulted the NORTEL_BRAND to YES, and as long as this prompt has not been changed, "NORTEL" is displayed.

If the Electronic Brandlining ISM parameter is set to the Terminal Text Broadcast value and the customized text string is configured as "NORTEL" or blank, the NORTEL_BRAND option does not apply. The NORTEL_BRAND option only applies to toggles between "NORTEL" and a blank second line if the Electronic Brandlining ISM parameter is set to an Electronic Brandlining ISM default value.

For new systems, the NORTEL_BRAND prompt is automatically set to YES (default), and the "NORTEL" default brandline is displayed. For the Terminal Text Broadcast option, the NORTEL_BRAND field is automatically set to YES (default); although, the NORTEL_BRAND field is not applicable nor is it output in Overlays 17 and 22. The Terminal Text Broadcast customized brandline is initially set to the default "NORTEL" brandline.

No changes are made to the features which currently output information on the second line of the idle display screen of a Meridian Modular set. These features and their output have precedence over the Electronic Brandlining feature. The following idle screens take precedence over the Electronic Brandlining feature: Automatic Answerback, Call Forward, Logged Out, Make Set Busy, Not Ready, and Overflow Busy.

Feature interactions

Automatic Answerback

When Automatic Answerback (AAB) is activated on a Meridian Modular set, the second line of the idle display screen shows “AUTO ANSWER ACTIVATED”.

The Electronic Brandlining custom display is not shown when AAB is activated.

Call Forward All Calls

Internal Call Forward

When Call Forward All Calls or Internal Call Forward is activated on a Meridian Modular set, the second line of the display screen shows “CFWD” on the idle screen. The Electronic Brandlining custom display is not shown when Call Forward All Calls or Internal Call Forward is activated.

When Call Forward All Calls or Internal Call Forward is de-activated on a Meridian Modular set, the second line of the display screen shows “CALL FORWARD CANCELLED” on the idle screen for a few seconds. The Electronic Brandlining custom display is not shown while “CALL FORWARD CANCELLED” is displayed. When the “CALL FORWARD CANCELLED” display times out, the Electronic Brandlining custom display is shown.

Digital Set Display Download

With the Electronic Brandlining feature, the existing time and date messages are modified to include the Electronic Brandlining custom display as part of its data (if applicable).

Display key

When the Display (DSP) key is first pressed, the display screen is blank. When any other key is pressed after the DSP key is pressed, all relevant information is displayed.

The Electronic Brandlining custom display is not displayed during the DSP key process until Lamp Audit updates the display screen with the time and date (when applicable).

Do Not Disturb

When a set is in the Do Not Disturb (DND) mode, the second line of the idle display screen is blank. Therefore, the second line displays the Electronic Brandlining custom display when the Electronic Brandlining feature is enabled (if applicable).

Limited Access to Overlays

The existing functionality of the Limited Access to Overlays (LAPW) feature is not changed as a result of the Electronic Brandlining feature.

The Terminal Text Broadcast configuration of a customized text string in Overlay 17 is password protected by level 2 system administration (PWD2). The added implementation of PWD2 in Overlay 17 is required to allow configuration of the Terminal Text Broadcast customized text string.

As per existing functionality, when LAPW is disabled on a system, the PWD2 password is restricted to a 4-digit password composed of the hexadecimal digits 0-9 and/or A-F.

As per existing functionality, when LAPW is enabled, PWD2 can be configured as a 16-digit alphanumeric password. LAPW then applies to the PWD2 prompt.

Make Set Busy

When Make Set Busy (MSB) is activated on a Meridian Modular set, the second line of the idle display screen shows “SET BUSY ACTIVATED”.

The Electronic Brandlining custom display is not shown when Make Set Busy is activated.

Set Based Administration

When a service change is made by Set Based Administration (SBA), the downloading of the time, date, and the Electronic Brandlining custom display (if applicable) is induced.

Set Relocation

Automatic Set Relocation (ASR) and Modular Telephone Relocation (MTR) include the “plugging in” of a Meridian Modular set for its feature operation. When a Meridian Modular set is “plugged in”, the power-on-reset induces the downloading of the time, date, and Electronic Brandlining custom display (if applicable).

System Access Enhancements

The existing functionality of the System Access Enhancements (SAE) feature is not changed as a result of the Electronic Brandlining feature.

The SAE feature applies to the added implementation of the PWD2 prompt in Overlay 17 for the Terminal Text Broadcast configuration of a customized text string.

Feature packaging

This feature is included in base X11 System Software.

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

1 LD 17 – Configure the NORTEL Electronic Brandline.

2 LD 17 – Enter a customized text string.

3 LD 11 – Enable the display on a Meridian Modular set.

LD 17 – Configure the NORTEL Electronic Brandline.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	PARM	System Parameters.
...		
NORTEL_BRAND	(YES)	"NORTEL" Electronic Brandline is displayed (default).
	NO	"NORTEL" Electronic Brandline is not displayed.
		NORTEL_BRAND is only prompted when the ISM parameter is set to the default value.

LD 17 – Enter a customized text string.

Note: To enter a customized text string, the Electronic Brandlining ISM parameter must be set to Terminal Text Broadcast.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	PARM	System Parameters.
...		
IDLE_SET_DISPLAY aaaa		The current customized text string "aaaa" is shown. This information is displayed for confirmation only.
- - MODIFY		Gateway to new EBLN Terminal Text Broadcast configurations.
	(NO)	Enter NO to keep existing configuration (default).
	YES	Enter YES to prompt for further EBLN Terminal Text Broadcast configuration.

- - PWD2	x...x	Password 2. The second level administration password is needed to allow configuration of the Terminal Text Broadcast customized text string.
- - SUPPORTED_TEXT_ONLY		Change customized text string by text string input.
	(YES)	Enter YES to input by text string, and the IDLE_DISP_STRING prompt is prompted.
	NO	Enter NO to input character by character, and the IDLE_DISP_CHAR nn prompt is prompted.
- - - IDLE_DISP_STRING	bbbb	Enter the customized text string. IDLE_DISP_STRING is prompted only if SUPPPORTED_TEXT_ONLY = YES. A maximum of 24 supported characters are accepted and validated. For a blank display, enter <CR> only.
IDLE_SET_DISPLAY bbbb		The customized text (bbbb) entered at the IDLE_DISP_STRING prompt is shown. This information is displayed for confirmation only. It is confirmed at the following OK prompt.
- - OK		Confirm the validated Terminal Text Broadcast customized text string (bbbb) entered at the IDLE_DISP_STRING prompt.
	(YES)	Enter YES to keep the new text string as “bbbb”.
	NO	Enter NO to input a new Terminal Text Broadcast customized text string, and the Supported_TEXT_ONLY prompt is re-prompted.
...		

- - - IDLE_DISP_CHAR nn		Enter the customized text string character by character.
	c	c = one supported character
	hh	hh = 2 hexadecimal digits (0-9, A-F, a-f), representing a supported character. nn (01-24) is the position of the character in the customized text string. The IDLE_DISP_CHAR prompt is only prompted if SUPPORTED_TEXT_ONLY = NO. It is reprompted until <CR> only is entered or until nn is the 24th character that has been entered.
IDLE_SET_DISPLAY cccc		The customized text string (cccc) entered at the IDLE_DISP_CHAR prompt is shown. This information is displayed for confirmation only. It is confirmed at the following OK prompt.
- - OK		Confirm the validated Terminal Text Broadcast customized text string (cccc) entered at the IDLE_DISP_CHAR nn prompts.
	(YES)	Enter YES to keep the new text string as “cccc”.
	NO	Enter NO to input a new Terminal Text Broadcast customized text string, and the SUPPORTED_TEXT_ONLY prompt is re-prompted.

LD 11 – Enable the display on a Meridian Modular set.

Prompt	Response	Description
REQ:	NEW CHG	Add new data. Change existing data.
TYPE:	aaaa	Telephone type, where aaaa is: 2008, 2016, 2216, 2616.
TN	l s c u c u	Terminal Number. For Option 11C.
...		
CLS	 (ADD) DDS	Digit Display options Automatic Digit Display (default). Delay Display. When CLS = DDS, the display is activated after the call is answered.
...		

Feature operation

No specific operating procedures are required to use this feature.

Emergency Services Access

Emergency Services Access (ESA) is a feature that places a customer in compliance with new federal legislation that requires the Private 911 type of functionality provided by ESA. Please note, however, that the ESA feature is also generally useful for users who are not subject to legislation, and is broad enough to be used in different countries. For example, it will be appreciated by any customer who wants to route emergency calls in a special manner, or who wants to be notified when a telephone user makes an emergency call. It would also appeal to a customer who wishes to have ESA calls answered on-site, on the business premises, rather than being forwarded to the Public Services Answering Point (PSAP).

Please refer to the *Emergency Services Access: Product Description and Administration* (553-3001-313) guide for complete information.

End of Selection Busy

Contents

The following are the topics in this section:

Feature description

This feature can be used where there is a requirement for the Meridian 1 to send a busy signal to the Public Exchange/Central Office when the call terminates in a busy connection. The signal will be sent 500 to 900 milliseconds after the end of selection signal is sent and informs the Central Office to release the connection and return busy tone to the originating source.

Operating parameters

The Central Office must be equipped to handle the special signaling requirements associated with the End of Selection Busy feature described above.

The End of Selection Busy feature is only available on the NTD9447 or the QPC536 pack, and is not supported by R2 Multifrequency Compelled Signaling.

Feature interactions

There are no feature interactions associated with this feature.

Feature packaging

International Supplementary Features (SUPP) package 131.

Feature implementation

Task summary list

The following task is required:

LD 16 – Create or modify data for trunk routes.

LD 16 – Create or modify data for trunk routes.

Prompt	Response	Description
...		
EOS	BSY	End of Selection (EOS) and BSY signals are enabled.

Feature operation

No specific operating procedures are required to use this feature.

End of Selection

Contents

The following are the topics in this section:

Feature description

This feature allows an End of Selection (EOS) signal to be sent back on a Direct Inward Dialing (DID) trunk to inform the Public Exchange/Central Office that the dialing phase of the call has been completed. The signal will be sent back when one of the following occurs:

- the DID call terminates on an idle station or attendant, an Automatic Call Distribution (ACD) queue, or a busy station
- the call has been intercepted (the DN is busy, not in service, or prohibited), and
- the interdigit timer has expired or an incomplete DN has been dialed.

Operating parameters

The Central Office must be equipped to handle the special signaling requirements associated with the End of Selection feature described above.

The End of Selection feature is available with either the QPC357 or NTD9447 pack for analog trunks, or the QPC536 pack for 2 Mbit digital trunks. It is not available on 1.5 Mbit digital trunks or Japanese DMI trunks.

If the DN size is specified, the End of Selection feature allows a trunk to be locked out if the correct number of digits are not received, or if termination has not been completed when the correct number of digits have been received.

The End of Selection signal is not supported by R2 Multifrequency.

Feature interactions

There are no feature interactions associated with this feature.

Feature packaging

International Supplementary Features (SUPP) package 131.

Feature implementation

Task summary list

The following task is required:

LD 16 – Create or modify data for trunk routes:

LD 16 – Create or modify data for trunk routes:

Prompt	Response	Description
...		
EOS	(NO) YES	End of Selection (EOS) signal is enabled; no EOS signal. EOS and BSY signals are enabled.

Feature operation

No specific operating procedures are required to use this feature.

End-of-dialing on Direct Inward/Outward Dialing

Contents

The following are the topics in this section:

Feature description

This feature monitors an outgoing Direct Inward Dialing (DID) or Direct Outward Dialing (DOD) call to determine whether additional digits are dialed after the route access code seizes the trunk. If no digits are dialed in 15 seconds, the trunk is disconnected.

Operating parameters

The Public Exchange/Central Office must be equipped to handle the special signaling requirements associated with the End-of-dialing on DID/DOD feature described above.

The End-of-dialing on DID/DOD feature is not available on 1.5 Mbit digital trunks or Japanese Digital Multiplex Interface (DMI) trunks.

Feature interactions

There are no feature interactions associated with this feature.

Feature packaging

International Supplementary Features (SUPP) package 131.

Feature implementation

No change to existing configuration is required for the End-of-dialing on Direct Inward/Outward Dialing feature.

Feature operation

No specific operating procedures are required to use this feature.

End-to-End Signaling

Contents

The following are the topics in this section:

Feature description

The End-to-End Signaling (EES) feature enables a station to send Digitone end-to-end signaling through an established outgoing connection. EES provides fast reliable service and an optional feedback tone to the originator, as specified in LD 56. In addition, EES eliminates the use of a conference loop for sending EES tones to the connected parties.

To use EES, the following prompt or prompts need to be set in LD 15: EEST = NO (no feedback tone, default value) or EEST = YES, DTMF = NO (single optional feedback tone, as specified in LD 56).

An outgoing connection from a digital telephone is considered established after the end of dialing time is elapsed. Alternatively, an outgoing call can be established after the end of dialing time is elapsed, or can be established immediately by pressing an octothorpe (#) after the last digit is dialed.

Attendant End-to-End Signaling

The attendant can send DTMF tones to either the source or destination party using the AEES key on the Attendant Console. If there are two receiving parties on the current active loop key, the attendant can press the EXCL SRC or EXCL DEST key to exclude one of the connected parties before pressing the AEES key (defined in LD 12). Only one party on the active loop key (source or destination) can receive the DTMF signal. After pressing the AEES key, the attendant can press digits to send DTMF tones out to the source or destination party. To terminate the EES operation, the attendant should press the AEES key again. The states for the EXCL SRC, EXCL DEST, SRC loop, and DEST loop keys remain the same as before the EES key is pressed.

Operating parameters

The EES capability extends to internal analog (500/2500 type) telephone calls and incoming trunk calls.

A call must be established before using the EES feature. An outgoing call is considered established 14 seconds (DP trunk) or four seconds (2500-type telephone or Digitone trunk) after the last digit has been outpulsed. The length of this delay can be changed through service change. EES can be performed after end of dial time out, or when an answer supervision has been received from the far end, by pressing the octothorpe key (#) after the last digit.

EES is allowed only on CO, FEX, WATS, TIE, CCSA, DID, and CAMA trunk types.

EES is not available on analog (500/2500 type) telephones.

EES eliminates the use of the conference loop.

The AEES key, like other flexible programmable keys, cannot be configured on key 0 or key 1 of the Attendant Console.

There is a 5.4 dB difference between when EEST is set to YES (provide end-to-end signaling feedback tone) and when it is set to NO (provide no tone). An attenuation of 5.4 dB using the conference pads is applied to the EES tone if user feedback is to be given.

EES Feature interactions

Agent/All Observe

In the Agent/All Observe mode, a supervisor, agent, and customer are all in a conference call. This feature uses Conference EES.

Attendant End-to-End Signaling

An Attendant Console in Attendant End-to-End Signaling mode can communicate with the source or destination party through in-band DTMF tones on an established speech path. The Attendant Console is treated like any other telephone.

Autodial Tandem Transfer

EES is used to send the Automatic Dialing (ADL) digits to the Public Exchange/Central Office (CO). With Autodial Tandem Transfer (ATX), the 911 agent can use the ADL key or manually dial the digits, or use a combination of both methods, to dial the third party's number. The ADL key can be pre-programmed with a prefix and the remaining digits can be dialed manually to distinguish between different numbers.

To get uniform feedback tone when using the ADL key along with manual dialing, set the DTMF prompt to NO in LD 15.

Call Modification

If EES is in progress, Call Modification is blocked. If Call Modification were not blocked, it might not be performed correctly during EES.

Call Detail Recording Record

An option in the Customer Data Block (LD 15) defines whether EES digits should be captured in the Call Detail Recording (CDR) record or not. This can prevent EES digits that contain sensitive information, like account numbers and passwords, from appearing in the CDR record.

Call Party Name Display

When entered after a call is answered, EES digits are displayed immediately following the CPND name of the connected party. Leading DN digits and name characters may be shifted out of the display window.

Conference End-to-End Signaling

Improved EES does not apply when the parties are in a conference call. In conference EES, a Tone and Digit Switch (TDS) loop is attached to the conference loop when a digit is pressed by one of the conferenced parties, and TDS is released when the digit is released. The setting of the EEST prompt determines whether the DTMF feedback tone is provided or not. The DTMF prompt is ignored for Conference EES.

EuroISDN Continuation

End-to-End Signaling is supported on all outgoing EuroISDN routes as soon as the CALL PROCEEDING message with a Progress Indicator is received.

EuroISDN Trunk - Network Side

EuroISDN Master Mode

End-to-End Signaling, which allows in-band dialing to be performed on ISDN trunks before and after the call has been answered, is supported on the EuroISDN Trunk - Network Side connectivity.

In the case of tandem with ISDN trunks, the necessary information to allow the End-to-End Signaling feature is tandemed to the ISDN trunk. At this point, it becomes the responsibility of the end user switch to provide the End-to-End Signaling service.

Multi-Party Operations – Three-Party Service

The party receiving the patience tone or the Misoperation ringback is not able to use EES.

Silent Observe

EES supports the Silent Observe feature of Automatic Call Distribution (ACD), like any other feature that involves EES between two telephones. A supervisor can use this ACD feature to silently observe an agent.

Stored Number Redial

End-to-End Signaling (EES) activates after a call to a trunk is established by expiration of the end-of-dial timer. Further digits dialed are not stored by the SNR feature once it is in EES mode.

AEES Feature interactions

Attendant Administration

While in the Attendant Administration mode, pressing the AEES key is ignored.

Attendant Barge-In
Attendant Busy Verify

While in the Barge-In/Busy Verify mode, the console cannot enter AEES mode.

Attendant Features

Activating Automatic Wake Up, Call Park, Charge Account, Calling Party Number, Hold, Release, or another loop key will terminate AEES operation.

Attendant Position Busy
Centralized Attendant Service
Night Service

These features work together with Attendant End-to-End Signaling (AEES). However, do not press one of these feature keys while using AEES, or the Dual-tone Multifrequency (DTMF) code signals may be blocked.

Attendant Supervisory Console

The supervisor can operate AEES if there is a call on the active loop key. An attendant in AEES mode can be monitored by the supervisor.

Conference

While in AEES mode, the receiving party cannot initiate a conference call.

End-to-End Signaling (station level)

The Attendant Console and the telephone receiving AEES cannot both activate EES simultaneously.

Interposition call

When an attendant is actively connected to another console using Interposition Attendant Call, AEES is blocked. During an Interposition Call Transfer, however, the console that is actively connected to a telephone can perform AEES, provided the party connected to the other Attendant Console is excluded.

Meridian Hospitality Voice Services - Digit Key

Attendant End-to-End Signaling and Digit Key are mutually exclusive. Being in AEES mode overrides the use of the Digit Key.

Trunk connection

On incoming ground start CO or Direct Inward Dialing (DID) trunks without Answer Supervision, you must press the Release (RLS) key on the console to exit AEES mode and drop the connection.

Feature packaging

End-to-End Signaling and Attendant End-to-End Signaling are both part of package 10 and have no feature package dependencies.

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

1 LD 15 – Enable End-to-End Signaling tone feedback.

2 LD 12 – Add End-to-End Signaling key to Attendant Console.

3 LD 56 – Specify the cadence for the EES feedback tone.

LD 15 – Enable End-to-End Signaling tone feedback.

Prompt	Response	Description
REQ:	CHG	Change.
TYPE:	FTR	Features and Options.
CUST	0-99 0-31	Customer number. For Option 11C.
- EEST	(NO) YES	NO = No EES feedback tone is given to the telephone. YES = EES feedback tone is given; the type is defined by the DTMF prompt. For Option 11, DTMF should be set to NO.
- DTMF	(NO) YES	NO = Use EES for single feedback tone. YES = Use EES for DTMF feedback tone. For Option 11, DTMF should be set to NO.
...		
TYPE	CDR	CDR and charge account options.
- ECDR	(NO) YES	NO = Do not capture EES digits in the CDR record. YES = Capture EES digits in the CDR record.

LD 12 – Add End-to-End Signaling key to Attendant Console.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	ATT 1250 2250	Console type.
TN	l s c u c u	Terminal Number. For Option 11C.
KEY	xx EES	Add EES key (xx = key number) (cannot be key 0 or 1).

LD 56 – Specify the cadence for the EES feedback tone.

Prompt	Response	Description
REQ	CHG NEW	Change, or add.
TYPE	FTC	Flexible Tones and Cadences.
TABL	x	FTC table number.
HCCT	YES	Hardware Controlled Cadence.
EEST		No response expected; this is an informational prompt.
- TDSH	i bb cc tt	TDS external, burst, cadence, and tone.
- XTON	0-255	NT8D17 TDS tone code.
- XCAD	0-255	NT8D17 cadence code for FCAD.

Feature operation

No specific operating procedures are required to use this feature.

End-to-End Signaling Display Enhancement

Contents

The following are the topics in this section:

Feature description

The End-to-End Signaling Display Enhancement (EESDSP) feature enhances the existing End-to-End Signaling (EES) feature. EES digits can communicate private information such as account numbers, authorization codes, and passwords. In some environments, showing this information can be a security issue. EESDSP feature provides the option to show or block the EES digits from appearing on a set's display screen. The customer can enable or disable this option at the EES Digit Display (EESD) prompt in the Customer Data Block.

With the EESDSP feature enabled, the user's display shows all the EES digits as dialed. EES digits display when you enter them after a call is answered. The digits appear following the Call Party Name Display (CPND) name of the connected party. Initial digits and name characters may move out of the display window if necessary. With the EESDSP feature disabled, the user's display does not change, keeping the established call information.

Operating parameters

The EES feature must be enabled for the EESDSP feature to function.

The EESDSP feature applies only to the EES digit display functionality of the existing EES features. The EES digits are not displayed on the sets of the other parties in an established call.

The EESDSP feature does not apply to a networking environment.

The EESDSP feature applies to Meridian 1 proprietary sets, Basic Rate Interface (BRI) sets, and Attendant Consoles with a display screen enabled to show entered EES digits and EES capabilities.

Attendant Consoles require Attendant EES (AEES), which is enabled by configuring and using the programmable AEES key.

Feature interactions

The EESDSP feature does not change the production of tones for EES digits, or the processing or sending of EES digits. This feature only gives the customer the option to show or block all EES digits on the display.

Attendant End-to-End Signaling

For Attendant End-to-End Signaling (AEES), place the Attendant Console in EES mode by pressing the AEES key. When in EES mode, you can dial EES digits. The Attendant Console can send the EES Dual-tone Multifrequency (DTMF) tones to either the source or destination party.

When the End-to-End Signaling Display Enhancement option is enabled, the Attendant Console display shows the EES digits entered while in the EES mode. For QCW4 type Attendant Consoles, the digits appear on the one line display. For M1250 and M2250 type Attendant Consoles, the digits appear on the second line of the display. If disabled, the Attendant Console display does not change.

Call Party Name Display (CPND)

With the EESDSP option enabled, EES digits appear after the Call Party Name Display (CPND) name of the connected party. Initial digits and name characters may move out of the display window if necessary.

With the EESDSP option disabled, the set display does not change from the established CPND display.

Conference End-to-End Signaling

The EESDSP option changes the display of the EES digits as dialed for all the EES features, including Conference EES.

End-to-End Signaling

The EESDSP option has no effect on the digits dialed before the system is in EES mode. In EES mode, digits dialed from a set with a digital display appear on the display when the EESDSP option is enabled. When you disable the EESDSP option, the display does not show the dialed EES digits.

Improved End-to-End Signaling

The EESDSP feature changes the display of EES digits the same for both Improved End-to-End Signaling (IEES) and EES.

Feature packaging

The End-to-End Signaling Display Enhancement (EESDSP) feature requires End-to-End Signaling (EES) package 10.

Feature implementation

Task summary list

The following task is required:

LD 15 – Enable the End-to-End Signaling Display Enhancement feature.

LD 15 – Enable the End-to-End Signaling Display Enhancement feature.

Prompt	Response	Description
REQ:	CHG	Change existing data.
TYPE:	FTR	Customer Features and options.
CUST	xx	Customer number.
....	....	
EEST	(NO) YES	EES Tone to originating party. Do not send feedback to the originator. Send feedback tone to the originator. Enhanced EES signaling is provided when EEST=YES and DTMF=NO.
- DTMF	(YES) NO	EES feedback tone. EES for DTMF feedback tone. EES for single tone feedback (only prompted if EEST=YES).
EESD	(NO) YES	EES digit display. Do not display the EES digits. Display all EES digits.
TTBL	(0)–31	Tone Table number.
....	....	

Feature operation

No specific operating procedures are required to use this feature.

Enhanced Maintenance (Patching)

Contents

The following are the topics in this section:

Feature description

This enhancement allows a technician to upgrade a site using the same software generic by new or replacement patches preloaded on disk. Also, specified patches can be selectively dumped from core memory to disk. The Dump Patch facility is used for these purposes.

A maximum of 50 dummy globals are allowed for patches, instead of the normal five. Usage of these globals is tracked, and a warning message is given if an attempt is made to use them for another patch.

Operating parameters

There are no operating parameters associated with this feature.

Feature interactions

There are no feature interactions associated with this feature.

Feature packaging

International Supplementary Features (SUPP) package 131.

Feature implementation

There are no specific implementation procedures for this feature.

Feature operation

No specific operating procedures are required to use this feature.

Enhanced Night Service

Contents

The following are the topics in this section:

Feature description

The Enhanced Night Service feature modifies the existing Night Service feature operation by allowing Public Network (Central Office (CO), Direct Inward Dial (DID), Foreign Exchange (FEX), and Wide Area Telephone Service (WATS)) trunks to be assigned to specific Directory Numbers during Night Service.

With this feature each customer will be able to assign Public Network trunks to one of nine Night Groups. Each Night Group will allow the customer to define up to nine Night DNs. During Night Service incoming calls will be routed to one of the Night DNs defined for the group. The actual DN to which the call will routed is determined by the Night Service Option number selected.

The customer will also be able to define whether the Night Waiting tone will be given to Night stations. With Night Call Waiting tone allowed, busy Night stations are notified when an incoming call is terminating on them. The incoming call will be queued on the Night station until it becomes idle. When the Night station becomes idle the incoming call will be presented.

This enhancement allows incoming DID trunks to be queued against busy Night stations, thereby making their operation the same as all other Public Network trunks.

Normal Night Service

With the feature active, the existing Night Service feature is enhanced by providing a night (NITE) prompt for applicable DID trunks. Night numbers for DID trunks can be defined in their respective trunk blocks against the prompt. Attendants will be able to change their night numbers by specifying their corresponding access codes and member numbers using the existing Flexible Night Service feature.

Group Night Service

The customer is allowed to assign individual Public Switched Telephone Network (PSTN) trunks to one of ten night group numbers (0 to 9). Each Night group has up to ten night directory numbers associated with it. During Night Service, incoming calls on a trunk will be routed to one of the directory numbers associated with that trunk. The actual number called is determined by a Night Service Option number corresponding to the Night Group number programmed by the attendant during day service.

When an incoming call is routed to a busy directory number, an optional Night Call Waiting tone may be applied to that number to notify the user that a call is waiting. The call on the trunk will be queued until the night directory number becomes free.

Operating parameters

The same feature requirements apply as for Night Service, as well as the following requirements:

- Enhanced Night Service does not apply to Auto-terminate trunks.

- Enhanced Night Service is permanently activated if the system has no attendant and the ENS option is set to YES. In this case, the Night Service Option Number can only be programmed from the Customer Data block (LD 15).
- Enhanced Night Service makes use of only one Speed Call list as the Night Number Table.
- The operation of the optional Night Call Waiting Tone is the same as those of the Call Waiting Tone.
- Night Service Option 0 and Night Service Group 0 are reserved for the customer Night number and should not be programmed in LD 18.

Feature interactions

Call Waiting

This feature will terminate incoming Night calls to busy DNs by applying Call Waiting. This will be done even if the Night DN is an analog (500/2500 type) telephone with Call Waiting Denied (CWD) Class of Service, or if the Night DN is a Meridian 1 proprietary telephone without a Call Waiting (CWT) key assigned.

All telephones, analog 500/2500 type and Meridian 1 proprietary will be given Night Call Waiting tone, if the NWT prompt in LD 15 was responded to with “YES”, regardless of the Warning Tone (WTA,WTD) Class of Service setting of the set. Meridian 1 proprietary telephones will be given Night Call Waiting tone in the handset instead of the speaker buzz for Call Waiting.

Direct Inward System Access

It is not possible to assign a Night Service Group Number to any trunk that is a member of a route which is set to auto-terminate on a Direct Inward System Access DN.

Group Hunt

If a Pilot DN is defined as one of the NITE DNs from the list associated with the Trunk Night Group, then incoming calls directed to the Pilot DN will be presented to the next idle DN in the hunt group.

Multi-Party Operations

Enhanced Night Service allows a mis-operated call involving a Direct Inward Dial (DID) trunk to queue at the Night Service DN.

Multi-Tenant Service

Any restrictions that exist in the system preventing individual tenant access to certain routes will not be checked when programming the Night Number Table. It will be up to the craftsperson to ensure all such restrictions are taken into consideration.

The tenant to route restrictions will be enforced when an attempt is made to terminate an incoming call on a Night DN via the Night Number Table. If the termination to the Night DN is not allowed, overflow tone (fast busy) will be given to the incoming trunk.

Trunk Barring - Sets

Any incoming call that is routed by Enhanced Night Service to a set from which it is barred will not be connected. Overflow tone (fast busy) will be given to the incoming trunk instead.

Trunk to Trunk Barring

Any incoming trunk call that is routed to an outgoing PSTN trunk will be barred if Enhanced Night Service is active. Overflow tone will be given to the incoming trunk instead. This restriction is in addition to the configured trunk barring for the system.

Warning Tone

All telephones (analog (500/2500 type) and Meridian 1 proprietary) will be given Night Call Waiting tone, if the NWT prompt in LD 15 was responded to with “YES”, regardless of the Warning Tone (WTA/WTD) Class of Service setting of the set.

Feature packaging

Enhanced Night Service (ENS) package 133.

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

1 LD 18 – Configure the Night Number Table as follows.

2 LD 15 – Configure Enhanced Night Service.

3 LD 14 – Configure Enhanced Night Service for trunks.

LD 18 – Configure the Night Number Table as follows.

Prompt	Response	Description
REQ	NEW CHG	New, or change.
TYPE	SCL	Speed Call List number.
LSNO	xxx	List Number. Enter the list number (this number will also be entered in response to the NNT prompt in LD 15).
DNSZ	xx	Enter the maximum excepted length required.
SIZE	100	Enter 100 to ensure that definitions for Options 1-9 and Groups 1-9 may be input.
STOR	xy z...z	Define the Night Number Table entry, where: x is the Night Service Option number (1-9) y is the Night Service Group number (1-9), and z...z is the DN to which calls should be routed. ***Note:*** Night Service Option 0 and Night Service Group 0 are reserved for the customer Night number and should not be programmed (i.e., 00, 01, 02, 03, 04, 05, 06, 07, 08, 09, 10 20, 30, 40, 50, 60, 70, 80, and 90)

LD 15 – Configure Enhanced Night Service.

Prompt	Response	Description
REQ:	NEW CHG	New, or change.
TYPE:	CDB NIT	Customer Data Block. Gate opener.
...		
- ENS	(NO) YES	(Disable) enable Enhanced Night Service.
- - NWT	(NO) YES	(Disable) enable Night Waiting tone.
- - NNT	0-253	Enter the Speed Call List number defined as the Night Number Table in LD 18.
- - NSO	0-9	Night Service Option number.

LD 14 – Configure Enhanced Night Service for trunks.

Prompt	Response	Description
REQ	NEW CHG	New, or change.
TYPE	DID	Direct Inward Dial.
...		
NGRP	(0)-9	Night Service Group number. Default is 0.

Feature operation

Attendant Console

This section describes the sequences to be followed by the attendant to select and query the Night Service Option and to activate Enhanced Night Service.

1 Press Loop key
Indicator Activated.

2 Press Night key
Indicator flashes, and dial tone is received.
Current Night Service Option number is displayed.

3a Query Only
Press RLS key
Indicator next to Loop and Night keys deactivates.
Display is cleared.

– or –

3b Select
Dial a one-digit option number.
Dial tone is removed. The old Night Service number (X) and new Option number (Y) is displayed. X and Y are separated by a hyphen (e.g., Y-X).

Press the RLS key.
The indicator next to the Night and Position Busy key deactivates. The Night Service option is stored, and the display is cleared.

4 Activate Enhanced Night Service
Press Night key or Position Indicators next to Night and Position Busy key if last active
Busy keys activated.
Current (active) attendant Night Service Option number is displayed.

Equal Access Compliance

Contents

The following are the topics in this section:

Feature description

A telephone user can select any interexchange carrier for any given call by using a Carrier Access Code (CAC). A CAC comprises an Equal Access identifier and a Carrier Identification Code (CIC). Nortel Networks refers to a call preceded by a CAC as an Equal Access call.

Federal Communications Commission (FCC) requirements

FCC Part 68 regulations require that any equipment or software manufactured or imported on or after April 17, 1992, and installed by any aggregator, must allow all users to use Equal Access codes to selectively access the long distance carrier of their choice. As defined in FCC docket 90-313, an *aggregator* is any business that, in the ordinary course of operations, makes telephones available to the public, or to transient users of the premises, for interstate telephone calls using a provider of operator services. Aggregators include hotels or motels, hospitals, universities, airports, gas stations, or pay telephone owners.

Aggregators, although they must allow callers access to any long distance caller, are permitted to block calls selectively. Selective equal access lets aggregators choose to block direct-dialed calls that result in charges to the originating telephone. Aggregators cannot block operator-assisted calls.

Nortel Networks complies with the FCC Equal Access rules in dockets 90-313, 91-35, and their appendixes.

Equal Access dialing plans

X11 software supports Equal Access dialing plans as follows:

- It allows operator-assisted North American and international dialing.
  - CAC + 0
  - CAC + 0 + (NPA) + NXX + XXXX, and
  - CAC + 01 + CC + NN.
- It allows or denies direct North American and international dialing.
  - CAC + 1 + (NPA) + NXX + XXXX, and
  - CAC + 011 + CC + NN.

Legend:

CAC = Carrier Access Code (101XXXX)

NPA = Numbering Plan Area (area code in the North American Numbering Plan)

NXX = end-office code
(N = any digit except 0 or 1; X = any digit (0–9))

XXXX = any four digits

CC = Country Code

NN = National Number

Route types

Equal Access Compliance supports COT, FEX, WAT, DID, and TIE routes.

A TIE route is supported only if standard signaling is specified in LD 16 (SIGO = STD). To enable Equal Access call restrictions to function properly, Digital Trunk Interface (DTI) TIE routes must be voice only. (DTI TIE routes configured as voice/data are not supported for connection to a Public Exchange/Central Office.) TIE routes must be either outgoing or incoming/outgoing (ICOG = IAO or OGT).

Call restriction

Call restriction relies on fixed pattern recognition to determine which calls can be denied. Switch administrators can restrict two kinds of direct-dialed Equal Access calls: North American calls with the 101XXXX+1+NPA+NXX+XXXX format and international calls with the 101XXXX+011+CC+NN format. If either restriction option is chosen, the administration must verify that the Original Carrier Access Code (OCAC) flag is correctly set.

Call restrictions do not affect attendant calls.

Calls blocked by Equal Access are not directed to alternate routes.

BARS/NARS routing

Equal Access determines restrictions without looking at a call's originating type (ESN or Direct Access). Routing has no effect on Equal Access call restriction: calls receive the same restriction treatment whether they originate from a trunk access code or from BARS/NARS. Equal Access is not a BARS/NARS feature and does not require BARS/NARS dialing.

To configure BARS/NARS to route Equal Access calls, simply use a special number (SPN) of 10 (the Equal Access code) to identify the calls as Equal Access calls and route them accordingly.

Example

Configure BARS/NARS for Equal Access call routing, assuming that calls originate from Customer 0 and go out over Route 10. To route Equal Access calls originating from Customer 0 over Route 10, using route list index 100 and access code 1 (AC1).

Operating parameters

There are no operating parameters associated with this feature.

Feature interactions

There are no feature interactions associated with this feature.

Feature packaging

Equal Access compliance is included in base X11 software. Network Class of Service (NCOS) package 32 is required to configure Equal Access.

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

1 LD 17 – Set OCAC as appropriate.

2 LD 86 – Set the route list index to Route 10.

3 LD 90 – Establish an SPN for the Equal Access code.

4 LD 87 – Configure a NCOS for Equal Access.

5 LD 10 – Assign a NCOS to an Analog Telephone.

6 LD 11 – Assign a NCOS to a Digital Telephone.

7 LD 16 – Enable Equal Access for this route.

Carrier Identification Code Expansion supports and extends the General Carrier Restriction method of blocking calls. Given the expansion in the number of Carrier Identification Codes (CIC), it is no longer practical to support Selective Carrier Restriction functionality. Carrier Identification Code Expansion continues to provide the selective blocking function required by the FCC; Nortel Networks and the FCC interpret the term “selective” differently. For these reasons, prompts pertaining to General Carrier Restriction and Selective Carrier Restriction in LD 16 no longer appear.

Customers who chose the ITOL prompt in LD 16 to block international calls should also have international calls blocked at the Public Exchange/Central Office to reduce the likelihood of unauthorized international calls. The carrier or Central Office operator intercept interdigit timer typically expires in four to six seconds. The Meridian 1 end of dial timers, End-of Dial Timer for non-Digitone Trunks (EOD) and End-of Dial-Timer for Digitone Trunks (ODT), are defaulted to 14 and four seconds respectively. ODT can be raised to seven seconds to prevent Digitone stations from bypassing Equal Access restrictions of Digital Distance Dialing international calls.

The interdigit timeout for non-leftwise-unique prefixes 0 and 01 is fixed for a given carrier network. Therefore, Equal Access connects the call to the Central Office trunk if the user dials Carrier Access Code + 0 and allows the end-of-dialing timer to expire. Equal Access blocks the same call if the caller presses the octothorpe (#) key and cancels the EOD or ODT. The caller cannot bypass the EQAR prompt in LD 16 provided that the EOD and ODT are set long enough to exceed the inter-digit timeout on the carrier networks.

Before and during the permissive period, when both the three-character and the four-character CIC are allowed, current Equal Access users must set the Original Carrier Access Code (OCAC) flag to YES in LD 17. OCAC should be set to NO (default).

New Equal Access customers do not need to change the OCAC flag until the feature is configured.

LD 17 – Set OCAC as appropriate.

Prompt	Response	Description
REQ	CHG	Change existing route data.
TYPE	CFN PARM	Route Data Block. Configuration Record. System parameters.
PARM	YES	Change system parameters.
- NDRG	(NO) YES	(Disable) enable new distinctive ringing.
- OCAC	(NO) YES	Support original CAC format (must be set to YES during interim period, NO following interim period).

LD 86 – Set the route list index to Route 10.

Prompt	Response	Description
REQ	NEW CHG	Create, or change database.
CUST	0-99 0-31	Customer number. For Option 11C.
FEAT	RLB	Route List Block.
RLI	100	Use route list index 100 to route Equal Access calls.
ENTR	0	Route entry number for this route list index (0 if this is the first entry).
ROUT	10	Send Equal Access calls over Route 10.

LD 90 – Establish an SPN for the Equal Access code.

Prompt	Response	Description
REQ	NEW	New ESN translation table entry.
CUST	0-99 0-31	Customer number. For Option 11C.

FEAT	NET	Network translation table entry.
TRAN	AC1	Access code 1 is used to originate the Equal Access calls.
TYPE	SPN	SPN translation entry.
SPN	101	SPN (Equal Access code).
RLI	100	Use route list index 100 to route Equal Access calls.

LD 87 – Configure a NCOS for Equal Access.

Prompt	Response	Description
REQ	CHG	Change NCTL data.
CUST	0	Customer number.
FEAT	NCTL	Change NCTL block.
NCOS	4	Network Class of Service group number.
EQA	YES	This NCOS permits Equal Access call restriction capabilities.

LD 10 – Assign a NCOS to an Analog Telephone.

Prompt	Response	Description
REQ:	CHG	Change existing set data.
TYPE:	aaa	Specify set type.
TN	l s c u c u	Terminal Number. For Option 11C.
NCOS	4	Network Class of Service group number.

LD 11 – Assign a NCOS to a Digital Telephone.

Prompt	Response	Description
REQ:	CHG	Change existing set data.
TYPE:	aaa	Specify set type.
TN	l s c u c u	Terminal Number. For Option 11C.
NCOS	4	Network Class of Service group number.

LD 16 – Enable Equal Access for this route.

Prompt	Response	Description
REQ	CHG	Change existing route data.
TYPE	RDB	Change Route Data Block.
CUST	0-99 0-31	Specify customer number. For Option 11C.
ROUT	10	
EQAR	(NO) YES	Enter YES to enable Equal Access and selective blocking for this route. A YES response triggers the next two prompts.
- NTOL	(DENY), ALOW	Specify that Equal Access North American calls billed to originating telephone are to be denied.
- ITOL	(DENY), ALOW	Specify that Equal Access international calls billed to originating telephone are to be denied.

The configuration in this example routes all Equal Access calls placed through BARS/NARS with access code 1 (AC1) over route 10. Set the SPN to “101”.

In this example set Equal Access toll calls for NCOS = 4. Note that Equal Access toll calls placed through direct trunk access to route 10 also will be blocked.

Feature operation

No specific operating procedures are required to use this feature.

Extended DID/DOD Software Support – Europe

Contents

The following are topics in this section:

Feature description

This feature provides software support for the European Extended Direct Inward Dialing (XDID)/Direct Outward Dialing (DOD) cards. These cards are the NT5K36AA (German XDID pack), NT5K84AA (Swiss XDID pack) and NTAG04AA (Dutch XCOT/DID). The new packs enable the Meridian 1 to have Intelligent Peripheral Equipment (IPE) DID/DOD functionalities. These functionalities are:

Seizure acknowledgment on outgoing traffic

In order to provide this functionality, LD 14 has to be modified in order to allow Ear and Mouth (E&M) signaling to be configured for DID trunk on an XDID card. A new “Trunk Type and Signaling” in the type 2 Channel Download message defined for DID-E&M has to be downloaded onto the firmware. LD 14 must have a configuration of ACWK = YES, and LD 16 must have a configuration of “trunk type” (TYPE) = DID, “signaling” (SIGL) = EAM, and “start arrangement on outgoing” (STRO) = IMM.

End of dialing on DOD

No software changes are required to provide this functionality.

Interdigit timer on DID

To provide this functionality, the Partial Dial (PRDL) prompt has to be configured as BSY or YES.

End-of-selection signal on DID

To provide this functionality, a new outgoing SSD message, “End of Signaling”, has been defined. The End-of-selection (EOS) prompt in LD 16 has to be configured to BSY or YES.

End-of-selection busy signal on DID

To provide this functionality, a new Outgoing SSD message “End of Signaling Busy”, has been defined. The End of Selection (EOS) prompt in LD 16 has to be configured to BSY.

Provision of busy tone, ringback tone, and overflow tone for DID callers

No software changes are required to provide this functionality.

Restricted/unrestricted DID Class of Service for DID calls

No software changes are required to provide this functionality.

DID to TIE connection, subject to configured trunk barring and Class of Service restrictions

To provide this functionality, the DITI prompt in LD 15 has to be configured to YES.

Line Break Alarm

To provide this functionality, a new incoming SSD message, BAR (rather than the “Line Break Alarm Signal” SSD message that exists for Existing Peripheral Equipment (EPE) trunks) has been defined to trigger the Trunk Failure Monitor feature whenever a problem situation arises on the line. A new SSD message, UNBAR (rather than the “Line Break Alarm Signal Clear” SSD message that exists for EPE trunks) has been defined to clear the problem indications provided by the Trunk Monitor feature. LD 14 has to be configured with a Class of Service of trunk barring allowed (BARA) or denied (BARD). This Class of Service is downloaded onto the XDID/DOD cards.

Static loss pad

One of two loss pads (either long or short) can be selected on a per trunk basis. To provide this functionality, LD 14 has to be configured with a Class of Service of either SHL (short line) or LOL (long line). The configured pad type is downloaded onto the XDID/DOD cards.

Disconnect supervision

To support this functionality, the software has been changed so that an XDID card can provide disconnect supervision for a DID trunk with Ear and Mouth (E&M) signaling. The software has also been changed to refrain from sending an End of Selection (EOS) signal when an incoming trunk call is being disconnected.

DID digit collection type

To support this functionality, the type of incoming DID digit collection is configured against a Class of Service and downloaded to the XDID card.

Unsupported Class of Service

If an attempt is made to download an unsupported configuration during regular enabling of the pack or during audit, the pack responds with a problem report type 3 message. The error message ERR5327 is printed out on the TTY and the trunk is disabled.

Incoming Digit collection

This functionality only applies to Dual-tone Multifrequency (DTMF) DID trunks. The software must be ready to accept incoming digits regardless of whether or not an “Enable Digit Collection” message is sent. To support this functionality, the trunk must be configured with an incoming start arrangement (prompt STRI = IMM in LD 14). Message H0019 is sent when a Digitone Receiver (DTR) signal is found.

Proceed to Send message to the firmware

A “Proceed to Send” message must be sent to the firmware in cases of non dial pulse trunks, as soon as the software is able to receive digits. To support this functionality, overlay 14 must be configured with DTCR = YES. A new H0019 message is sent when a Digitone Receiver (DTR) signal is found for Dual-tone Multifrequency (DTMF) signaling, or when a Multifrequency Compelled (MFC) sender/receiver is found for Multifrequency Compelled (MFC) signaling. If a DTR signal is not found, the call is released.

PPM and Buffered PPM downloadable on a per country basis

To support this functionality, Periodic Pulse Metering and Buffered Periodic Pulse Metering (PPM) are enabled on a per trunk basis, rather than on per card basis. Configuration of PPM and Buffered PPM is still done on a per route basis.

Audit conflict reporting and PPM event reporting

To support this functionality, a channel and card parameter download audit is performed during initialization and when LD 30 is run as a midnight routine. This is to ensure that the software configuration is the same as the configuration stored in the hardware. If a discrepancy is detected, the software information is stored in the hardware and an error message is printed on the TTY. Also, for PPM recording, two new type 5 messages have been defined to report hardware problems. These are the TRK Event: Partial Metering Detection Failure message and the TRK Event: Fatal Metering Detection Failure message.

On partial PPM failure, a TRK516 error message is printed on the TTY. If PPM is configured, CDR records for any calls in progress may be incorrect. If Busy Tone Supervision is configured, busy tone may not have been detected for calls in progress. On fatal PPM failure, a TRK517 error message is printed on the TTY. If PPM is configured, further PPM reporting is disabled until the pack is either disabled and then reenabled, or removed and then reinserted. The CDR record for any call in progress is incorrect. If Busy Tone Supervision is configured, tone supervision can no longer be performed until the pack is either disabled and then reenabled, or replaced.

Network DID and Enhanced Night Service groups on DID

No software changes are required to support these functionalities on the XDID/DOD cards.

Held call clearing

No software changes are required to support this functionality on the XDID/DOD cards.

Unequipped channel notification

To support this functionality, a channel download message is sent to the XDID pack whenever a trunk on the pack is removed.

Call blocking

Before disabling a trunk, the software requires confirmation that the trunk is in the idle state. To support this functionality, the software disable sequence has been modified. The software waits for an idle state message from the XDID pack before sending a disable message to the trunk. If the idle message is not received before the disconnect supervision (DSI) timer expires, the software prints the TRK136 (Release Failure on the Unit) error message. The trunk is placed in lockout state. If the disable sequence was started from an overlay, a TRK520 (No Far End Release) error message is printed. The trunk remains in lockout until a Far End Release message is received on the pack.

Number Reception message

This is a Dutch Central Office (CO) requirement. When sufficient digits are received at the Dutch CO, the battery is reversed. When the Dutch COT/DID pack (NTAG04AA) detects this reversal, it sends a Number Reception message. This functionality is a software enhancement.

Card Reset. When an ENLC command is performed on an XDID/E&M card, the card is first reset and then messages are downloaded to the firmware to reflect the software trunk state. This prevents the software database from being in conflict with the firmware database. If an XDID/E&M card unit is in busy state, the SSD message H.A004 is printed. If the unit is in barred state, the SSD message H.A003 is printed.

Operating parameters

There are no operating parameters associated with this feature.

Feature interactions

DID/DOD

This feature provides the same feature interactions as the following DID/DOD features:

- End of Selection, End of Selection Busy
- Provision of Tones
- Selectable DN Size
- Partial Dial Timing
- Seizure Acknowledgment
- DID Restricted Class of Service
- DID to TIE Connection, and
- Enhanced Night Service.

Japanese DID trunk

For Japanese DID trunk support, DID to TIE (DTOT) package 176 must be removed due to tariff restrictions.

Federal Communications Commission (FCC) Compliance for DID Answer Supervision

If FCC Compliance for DID Answer Supervision (FC68) package 223 is configured on XDOD units, it may lead to incorrect call status. Therefore, equipping this package is not recommended.

Trunk Failure Monitor

As part of the Trunk Failure Monitor feature, the BAR/UNBAR messages, received from IPE XDID trunks, are treated in the same manner as the EPE Line Break Alarm/Line Break Alarm Clear signals are treated for EPE trunks (LD 15 must be configured with TFDR = YES). When a BAR message indicating a problem situation is received, a TRK501 message is printed on the TTY, the uppermost key lamps light up on the Attendant Console, and the trunk is placed in the BUSY state to prevent the trunk from being seized for new outgoing calls. The reception of an UNBAR message indicates that the problem situation has been cleared. A TRK502 message is printed on the TTY, the lamps on the Attendant Console are darkened, and the trunk is idled.

Note: BARA CLS must be configured on the XDID trunk for the described process to occur.

XDID/DOD and XFCOT

Software support for European XDID/DOD cards and software support for European XFCOT cards provide similar functionality in the following areas:

- Trunk Failure Monitor processing
- Downloading of PPM information
- Configuration and downloading of static pad setting for short line and long line, and
- Configuration download processing. Fields that are not filled due to configuration limitations are left blank and are not validated or interpreted by the firmware. The fields are treated as unused fields.

The DTCR (Digit Collection Ready) prompt has replaced the DTRA (Digitone Receiver Attached) prompt in LD 14.

Feature packaging

M1 Superloop Administration (XCT1) package 205.

Dependencies: Meridian 1 XPE (XPE) package 203; International Supplementary Features (SUPP) package 131; ISDN Supplementary Features (ISDNS) package 161; PPM/Message Registration (MR) package 101; and Trunk Failure Monitor (TFM) package 182.

Feature implementation

Task summary list

The following is a summary of the topics in this section:

1 LD 15 – In the Customer Data Block, allow DID to TIE connections:

2 LD 16 – Define a DID/DOD trunk route for Germany and Switzerland:

3 LD 14 – Define an XDID card unit:

LD 15 – In the Customer Data Block, allow DID to TIE connections:

Prompt	Response	Description
REQ:	NEW CHG	Add, or change.
TYPE:	CDB NET	Customer Data Block.
...		
- DITI	YES	DID to TIE connections are allowed.

LD 16 – Define a DID/DOD trunk route for Germany and Switzerland:

Prompt	Response	Description
REQ	NEW CHG	
TYPE	RDB	
CUST	0-99	
	0-31	
ROUTE	0-511	
	0-127	
TKTP	DID	
ICOG	IAO	
ACOD	xxxxxxx	
CNTL	YES	
TIMR	EOD	10112

	GTI	128
	GTO	128
	ICF	0
	OGF	0
	DSI	360000
NEDC	ETH	
FEDC	ETH	
...		
MR		
	PPM, XLD	
PRDL	BSY	
EOS	BSY	
ACKW		
BTT	100	

LD 14 – Define an XDID card unit:

Prompt	Response	Description
REQ	NEW, CHG	Create a New Data Block. Change an existing Data Block.
TYPE	DID	Direct Inward Dial trunk data block.
...		
XTRK	XDID	Extended (Intelligent Peripheral Equipment [IPE]) Direct Inward Dialing trunk.
...		

SIGL	EAM	Ear And Mouth (E&M) signaling (note that this prompt uses the letter “A”, instead of the “&” which is more commonly used in the abbreviation of Ear and Mouth).
STRI	IMM	Immediate Start arrangement Incoming.
STRO	IMM	Immediate Start arrangement Outgoing.
...		
CLS		Class of Service. The Class of Service parameters to be downloaded onto the XDID card unit.
	(LOL), SHL	Enter (LOL for long line) or SHL for short line static loss pad selection.
	(BARD), BARA	Barring (Denied) Allowed.
...		
DTCR	(NO), YES	Digit Collection Ready. Incoming digit collection ready; (do not) send acknowledgment when digit collection resources (DTR, MFC sender/receiver) are ready and attached.

Feature operation

No specific operating procedures are required to use this feature.

Extended Flexible Central Office Trunk Software Support

Contents

The following are topics in this section:

Feature description

This feature provides software support for the following new Extended Flexible Central Office Trunk (XFCOT) cards to meet the requirements of the following countries:

- NT5K70AA (German 8D)
- NT5K71AA (German 4D)

- NT5K82AA (Swiss)
- NT5K90AA (Danish PPM)
- NT5K90BA (Danish non-PPM)
- NT5K93AA (Norwegian PPM)
- NT5K93BA (Norwegian non-PPM)
- NTAG03AA (Dutch COT)
- NTAG04AA (Dutch DID/COT)
- NT5K18BA (New Zealand)
- NT5K99AA (Spanish PPM), and
- NT5K99BA (Spanish non-PPM).

The NT5K18AA (UK XFCOT) is not affected by the software changes introduced to support the new XFCOT packs.

The following supervision, based on loop start signaling, is supported:

Battery Supervision Central Office Trunk (COT)

A battery supervised COT uses polarity detectors to provide seize, answer and disconnect supervision on all outgoing calls, and disconnect supervision on incoming calls. The supervision is performed by reversing the polarity from the Public Switched Telephone Network (PSTN) line. The battery supervised COT is configured in LD 14 with BAT.

ARF Supervision Central Office Trunk

ARF is an Ericson type series Public Exchange which provides disconnect supervision on both incoming and outgoing loop start Central Office trunk calls; on outgoing calls, seize supervision is also provided. Supervision is based on battery reversal detection. The signaling used to provide this supervision is called ARF signaling. The ARF supervised COT is configured in LD 14 with ARF.

Tone Supervised Central Office Trunk with downloadable Busy Tone parameters

A tone supervised COT has a busy tone detector on each unit. Busy tone is provided by the PSTN when the far end releases from outgoing and incoming trunks. The tone supervised COT is configured in LD 14 with BTS. This tone supervision depends on the busy tone frequency and cadence characteristics, as configured on a card basis using the Busy Tone ID (BTID) prompt in LD 14.

Loop Break Supervised Central Office Trunk

This type of signaling provides disconnect supervision by detecting a calibrated battery removal from the PSTN. The loop break COT supervision is configured in LD 14 with LBS.

Unsupervised Central Office Trunk

An unsupervised COT has neither polarity, battery, nor busy tone detector. Thus, no answer or disconnect supervision is provided for incoming or outgoing calls. A trunk is configured as unsupervised in LD 14 using other than BAT, LBS, ARF, or BTS.

Autoguard

Autoguard provides seize supervision on outgoing trunk calls. Autoguard is configured in LD 14 with SEIZ = YES.

Extended Flexible Central Office Trunk Software Support also provides the following capabilities:

- Trunk Barring. The XFCOT card can detect signaling from the PSTN that a trunk is barred, and that any call on the trunk must be dropped. The trunk unit is then marked software busy (busy barred) so that no outgoing calls may be made. A TRK514 message is printed on the TTY. A STAT (status) command in LD 32 or 36 yields a “Busy Barred” status. When the PSTN signals that the trunk unit may be unbarred, the software idles the trunk unit and a TRK515 message is printed on the TTY. Barring is configured on a per unit basis in LD 14 against a CLS of BARA. The BARA CLS is downloaded onto the XFCOT card.

- Static Loss Pad Selection. Trunk pad selection controls transmission loss. A pad may be inserted within or outside an XFCOT trunk card to allow a call to terminate on a station or another trunk. Two pad types are available to support long line or short line. The pad types are configured in LD 14 on a per unit basis, against a Class of Service of SHL for short line or a Class of Service of LOL for long line. The SHL or LOL is downloaded onto the XFCOT card.
- Enabling and disabling of Periodic Pulse Metering (PPM). The user configures PPM on a per route basis; the software configures the trunk on a per unit basis.
- Enabling and disabling of Buffered Periodic Pulse Metering (PPM), on a per trunk basis.
- A PPM ID that designates PPM parameters. This is configured in LD 14 against the PPID prompt. This value is downloaded onto the XFCOT firmware so that the appropriate PPM parameter may be selected.
- A four-unit card. The NT5K71AA four-unit quad density card has been introduced to meet German requirements.
- Mixed Central Office Trunk and Direct Inward Dialing on the same XFCOT card. In LD 14, the XFCOT card may be configured as being either COT or DID.
- ALS signaling. ALS, available only on the NTAG04AA (Dutch DID/COT) unit, is combined COT/DID signaling performed on Existing Peripheral Equipment (EPE) COT trunks having ground start signaling. Additions to the ground start signaling have been added for the new XFCOT support. On the near end, a partial release message is sent instead of a full release message. On an outgoing call, the number reception is accepted and interpreted by the software. Number reception is a battery reversal signaling from the CO, indicating that it has received sufficient dialing information. The ALS signaling type is configured in LD 14 against the SIGL prompt.

- Balance impedance adjustment. It is possible to download the balance and termination impedance configured by a craftsperson for a NT5K90AA (Danish PPM) or NT5K90BA (Danish non-PPM) unit. The termination impedance is defaulted to value of 600 ohms. The balance impedance may be configured in LD 14 using the BIMP prompt, as 600 ohms or 3COM (three-component).
- Flash hook signaling, for features requiring a flash hook operation. The flash hook signal instructs a pack to send a flash hook signal to the PSTN. The features that require a flash hook are Malicious Call Trace and Centrex Switchhook Flash.

Error reporting and auditing is also provided. New problem reports are defined so that the XFCOT card can notify the software when the dialing speeds or companding laws are not supported by the hardware. If these new error reports are received from the XFCOT card, an error message is printed on the TTY. A channel and card parameter download audit is performed during initialization and when LD 30 is run as a midnight routine to ensure that the software configuration is the same as the configuration stored in the hardware. If a discrepancy is detected, the software information is stored in the hardware, and an error message is printed on the TTY.

For PPM recording, two new type 5 messages have been defined to report hardware problems. These are the TRK Event: Partial Metering Detection Failure message, and the TRK Event: Fatal Metering Detection Failure message. Also, a type 12 channel configuration message and a type 13 channel audit configuration message have been introduced. The type 12 message provides the hardware with certain card configuration information, so that the card may be able to inform the software when certain configurations are not supported on the pack, and perform message filtering based on the software configuration. The type 13 message provides configuration download messages during the midnight routine.

The following table summarizes the downloaded software configurations that each XFCOT card supports.

Table 44
Downloaded configurations for XFCOT cards

XFCOT card	Hardware I.D. supported	Signaling supported	Downloaded SUPN supported	Periodic Pulse Metering (PPM)
NT5K18AA	01, 13, 14	COT (GRD, LGR, LDC)	SUPN	per pack
NT5K16BA	00, 01	COT (LOP, GRD)	BTS	per pack & unit
NT5K70AA	00	COT (LOP)	BTS	per unit
NT5K71AA	00	COT (LOP)	BTS	per unit
NT5K82AA	00	COT (LOP)	BTS, LBS, BAR	per pack & unit
NT5K90AA	00	COT (LOP)	BTS, ARF	per unit
NT5K90BA	00	COT (LOP)		none
NT5K93AA	00	COT (LOP)	BTS	per pack & unit
NT5K93BA	00	COT (LOP)	BTS	none
NT5K99AA	00	COT (LOP)	BTS	per unit
NTAG03AA	00	COT (LOP)	BTS	per pack & unit
NTAG04AA	26, 27	COT (ALS) DID (EAM)		per pack & unit

Operating parameters

The flash hook implementation for the Centrex Switchhook Flash feature does not provide flexible timing, as is provided by non-XFCOT packs. The timing is hard-coded onto the pack at 90 milliseconds.

The new XFCOT trunks cannot support the PPM frequency characteristics, configured as the PPM ID, for each trunk. The PPM ID is configured for the first trunk configured for the pack, and cannot be changed unless all trunks are removed from the pack and then reconfigured. The same restrictions apply to the busy tone indication ID.

Only static pad selection is supported on the new XFCOT cards. Pad selection on a per call or per event basis is not supported.

Loop Start Supervisory Trunks and Japanese Central Office Trunks are not supported on the new XFCOT cards.

The B34 Codec support is not provided by this feature. The B34 Codec configured on a card allows the software to download an actual loop value for pads, rather than long line or shot line notations.

Periodic Clearing is not supported on the new XFCOT cards.

Feature interactions

Dial Tone Detector

A Dial Tone Detector notifies the software that a dial tone has been received for an outgoing call. With the XFCOT cards, dial tone detection is not attempted until a SEIZE ACKNOWLEDGE signal is received for those supervisions that require such a signal.

European XDID/DOD

Software support for European XDID/DOD cards and software support for European XFCOT cards provide similar functionality in the following areas:

- Trunk Failure Monitor or barring
- Downloading of PPM information
- Configuration and downloading of static pad setting for short line and long line, and
- Configuration download processing. Fields that are not filled due to configuration limitations are left blank and are not validated or interpreted by the firmware. The fields are treated as unused fields.

Federal Communications Commission (FCC) Compliance for DID Answer Supervision

If FCC Compliance for DID Answer Supervision (FC68) package 223 is configured on XFCOT units, it may lead to incorrect call status. Therefore, equipping the FCC package is not recommended.

Trunk Failure Monitor

As part of the Trunk Failure Monitor feature, the BAR/UNBAR messages received from IPE XFCOT trunks are treated in the same manner as the EPE Line Break Alarm/Line Break Alarm Clear signals are treated for EPE trunks. When a BAR message indicating a problem situation is received, a trunk message is printed on the TTY, the uppermost key lamps light up on the Attendant Console, and the trunk is placed into BUSY state to prevent the trunk from being seized for new outgoing calls. The reception of an UNBAR message indicates that the problem situation has been cleared. A message is printed on the TTY, the lamps on the Attendant Console are darkened, and the seized trunk is idled. Note that BARA Class of Service must be configured on the trunk for the described processing to occur.

UK XFCOT (NT5K18AA)

For the UK XFCOT card, the NT5K18AA, there are no changes in configuration and operation except in the following areas:

- For static pad setting, the configuration for short line and long line has been changed from TRC to SHL for short line, and NTC to LOL for long line.
- The PPM configuration is done on a per route basis.
- Only one value is now downloaded for the PPM ID, on all UK cards.
- Only COT trunks are supported on the NT5K18AA. The NTAG04AA card supports COT and DID trunks.
- The balance impedance may now be configured on the NT5K90AA (Danish PPM) or NT5K90BA (Danish non-PPM) card.

Feature packaging

M1 Superloop Administration (XCT1) package 205.

Dependencies: Meridian 1 XPE (XPE) package 203;PPM/Message Registration (MR) package 101; Trunk Failure Monitor (TFM) package 182; and Trunk Hook Flash (Centrex) (THF) package 157.

Feature implementation

Task summary list

The following task is required:

LD 14 – Configure the trunk parameters for the new XFCOT cards.

LD 14 – Configure the trunk parameters for the new XFCOT cards.

Prompt	Response	Description
...		
CDEN	4D 8D	Card Density, where: 4D = Quad density, and 8D = Octal density.
...		
SIGL	ALS	ALS signaling on COT trunk with ground start (applies to the NTAG04AA unit only).
BIMP	(3COM) 600	Three-component complex impedance. 600 ohms.
...		
SEIZ	(NO) YES	Automatic Guard Detection for outgoing trunk.

PPID	(0)-15	PPM country ID. Must be configured if PPM is enabled on the route. One PPID type per card. Trunks must be removed from a card to change PPID. Choose from one of the following PPM IDs, according to country: (0) – UK (50 Hz). 1 – France (50 Hz). 2 – France (12 Hz). 3 – Germany (16 kHz). 4 – Switzerland (12 kHz). 5 – Denmark (12 kHz). 6 – Norway (16 kHz). 7 – Belgium (16 kHz). 8 – Spain (12 kHz). 9 – Portugal (12 kHz). 10 – Holland (50 Hz). 11-15 – Reserved for future use.
BTID	(0)-15	Busy Tone Country ID. Must be configured for BTS supervised XCOT trunk. One BTID type per card. Trunks must be removed from card to change BTID. Choose from one of the following Busy Tone IDs, according to country: (0) – CCITT. 1-2 – Reserved fro future use. 3 – Germany. 4 – Switzerland. 5 – Denmark. 6 – Norway. 7-9 – Reserved for future use. 10 – Holland. 11-15 – Reserved for future use.

CLS		Class of Service options.
	(SHL) LOL	Enter SHL for short line (LOL for long line) static loss pad selection.
	(XBAT) BAT	Enter BAT for battery supervised COT; (XBAT) for no battery supervision.
	(XARF) ARF	Enter ARF for ARF supervised COT; (XARF) for no ARF supervision.
	(XLBS) LBS	Enter LBS for loop break supervised COT; (XLBS) for no loop break supervision.
	(XBTS) BTS	Enter BTS for tone supervised COT; (XBTS) for no tone supervision.
	(BARD) BARA	Enter BARA to allow barring; (BARD) to deny barring.
SUPN	(NO), YES	Enter SUPN = NO or the appropriate supervision type.
STVP		Entering any of the following prompts will now override the previously configured type.
	BAT	Enter BAT for battery supervised COT.
	ARF	Enter ARF for ARF supervised COT.
	LBS	Enter LBS for loop break supervised COT.
	BTS	Enter BTS for tone supervised COT.
		Note: The XBAT, XARF, XLBS, and XBTS prompts are no longer applicable.
SHL/LOL, BARA/BARD remain appropriate responses for the CLS prompt.		

Feature operation

No specific operating procedures are required to use this feature.

Extended Multifrequency Compelled Sender/Receiver

Contents

The following are topics in this section:

Feature description

This feature provides combined Multifrequency Compelled Signaling (MFC) and MFE signaling for SOCOTEL, using the Extended Multifrequency Compelled Sender/Receiver NT5K21AA card. This card based on the XDTR card NT8D16AB.

Although the NT5K21AA card provides both MFC and MFE signaling, it may only be configured as one or the other: it is not possible to configure certain units as MFC and other units as MFE, on the same card. If there is a requirement for both MFC and MFE signaling, then two NT5K21AA cards may be configured – one for MFC and one for MFE.

In support of the NT5K21AA card, the Meridian 1 software has been modified as follows:

- Four DS-30X channels are provided for simultaneous generation and detection (forward and backwards) of MFC digits
- Four DS-30X channels are provided for alternate generation and detection of MFE digits (software selectable)
- A DS-30X channel of A10 formatted signaling is provided for communication between the Meridian 1 CPU and the NT5K21AA pack
- A-law and µ-law PCM encoding schemes are both supported
- Any one of 16 tone output levels may be specified for each channel
- Any one of four levels may be specified as a minimum receiver acceptance level
- Special MFC functions, such as pulse or automatic mode, are provided
- Card-ID information, configured during the manufacture of the NT5K21AA pack, is stored in the EEPROM message
- Hardware self-test and troubleshooting capabilities, including loop-back of PCM channels at the NT5K21AA, are provided by maintenance software, and
- The standard faceplate Enable/Disable Status Indicator LED is provided.

Most of the existing command structure for signaling has been maintained, with the following exceptions:

- During RESET, the NT5K21AA card is configured as either MFC or MFE, and as either A-law or µ-law
- More comprehensive self-test results are provided
- The minimum receiver acceptance level (MFL) is downloaded, and
- An extended range is provided for the MFC digit level (MFL).

Operating parameters

Both A-law and µ-law, which are software selectable, are supported. But when a Companding Law is selected in LD 97, it is supported on a system basis.

System parameters have to be downloaded on the NT5K21AA card in the following cases:

- When the NT5K21AA card is enabled in LD 32 and 54
- During service changes and initialization
- When a new NT5K21AA unit is defined in LD 13, and
- When an NT5K21AA card is moved to another card, in LD 13.

The default system parameters for downloading are NT5K21AA card type MFC, Mμ-law companding law, and a Minimum Receiver Acceptance level of -36 dB.

The following Card-Lan interface capabilities are supported by the NT5K21AA card:

- Periodic Intelligent Peripheral Equipment (IPE) polling of the status of the NT5K21AA card
- Requesting of card-ID, card type, and firmware version for auto-configuration, and
- Requesting of configuration data, including the DS-30X signaling type, during power up and RESET.

The auto-configuration of the NT5K21AA card is not supported on Option 11 systems.

Feature interactions

There are no feature interactions associated with this feature.

Feature packaging

- Meridian 1 XPE (XPE) package 203.
- Multifrequency Compelled Signaling (MFC) package 128.
- Multifrequency Signaling for SOCOTEL (MFE) package 135.

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

1 LD 97 – Download the system parameters, and define the Multifrequency Minimum Receiver Level (MFRL).

2 LD 94 – Create the MFC/MFE Signaling Level tables.

3 LD 13 – Create the MFC/MFE unit data block.

4 LD 16 – Create the route data block.

5 LD 14 – Create the trunk data block, and define the range of Multifrequency Digit Level (MFL).

LD 97 – Download the system parameters, and define the Multifrequency Minimum Receiver Level (MFRL).

Prompt	Response	Description
...		
MFRL	0-(2)-3	Multifrequency minimum Receiver Level for XMFC/XMFE (NT5K21) for Meridian 1 (Superloop) only. 0 = -28 dBM. 1 = -32 dBM. 2 = -36 dBM (the default). 3 = -40 dBM.

LD 94 – Create the MFC/MFE Signaling Level tables.

LD 13 – Create the MFC/MFE unit data block.

LD 16 – Create the route data block.

LD 14 – Create the trunk data block, and define the range of Multifrequency Digit Level (MFL).

Prompt	Response	Description
...		
MFL	(0)-15	Multifrequency digit level. Expanded from 0-7 to 0-15 for Meridian 1 Superloop only. Enter the MFC digit level required for signals to the Public Switched Telephone Network (PSTN). Superloop codes and values: 0 = -8 dBM. 1 = -11 dBM. 2 = -12 dBM. 3 = -13 dBM. 4 = -14 dBM. 5 = -15 dBM. 6 = -16 dBM. 7 = -31 dBM. 8 = -4 dBM. 9 = -5 dBM. 10 = -6 dBM. 11 = -7 dBM. 12 = -9 dBM. 13 = -10 dBM. 14 = spare. 15 = spare. ***Note:*** Levels 0-7 are already defined.

Feature operation

No specific operating procedures are required to use this feature.

Extended Tone Detector Global Parameters Download

Contents

The following are topics in this section:

Feature description

An Extended Tone Detector (XTD) card is capable of performing both Dual-tone Multifrequency (DTMF) and Dialtone (DT) detection. It is possible to download parameters onto the card so that it may be customized for a particular environment. On the current UK Extended Tone Detector (XTD) cards, the NT5K20AA and the NT5K20AB, it is possible to download two parameters onto these cards. These parameters are the A-law/Mμ-law for the Extended DTMF (XDTR) portion of the card, and the first stage dialtone detection (DT).

This feature allows several new parameters and a new message to be downloaded onto the new global XTD pack, the NT5K48AA. The new parameters, grouped under the categories of first stage dialtone detection, second stage dialtone detection, and XDTR minimum accept level, are:

- flexible first stage dialtone detection
  - frequency band (expanded operation)
  - minimum detect level
  - minimum validation time
  - break duration
  - cadence type
- flexible second stage dialtone detection
  - second stage configuration, and
- flexible XDTR minimum accept level

The new message is the Detect Second Stage Dialtone. It allows the NT5K48AA to distinguish between using the first stage dialtone detection parameters and the second stage dialtone detect parameters for detecting dialtone.

To configure the first and second stage dialtone detection parameters, a new type, DTD, and associated prompts have been introduced in LD 97. This prompt allows a craftsperson to create up to eight different XTD tables containing the parameters. In LD 13, a table is associated with each XTD card. These parameters are downloaded onto each XTD card.

To configure the flexible XDTR minimum accept level parameter, a new type, DTR, and associated prompt MINL (that defines the minimum accept level, on a per-system basis) have been introduced in LD 97. This parameter is downloaded onto each XTD card and DTR card.

Operating parameters

The global NT5K48AA card supports the first stage dialtone detection of the NT5K20AA and the NT5K20AB cards. Although the NT5K20AA and the NT5K20AB can be used with the NT5K48AA, these UK cards do not support second-stage dialtone detection because they cannot interpret the new Detect Second Stage Dialtone message (second stage dialtone detection is not used for the UK market).

Since there is only one parameter for the second stage dialtone detector (the craftsperson, in LD 97, enters a value between 0-15 to indicate which of the 16 options to use), the parameters for second stage dialtone detection hardware operation are hardcoded with limited flexibility. The NT5K48AA has to be modified to provide second stage configuration, if it is to be introduced to a country that has an undefined configuration.

The default values for all parameters are for the Swiss standards. However, if the UK Program (UK) package 190 is equipped, the UK recommended default values are used.

Feature interactions

There are no feature interactions associated with this feature.

Feature packaging

Meridian 1 XPE (XPE) package 203; and M1 Superloop Administration (XCT1) package 205.

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

1 LD 97 – Configure all the first and second stage dial tone detection parameters (TYPE = DTD).

2 LD 97 – Configure the flexible XDTR minimum accept level parameter (TYPE = DTR).

3 LD 13 – Define the protected data block of the XTD card.

4 LD 16 – Define the route protected data block of the XTD card.

LD 97 – Configure all the first and second stage dial tone detection parameters (TYPE = DTD).

Prompt	Response	Description
...		
TYPE	DTD	First- and second-stage dialtone detection parameters.
XTDT	(0)-7	Extended Tone Detection Table. XDTD table number in which the parameters are stored. Table 0 can be changed but must not be removed. Table 0 always exists and is initialized to default values.
DFQ	0-(4)-15	Dial Tone Frequency band for 1st dial tone, which is the number of the dial tone frequency band chosen in the hardcoded frequency table. With United Kingdom (UK) package 190 the default value for DFQ = 0.
MDL	10-(20)-40	Minimum Detect Level for 1st dial tone in dBm, which is the absolute value of the minimum detect level. Odd input is rounded down. With United Kingdom (UK) package 190 the default value for MDL = 30 (-30 dBM).
MVT	100-(400)-1600	Minimum Validation Time for dial tone in milliseconds. Input that is not a multiple of 100 is rounded down to the next multiple of 100. With United Kingdom (KUK) package 190 the default value for MVT = 300.
BRK	(0)-240	Break Duration (maximum) for 1st dial tone in milliseconds. Input that is not a multiple of 16 is rounded down to the next multiple of 16.
CAD	(0)-15	Cadence type for 1st dial tone, which is the number of the cadence pattern in the hardcoded table.
SSC	(0)-15	Second Stage Configuration, which is the configuration number for the second stage dial tone detection to be set in the firmware.

LD 97 – Configure the flexible XDTR minimum accept level parameter (TYPE = DTR).

Prompt	Response	Description
...		
TYPE	DTR	First- and second-stage dial tone detection parameters.
MINL	3-(42)-48	Minimum accept level for Digitone Receivers in dBM, which is the absolute value of the minimum accept level. Input that is not a multiple of 3 is rounded down to a valid multiple of 3. With United Kingdom (UK) package 190 the default value for MINL = 45 (-45 dBm).

Refer to Table 45 for recommended configuration values for each country. The default values given in parenthesis are for non-UK countries.

Table 45
Recommended parameters according to country

Country	DFQ	MDL	MVT	BRK	CAD	SSC	MINL
Germany	1	-16 dBm	1000 ms.	0 ms.	0	—	-45 dBm
France	0	-24 dBm	1000 ms.	30 ms.	0	0	-30 dBm
Sweden	1	-28 dBm	1000 ms.	60 ms.	0	—	-28 dBm
Norway	1	-32 dBm	1400 ms.	0 ms.	0	—	-45 dBm
Switzerland	4	-28 dBm	1000 ms.	0 ms.	0	—	-30 dBm
Spain	2	-32 dBm	1000 ms.	0 ms.	0	0	-30 dBm
UK (330/440)	0	-30 dBm	500 ms.	0 ms.	0	—	-45 dBm
UK (33/50)	3	-30 dBm	900 ms.	0 ms.	0	—	-45 dBm

Table 45
Recommended parameters according to country

Country	DFQ	MDL	MVT	BRK	CAD	SSC	MINL
Denmark	1	TBD	TBD	0 ms.	0	—	-45 dBm
Holland	0	TBD	TBD	TBD	0	—	-30 dBm
New Zealand	1	TBD	TBD	TBD	0	—	-45 dBm

LD 13 – Define the protected data block of the XTD card.

Prompt	Response	Description
...		
XTDT	(0)-7	Extended Tone Detector Table Number, prompted when TYPE = XTD. If a table other than 0 is entered, it must have already been configured in LD 97.

LD 16 – Define the route protected data block of the XTD card.

Prompt	Response	Description
...		
XTDT	(0)-7	Extended Tone Detector Table Number, prompted with Meridian 1 Superloop Administration (XCT1) package 205. Must be the same value as defined in LD 13. If a table other than 0 is entered, it must have already been configured in LD 97.

Feature operation

No specific operating procedures are required to use this feature.

Fast Tone Digit Switch

Contents

The following are the topics in this section:

Feature description

The QPC609 Fast Tone and Digit Switch (FTDS) card, along with the associated software, can reduce call setup time by as much as 50 percent with features such as Basic/Network Alternate Route Selection (BARS/NARS), Stored Number Redial, Speed Call, and System Speed Call. With the use of an on-board buffer memory, the calling efficiency of end users is greatly improved.

The QPC609 can be operated in two different modes as defined by the customer: either with 100 milliseconds (ms) Dual-tone Multifrequency (DTMF) bursts or with 50 ms DTMF bursts. The software can load up to 32 digits into the buffer in a single time slice, and can outpulse the digits at a maximum rate of 10 digits per second.

Operating parameters

Tone Digit Switch cards QPC197 and QPC251 cannot coexist with the QPC609 or NT8D17 within the same Meridian 1 system.

Feature interactions

There are no feature interactions associated with this feature.

Feature packaging

Fast Tone and Digit Switch (FTDS) package 87 has no feature package dependencies.

Feature implementation

Task summary list

The following task is required:

LD 17 – Change the duration of Digitone burst.

LD 17 – Change the duration of Digitone burst.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	CFN PARM	Configuration Record. System parameters.
PARM	(NO) YES	(Do not) change system parameters.
- DTRB	50 60 70 (100)	Digitone burst time in milliseconds.

Feature operation

No specific operating procedures are required to use this feature.

FCC Compliance for DID Answer Supervision

Contents

The following are the topics in this section:

Feature description

This feature is designed to meet the requirements in the United States, Section 68.314(h) of Part 68, and the DOC requirements in Canada, Section 3.22 of CSO3 Part 1, for answer supervision of redirected telephone calls to ensure proper billing.

This feature is designed specifically for telephone calls coming in through Direct Inward Dialing (DID) trunks. Answer supervision for all other types of telephone calls is not affected. This feature works in conjunction with the following types of calls:

- Direct Inward Dialing (DID) calls terminating at the Meridian 1 and forwarded to a Recorded Announcement (RAN).
- Direct Inward Dialing (DID) calls forwarded by the system through the public switched network (PSN) to another number in the Public Exchange/Central Office (CO), or to another Meridian 1.

  On North American COT, FEX, and WATS trunks, Central Offices do not always return answer supervision. When no answer supervision is returned, the Meridian 1 software uses the end-of-dial timer for non-Digitone trunks (EOD timer), or the end-of-dial timer for Digitone trunks (ODT timer) to verify call connection. For Federal Communications Commission (FCC) compliance, the EOD and ODT timers will still be used for incoming DID calls, except that EOD is capped at 20 seconds even if configured for more.

This feature handles incoming DID calls over Data Terminal Interface (DTI), Integrated Services Digital Network (ISDN), and analog trunks. Outgoing calls over Central Office (CO) and TIE trunks are also handled. System components involved include trunks, the Meridian 1, and the CO.

The following explains how the system components handle answer supervision.

- Analog, DTI, and ISDN incoming trunks: These are covered as long as they are DID incoming trunks. For incoming analog and DTI trunks, answer supervision or pseudo-answer supervision is returned by the Meridian 1 to the CO, if necessary. For incoming ISDN trunks, the connect message is returned instead.
- Analog, DTI, and ISDN outgoing trunks: For incoming DID calls, the answer and disconnect supervisor (SUPN) of the outgoing trunk is forced to NO. The EOD or ODT timer simulates the return of answer supervision.

- Meridian 1: For DID calls terminating at the Meridian 1, the system returns answer supervision based on the terminating condition. For DID calls forwarded to Public Switched Networks (PSN) or private networks, the system returns answer supervision based on the condition of the outgoing trunk (whether answered or timed out).
- CO: The Meridian 1 provides the pseudo-answer for DID calls because the Meridian 1 cannot return answer supervision.

DID calls terminating at the Meridian 1

The requirements for a DID call terminating at the Meridian 1 to return answer supervision to the incoming DID trunk are shown in the following table. The ASUP prompt in LD 16 is kept for other types of calls, but the Meridian 1 software enforces the correct settings to return answer supervision if a Recorded Announcement (RAN) is used for DID calls, regardless of the value originally specified in the service change.

Table 46
Returning Answer Supervision for DID calls terminating at the Meridian 1

DID call terminating status	Answer supervision returned with FCC Compliance
Answered by the called DID station	Yes
Answered by an attendant	Yes
Routed to dialing prompt	Yes
Routed to Meridian Mail	Yes
Routed to Recorded Announcement, including invalid number, not in service, and not assigned announcements	Yes
Routed to Recorded Announcement by Automatic Call Distribution (ACD), including invalid number, not in service, and not assigned announcements	Yes

DID call terminating status	Answer supervision returned with FCC Compliance
Not answered	No
Busy signal	No
Recorder signal	No

Calls forwarded to Public Switched Network

Because it is uncertain whether or not the far end will return answer supervision, the Meridian 1 uses the EOD and ODT timers. If the Meridian 1 has not detected the return of answer supervision upon timeout of the outgoing CO trunk, the Meridian 1 sends pseudo-answer supervision to the incoming DID trunk. This timer is set in LD 16 on a per-route basis. When a CO trunk is configured, Meridian 1 software forces the value of SUPN to NO. Consequently, Meridian 1 software does not expect the return of answer supervision, and returns answer supervision in the following cases:

- The Meridian 1 receives answer supervision from the outgoing CO trunk before the EOD or ODT timer of the outgoing route expires.
- The Meridian 1 does not receive answer supervision from the outgoing trunk and the EOD or ODT timer of the outgoing route expires; pseudo-answer supervision is generated.

  Note: There are still some cases in which the SUPN value for CO trunks is assigned to YES if the CO supports a reverse battery mechanism.

With FCC Compliance, a more stringent mechanism is introduced to apply SUPN = NO in LD 14 to all CO trunks, even those configured as polarity sensitive. Service-changeable EOD or ODT timers are always used for incoming DID calls to enforce the return of answer supervision. In this case:

EOD = 128-19,968 milliseconds (ms) (default time is 13,952 ms), and

ODT = 256-16,128 ms (default time is 4,096 ms).

The EOD timer expires at 20 (20,000 ms) for FCC Compliance. For outgoing DID calls, the EOD upper limit is 32,640 ms.

DID calls forwarded to private networks

Answer supervision is not always returned on TIE trunks because some TIE trunks leased from public carriers are connected to COs that do not support answer supervision.

Currently, the Meridian 1 provides the SUPN prompt (LD 14) to specify the availability of answer supervision on certain types of trunks, including TIE, CAM, Common Control Switching Arrangement (CCSA), and CAA (CCSA Automatic Number Identification [ANI]). If SUPN is YES, and it is an outgoing trunk, Meridian 1 does not return answer supervision to the incoming DID trunk unless answer supervision is received from that outgoing trunk. If the user specifies NO, the Meridian 1 returns pseudo-answer supervision upon EOD or ODT timeout. Such implementation causes short billing and overcharge problems.

To solve this problem, a treatment similar to the one implemented on CO trunks is used on the trunks in this category. The Meridian 1 enforces SUPN = NO without changing the SUPN value.

For incoming DID calls routed to private networks, SUPN is enforced to NO to ensure the return of answer supervision on the outgoing TIE, CO, FEX, WATS, CAM, CAA, and CCSA trunks. If answer supervision is not returned when the end of dial timeout occurs, the Meridian 1 disregards the original value of SUPN set by the user and forces the return of answer supervision.

When the call comes from a DID trunk, the following outgoing trunks are affected: TIE, CO, FEX, WATS, CAM, CAA, and CCSA.

Feature interactions

Extended DID/DOD Software Support - Europe

If FCC Compliance for DID Answer Supervision (FC68) package 223 is configured on XDOD units, it may lead to incorrect call status. Therefore, equipping this package is not recommended.

Extended Flexible Central Office Trunk Software Support

If FCC Compliance for DID Answer Supervision (FC68) package 223 is configured on XFCOT units, it may lead to incorrect call status. Therefore, equipping the FCC package is not recommended.

Feature Group D and Japan DID trunks

Feature Group D trunks and Japan (JPN) DID trunks are not affected by this feature.

ISDN trunks

Both incoming and outgoing Integrated Services Digital Network (ISDN) trunks are affected by this feature.

- For ISDN incoming DID trunks, the connect message is returned when answer supervision is returned or when the end of dial timer expires.
- For ISDN outgoing trunks, the end of dial timer is added to the protocol to simulate the EOD timer when a connect message is not returned from the far end; the Meridian 1 generates a pseudo-answer supervision to send to the incoming trunk.

Intercept
Recorded Announcement

With this feature, incoming DID calls that are intercepted to a Recorded Announcement (RAN) are provided with answer supervision.

Operating parameters

Allowing Meridian 1 equipment to be operated in such a manner as to not provide proper answer supervision signaling is in violation of Part 68 rules.

This equipment returns answer supervision signals to the public switched telephone network (PSTN) when:

- answered by the called station
- answered by the attendant
- routed to a Recorded Announcement that can be administered by the Customer Premises Equipment (CPE) user, and
- routed to a dial prompt.

This equipment returns answer supervision on all DID calls forwarded back to the PSTN. Permissible exceptions are when:

- a call is unanswered

- a busy tone is received, and
- a reorder tone is received.

Feature packaging

This feature requires Federal Communications Commission Compliance for DID Answer Supervision (FC68) package 223.

Feature implementation

There are no specific implementation procedures for this feature.

Feature operation

No specific operating procedures are required to use this feature.

FCC Compliance for Equal Access

Contents

The following are the topics in this section:

Feature description

This feature brings Meridian 1 systems into compliance with the Equal Access portion of the Federal Communication Commission (FCC) 68 ruling. This calls for the optional restriction of two types of direct-dialed Equal Access toll calls, while allowing all other Equal Access dialing sequences (with the exception of operator cut-through) and call processing operations.

The two types of Equal Access calls that may be restricted are:

- North American toll calls (1+NPA+NXX+XXXX),where NPA = Number Plan Area, NXX = any three digits with N being any digit except 0 or 1, and XXXX = any four digits, and
- International toll calls (011+CC+NN),where CC = Country Code and NN = National Number.
  FCC compliant dialing plans.

Table 47
FCC compliant dialing plans.

Dialing Format	Destination
Allow:	
10XXX+0	Operator of carrier specified by XXX.
10XXX+0+(NPA)+NXX+XXXX	Operator function of carrier specified by XXX.
10XXX+0+SAC+NXX+XXX	Subscribed carrier specified by XXX.
10XXX+01+CC+NN	Operator function of carrier specified by XXX.
Allow/Deny:	
10XXX+1+(NPA)+NXX+XXXX	Carrier specified by XXX.
10XXX+011+CC+NN	Carrier specified by XXX.
where: XXX = any three digits, XXXX = any four digits, NPA = Number Plan Area, NXX = any three digits with N being any digit except 0 or 1, CC = Country Code, NN = National Number.	

This feature provides two methods of restricting Equal Access toll calls, General Carrier Restriction (GCR), and Selective Carrier Restriction (SCR). These restrictions, configured in LD 16, require that the originating set have a Network Class of Service of Equal Access. The Equal Access restriction for an NCOS group is configured in LD 87.

GCR permits a configuration of allowing or denying all North American Equal Access toll calls and all international Equal Access toll calls. This GCR restriction is based on call type only, and does not take into account the dialed Carrier Identification Code. SCR uses the New Flexible Code Restriction (NFCR) feature to place a more selective restriction on Equal Access toll calls, based on the dialed Carrier Identification Code (CIC). So, for example, Equal Access toll calls for a carrier with a CIC of 434 could be denied, while Equal Access toll calls for a carrier with a CIC of 225 could be allowed.

GCR is the simplest method to implement and requires no additional memory. It is therefore recommended that GCR be used if there is no need to restrict Equal Access toll calls based on carrier usage. SCR is more difficult to set up and requires additional memory. Use this method only if there is a strong need to restrict Equal Access toll calls based on carrier usage.

Since both methods can be active at the same time, the optimum solution in some cases would be to implement a combination of GCR and SCR. If, for example, a requirement exists to restrict all North American Equal Access toll calls and only certain international Equal Access toll calls, based on carrier usage, then GCR could be configured to handle the North American Equal Access toll calls while SRC could be configured to handle the international Equal Access toll calls.

Operating parameters

The same requirements for normal calls using the New Flexible Code Restriction (NFCR) feature apply to calls made under the Selective Carrier Restriction method, except that Equal Access operator calls (10XXX0) are allowed to be completed while Equal Access international toll calls (10XXX011) are denied.

This feature could require extra memory when operating under the Selective Carrier Restriction method (as much as 15.5K words of protected data storage when fully configured). Insufficient memory may limit the number of CIC codes which may be restricted.

This feature only supports COT, FEX, WAT, DID, and TIE routes with Standard Signaling.

This feature does not support network signaling, since the intention is to restrict Equal Access calls directly terminating at the Central Office and not at another network node.

This feature does not restrict calls made by an attendant.

The # sign is not outpulsed by Meridian 1 systems, as recommended in the FCC Bellcore North American Dialing Plan.

The operator cut-through dialing sequence of 10XXX#, which is recommended in the FCC Bellcore North American Dialing Plan, is not supported on Meridian 1 systems.

Feature interactions

New Flexible Code Restriction

The New Flexible Code Restriction (NFCR) feature has been modified to allow for the restriction of Equal Access international toll calls (10XXX+011+CC+NN) while not restricting Equal Access operator calls (10XXX+0).

Feature packaging

This feature is not packaged, however the following packages are required to make it operational: Network Class of Service (NCOS) package 32 is required for both the General Carrier Restriction and Selective Carrier Restriction methods; and New Flexible Code Restriction (NFCR) package 49 is required for the Selective Carrier Restriction method.

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

1 LD 16 – Apply Equal Access call restriction to this route.

2 LD 87 – Specify whether Equal Access with a NCOS group is to be associated or not.

LD 16 – Apply Equal Access call restriction to this route.

Prompt	Response	Description
...		
EQAR	(NO) YES	Enable Equal Access Restrictions. Prompted when TKTP = CO, FEX, WAT, or ISA, and ICOG = OGT, or IAO.
- GCR	(NO) YES	General Carrier Restriction to restrict Equal Access calls.
- - NTOL	(DENY) ALOW	North American toll calls (i.e., 1+ calls).
- - ITOL	(DENY) ALOW	International toll calls (i.e., 011+ calls).
- SCR	(NO) YES	Selective Carrier Restriction to restrict Equal Access calls. Prompted when EQAR = YES, and New Flexible Code Restriction is enabled. NTOL and ITOL must both be ALOW.

LD 87 – Specify whether Equal Access with a NCOS group is to be associated or not.

Prompt	Response	Description
...		
- EQA	(NO) YES	Equal Access (is not) is associated with this NCOS group.

Feature operation

The dialing sequence for Equal Access calls on Meridian 1 systems is:

- Access Code (either trunk or NARS/BARS)
- Carrier Access Code (CAC). The CAC is comprised of the Equal Access code (10) and the Carrier Identification Code (CIC) (any three digits). The CIC specifies the carrier that will handle the call,
- Telephone number.

The dialing sequence can contain two special characters, the asterisk (*) and the number sign (#). The * sign within a dialing invokes a three-second pause in the call processing procedure, and has no bearing on call restriction routines. The # sign within a dialing sequence signifies the end of the dialing sequence, and that it can be examined by call restriction routines. The only exception occurs when all international Equal Access toll calls have been restricted on a switch. In this case, direct-dialed Equal Access operator calls may not terminate with the # sign (in order to avoid possible fraud when calls are placed from trunks with Digitone Class of Service).

First-second Degree Busy Indication

Contents

The following are the topics in this section:

Feature description

This feature provides an attendant with an indication whether a party is first degree or second degree busy. If party A is established on a call to party B, and the attendant tries to connect to party A, party A is considered to be first degree busy. If party C is camped-on or call waiting to party A, party A is then considered to be second degree busy.

Operating parameters

There are no operating parameters associated with this feature.

Feature interactions

There are no feature interactions associated with this feature.

Feature packaging

This feature is packaged in International Supplementary Features (SUPP) package 131.

Feature implementation

Task summary list

The following task is required:

LD 15 – At the OPT prompt, deny/allow Attendant Busy Display.

LD 15 – At the OPT prompt, deny/allow Attendant Busy Display**.**

Prompt	Response	Description
REQ:	NEW CHG	Add, or change.
TYPE:	CDB ATT	Customer Data Block. Attendant Console Options.
...		
- OPT	(ABDD) ABDA	Attendant Busy Display (denied) allowed.

Feature operation

The first degree busy indication is as normal. For second degree busy indication, normal busy tone is given to the attendant, and the display -O (meaning Occupied Second Degree) is given on the last four right-hand spaces of the console display.

Flexible Attendant Call Waiting Thresholds

Contents

The following are the topics in this section:

Feature description

When there are no calls waiting in the attendant queue the Call Waiting Lamp on all Attendant Consoles is dark. The lamp is lit as soon as the first call arrives that can not be presented to a console.

When the number of calls waiting in the attendant queue exceeds the upper threshold, defined by the CWCL prompt in LD 15, the Call Waiting Lamp (CWL) state on all Attendant Consoles is changed from lit to flash (60 impulses per minute).

When the number of calls waiting in the attendant queue drops below the lower threshold, defined by the CWCL prompt in LD 15, the CWL state on all Attendant Consoles is changed from flash to lit.

When there are no more calls waiting in the attendant queue the CWL is turned off.

The Flexible Attendant Call Waiting Thresholds (FACWT) feature allows the thresholds to be defined as a percentage of the active consoles, consoles which are not in Position Busy or Night Service, or as a fixed number. The feature is activated on a customer basis by responding with FACA (Flexible Attendant Call Waiting Thresholds Allowed) to the OPT (Option) prompt in LD 15.

Operating parameters

The upper threshold must be greater than or equal to the lower threshold.

The maximum number of attendants multiplied by the threshold maximum percentage must equal less than 65,535 (due to storage requirements).

Feature interactions

Attendant Overflow Position

The Attendant Overflow Position is not counted as an active attendant.

Recall to Same Attendant

The Recall to Same Attendant (RTSA) feature has precedence over the Flexible Attendant Call Waiting Thresholds feature. If either RSAA or RSXA options are selected, RTSA has precedence over FACWT in determining the Call Waiting Lamp state. If one or more RTSA calls are waiting in the attendant queue, RTSA will set the Call Waiting Lamp state to wink (30 impulses per minute).

RTSA calls are not included when the FACWT feature determines the number of calls waiting.

Feature packaging

The Flexible Attendant Call Waiting Thresholds is packaged under International Supplementary Features (SUPP) package 131.

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

1 LD 15 – The Customer Data Block service change accepts the options FACD and FACA to be defined as a customer option. The range and usage of the CWCL thresholds is defined by the FAC option selected. To allow the calls waiting thresholds to be defined as percentages respond to the OPT prompt with FACA. To allow the calls waiting thresholds to be defined as number of calls respond to the OPT prompt with FACD.

2 LD 21 – Print Routine 2 is modified to include OPT FACD or FACA setting and the new CWCL range settings in the Customer Data Block printout.

3 LD 93 – As for the Customer Data Block, the CWCL threshold usage is changed with the selection of a FAC option in the Customer Data Block.

LD 15 – The Customer Data Block service change accepts the options FACD and FACA to be defined as a customer option. The range and usage of the CWCL thresholds is defined by the FAC option selected. To allow the calls waiting thresholds to be defined as percentages respond to the OPT prompt with FACA. To allow the calls waiting thresholds to be defined as number of calls respond to the OPT prompt with FACD.

Note: If OPT is changed from FACD to FACA, or from FACA to FACD, a new value must be set for CWCL in LD 15 or the default values (0 0) will be used. The values of the call waiting thresholds for the tenant level in LD 93 are set equal to the customer level LD 15 values. A service message is output when the values are set.

Prompt	Response	Description
REQ:	CHG NEW	Modify or create data block.
TYPE:	CDB ATT	Customer Data Block. Attendant Console options.
CUST	0-99 0-31	Customer number. For Option 11C.
...		

- OPT	(FACD) FACA	Options for customer: (Flexible Attendant Call Waiting Thresholds Denied), Flexible Attendant Call Waiting Thresholds Allowed. (Denies), Allows the attendant Call Waiting thresholds to be defined as a percentage of active attendants.
...		
- CWCL	xxxyyy	Call Waiting Lamp thresholds Where xxx defines the lower threshold and yyy defines the upper threshold.
	(0)-255(0)-255	Valid ranges for number of calls when FACD is entered in response to OPT.
	(0)-1000(0)-1000	Valid ranges for percentages when FACA is entered set in response to OPT.

LD 21 – Print Routine 2 is modified to include OPT FACD or FACA setting and the new CWCL range settings in the Customer Data Block printout.

Prompt	Response	Description
REQ	PRT	Request: Print data block.
TYPE	CDB	Type of data block: Customer Data Block.
CUST	0-99 0-31	Customer number. For Option 11C.

LD 93 – As for the Customer Data Block, the CWCL threshold usage is changed with the selection of a FAC option in the Customer Data Block.

Note: The lower and upper call waiting thresholds must be redefined whenever they are changed between number of calls and percentage definition. Respond to the CWCL prompt with the new definitions.

Prompt	Response	Description
REQ	CHG NEW PRT	Request: Modify, create or print data block.
TYPE	CPGP	Type of data block: Console Presentation Group Parameters.

CUST	0-99 0-31	Customer number. For Option 11C.
CPG	1-63	Console Presentation Group: ACG (Attendant Console Group) number.
...		
AODN	...	
CWCL	xxxyyy	Call Waiting Lamp thresholds Where xxx defines the lower threshold and yyy defines the upper threshold.
	(0)-255(0)-255	Valid ranges for number of calls when FACD is set in response to OPT in LD 15.
	(0)-1000(0)-1000	Valid ranges for percentages when FACA is set in response to OPT in LD 15.

Feature operation

If the customer has the FACA option selected in the Customer Data Block (LD 15) the thresholds are defined as a percentage of the number of active attendants. The thresholds are specified on a customer and tenant Console Presentation Group (CPG) level basis. If the Flexible Attendant Call Waiting Thresholds Denied (FACD) option is selected, the thresholds are defined as fixed numbers and the operations remain the same as when this feature is not used.

When the FACA option is used, the CWL state is updated each time the number of calls waiting or the number of active attendants changes. Any integer between 0-1000 can be set for the Call Waiting thresholds percentage. The following tables illustrate the operation when FACA is selected and the lower limit is defined as 100 percent of active attendants and the upper limit is defined as 200 percent of active attendants (CWCL 100 200):

Table 48
Upper and lower limits of calls waiting versus number of active attendants.

Number of active attendants	Number of calls waiting in queue to achieve 100% lower limit	Number of calls waiting in queue to achieve 200% upper limit
1	1	2
2	2	4
3	3	6

Table 49
CWL state versus number of active attendants.

Number of active attendants	Number of calls in queue												
	0	1	2	4	6	8	6	4	3	2	1	0	
1	D	L	L	F	F	F	F	F	F	F	L	D	CWL state
2	D	L	L	L	F	F	F	F	F	L	L	D	
3	D	L	L	L	L	F	F	F	L	L	L	L	

Legend: D = Dark, L = Lit, F = Flash.

Flexible Attendant Directory Number

Contents

The following are the topics in this section:

Feature description

The Flexible Attendant Directory Number (FADN) specifies the Directory Number (DN) that provides access to the attendant, replacing the usual 0. The DN may be any DN in the numbering plan, but it must be used only for the attendant and in all situations in which 0 is normally used.

Operating parameters

The attendant DN may be used only for the attendant. One attendant DN is allowed per customer and all attendants must have the same DN.

Feature interactions

Directory Number Expansion

The attendant DN can have up to seven digits if the Directory Number Expansion (DNXP) package is equipped.

Feature packaging

This feature is included in base X11 System Software.

Feature implementation

Task summary list

The following task is required:

LD 15 – Define or change the attendant Directory Number.

LD 15 – Define or change the attendant Directory Number.

Prompt	Response	Description
REQ:	CHG	Change.
TYPE:	ATT	Gate opener.
...		
- ATDN	xxx...x	Number dialed to reach the attendant (the default is 0).

Feature operation

No specific operating procedures are required to use this feature.

Flexible Busy Tone Timer

Contents

The following are the topics in this section:

Feature description

The feature provides a flexible length of time that a caller on a Direct Inward Dialing (DID) route hears busy or overflow tone, when it is normally encountered. The time that the tone is presented is overlay programmable from 2 to 254 seconds.

Operating parameters

There are no operating parameters associated with this feature.

Feature interactions

There are no feature interactions associated with this feature.

Feature packaging

This feature is packaged in the International Supplementary Features (SUPP) package 131.

Feature implementation

Task summary list

The following task is required:

LD 16 – Set data for Flexible busy/overflow time to implement the flexible Busy Tone Timer feature:

LD 16 – Set data for Flexible busy/overflow time to implement the flexible Busy Tone Timer feature:

Prompt	Response	Description
...		
BTT	2-(30)-254	Enter busy/overflow time to be returned on DID routes in seconds.

Feature operation

No specific operating procedures are required to use this feature.

Flexible Dial Tone Detection

Contents

The following are the topics in this section:

Feature description

The Flexible Dial Tone Detection (FDTD) feature permits the Meridian 1 to wait for and detect a Second Dial Tone (SCDT) before automatic or manual dialing of outgoing toll calls. The wait-for-tone position in the digit outpulsing is user configurable thus providing flexible digit validation. This feature is an enhancement to the Dial Tone Detection (DTD) feature.

The break-in outpulsing can occur after a defined digit sequence, or after a defined number of digits have been outpulsed. Digit outpulsing is halted and the Dial Tone Detector is reconnected. With the FDTD feature, it is no longer necessary to use the * to create pauses in outpulsing.

This feature has the following three options:

Dial Tone Position (DTP)

With the DTP option an Outgoing Access Code (OAC) is selected. Then FDTD verifies the dialed digits against the OAC (for example, country code) of up to four digits. When DTP is set, only the OAC digits are outpulsed before the DTD is reconnected. The DTP is the position immediately after the OAC. Up to four OACs can be specified.

Count Detection (CNT)

With the CNT option, the system will send a pre-defined number of digits (up to fifteen) before digit outpulsing is halted and the DTD is reconnected. Digit counting is done either one digit at a time, or as a string if fast Tone and Digit Switch (TDS) outpulsing is set up.

Digit Sequence (DGTS)

With the DGTS option, a table of up to 245 entries could be created of unique one-to-four digit sequences where the DTD should be reconnected after.

Operating parameters

There are no operating parameters associated with this feature.

Feature interactions

There are no feature interactions associated with this feature.

Feature packaging

This feature is packaged under Dial Tone Detector (DTD) package 138.

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

1 LD 16 – Set data for Flexible busy/overflow time:

2 LD 56 – Create tone and ringing parameters for one or more customers:

LD 16 – Set data for Flexible busy/overflow time:

Prompt	Response	Description
...		
DTD	(NO) YES	Dial Tone Detection (is not) is to be performed on this route.
SCDT	(NO) YES	Secondary dial tone (will not) will be used on route.

LD 56 – Create tone and ringing parameters for one or more customers:

Prompt	Response	Description
...		
TYPE	FDTD	Flexible Dial Tone Detection data.

Feature operation

No specific operating procedures are required to use this feature.

Flexible Direct Inward Dialing

Prior to the introduction of the Flexible Direct Inward Dialing (FDID) feature, hotels were required to purchase a large number of DID numbers that matched the number of hotel guest rooms. These DID DNs must be coordinated with the local exchange and become permanent in the Meridian 1 system.

The FDID feature allows hotels to assign a temporary DID number to a guest room using a Property Management System (PMS) or Background Terminal (BGD).

Please refer to the *Background Terminal Facility: Description* (553-2311-316) for complete information.

Flexible Feature Code Boss Secretarial Filtering

Contents

The following are the topics in this section:

Feature description

The Flexible Feature Code Boss Secretarial Filtering (FFCSF) feature allows a set, designated as a “secretary” set, to filter calls coming in to a “boss” set. A boss or secretary set can be any Meridian 1 set or 16-button Dual-tone Multifrequency (DTMF) set. Filtering is a form of call screening, in which the calls coming into the boss set are presented to the secretary set to be answered and possibly transferred back to the boss set.

A boss set can have only one secretary set, while a secretary set can have an unlimited number of boss sets.

Operating parameters

A set cannot simultaneously be configured as a boss set and a secretary set.

The FFCSF Flexible Feature Code must be unique and not conflict with the customer dialing plan.

Secretary DNs which are programmed on a boss set cannot already be part of the customer's DN plan, nor conflict with it.

The FFCSF feature cannot be applied to sets having Multiple Appearance DNs.

In a networking environment, a boss set and secretary set must be on the same node.

Easy Change (ECHG) requests cannot be made against the Secretarial Filtering (SFLT) and Secretarial Forwarding DN (SFDN) prompts in LDs 10 and 11.

Feature interactions

Attendant Blocking of Directory Number

The FFC Boss Secretary Filtering feature will be overridden. If an Attendant Blocking of DN attempt is made for a set that has the Boss Secretary Filtering feature active, the dialed DN will be blocked if idle. If it is busy, busy tone will be heard.

Attendant-Extended Calls

Attendant-extended third-party calls to a boss set will be subject to filtering if filtering on the boss set is active for all calls. If filtering is allowed for external calls only, the attendant will be filtered only if the third party is external.

Call Forward All Calls

Although Call Forward All Calls and FFCSF can be equipped on the same set, they cannot both be active at the same time. There is no precedence of one over the other; it is not possible to activate one if the other is active on the set.

Call Forward Busy
Call Waiting

A Call Forward Busy or Call Waiting to a boss set with filtering active is routed to the secretary set.

Call Forward and Busy Status

If the secretary set is a Meridian 1 proprietary telephone, or a compact digital set, it can be equipped with a Call Forward and Busy Status (BFS) key/lamp pair, to perform the following:

- monitor the status of the Call Forward feature on a boss set
- activate/deactivate the Call Forward feature on a boss set
- monitor whether or not a boss set is busy on a call, and
- override the Call Forward All Calls feature on a boss set, in order to place a call to the boss set.

The above functions, however, can only be performed by the secretary set while it is in an unattended state, since BFS and FFCSF cannot be active simultaneously.

Camp-On

When an attendant is attempting to Camp-on a call to a boss set with filtering active, the call is routed to the secretary set, if the filtering is active for all calls. If filtering is active for external calls only, the call is routed to the secretary set if the call is an external call.

Hot Line
Private Line

FFCSF takes precedence over Private Line and Hot Line.

Hunting

A boss set with filtering activated is passed over by Hunting; the next hunt sequence is to the secretary set.

Lockout, DID Second Degree Busy, and MFE Signaling Treatment

Flexible Feature Code Boss Secretarial Filtering takes precedence over lockout and second degree busy.

Network Intercom

Hot Type I calls override this feature (for instance, Hot Type I calls are not filtered by FFC Boss Secretarial filtering). The call terminates on the Boss' set and is not forwarded to the secretary.

FFC Boss Secretarial Filtering takes precedence over enhanced Hot Type D calls. In this case, if FFC Boss Secretarial Filtering is active, calls terminate on the secretary's set.

Voice Call

A call to a Voice Call key on a boss set with filtering active is not filtered to the secretary set.

Feature packaging

This feature is packaged under Boss Secretarial Filtering (FFCSF), package 198.

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

1 LD 10 or LD 11 – Respond to the Secretarial Filtering (SFLT) prompt.

2 LD 57 – Define the Secretarial Filtering Access Code.

LD 10 or LD 11 – Respond to the Secretarial Filtering (SFLT) prompt.

Prompt	Response	Description
...		
SFLT	(NO) BOSS SEC	Secretarial Filtering, prompted with Boss Secretarial Filtering (FFCSF) package 198. Designate a telephone set entering either BOSS for boss set, SEC for secretary set, or NO for no designation. SEC, (NO), and <CR> take you to the next prompt.
- SFDN	xxxx	Secretarial Forwarding DN of secretary set to which filtered calls should be forwarded, prompted if response to SFLT = BOSS.

LD 57 – Define the Secretarial Filtering Access Code.

Prompt	Response	Description
...		
SFAC	xxxx	Secretarial Filtering Access code.

Feature operation

The FFCSF feature may be accessed from the boss set and secretary set using the same Flexible Feature Code (FFC) followed by a control digit.

On a boss set, the following control digits can be dialed:

- 7, to activate filtering for all external calls
- 8, to activate filtering for all external and internal calls, and
- 9, to cancel filtering.

Confirmation tone is given to the boss set after filtering has been successfully activated or deactivated, or if filtering was already activated. Afterwards, a special dial tone (the same as the one used to indicate that Call Forward is active on a set) is provided to the boss set whenever it goes off-hook, as an audible reminder that the feature is active.

If filtering could not be activated by the boss set due to one of the following conditions, overflow tone is returned:

- the secretary set assigned to the boss set is not attended, or
- Call Forward All Calls is active on the boss set.

On a secretary set, the following control digits may be dialed:

- 8 – to place the secretary set in attended state, allowing calls to be filtered to it from a boss set.
- 9 – to place the secretary set in unattended state and to disable the boss set filtering.

In either case, confirmation tone is returned to the secretary set.

Flexible Feature Codes

Contents

The following are the topics in this section:

Reference list

The following are the references in this section:

- *Aministration* (553-3001-311)

Feature description

Flexible Feature Codes (FFCs) are user-defined numbers of up to four digits that can be used in place of existing Special Prefix (SPRE) codes. With DN Expansion (DNXP) package 150, Flexible Feature Codes (FFCs) can be up to seven digits long. The Flexible Feature Code (FFC) feature allows customers to define different dialing codes for different features. There is no limit to the number of FFCs per prompt as long as each one is unique.

This feature allows the use of digits 0 through 9, and the asterisk (*) and octothorpe (#) to activate features. Special Prefix (SPRE) dialing feature is still supported, with or without the FFC feature enabled. However, the Special Prefix (SPRE) must be assigned in LD 15 in order for FFCs to operate for those features that also use SPRE codes.

The FFC package allows analog (500/2500 type) telephones to activate these features:

- Automatic Wake Up (AWU)
- Electronic Lock (ELK)
- Override, and
- Remote Call Forward (RCFW).

Customers define one or more codes at their discretion in LD 57 (FFC). For Service Change updates, refer to the *Administration* (553-3001-311).

The basic FFC operation allows a telephone to access features normally available by dialing SPRE codes. FFCs are not supported, however, on a Meridian 1 proprietary telephone that is attempting a call pickup on a Dial Intercom ringing call.

A telephone can access a feature via FFC only if that telephone can currently access the same feature via SPRE dialing.

Any telephone, that does not currently have SPRE access, receives intercept treatment when dialing FFCs. Telephone operation remains the same (only the codes are different) so that the FFC code is dialed instead of the SPRE code. Therefore, each feature enabled must have an FFC individually defined.

When FFCT is YES in LD 57, the Meridian 1 returns a confirmation tone to the user after completing some feature operations.

The confirmation tone is the same as the special dial tone.

FFC allows analog (500/2500 type) telephones to Override established calls, based on the telephone's programmed Class of Service. Analog (500/2500 type) telephones can also activate and deactivate Call Forward by dialing a single FFC.

The confirmation Tone for FFC allows analog (500/2500 type) telephones and Meridian 1 proprietary telephones to receive a special tone when certain functions are complete. Confirmation Tone is returned following these events:

- Automatic Wake Up (any function)
- Call Forward (deactivate)
- Electronic Lock (any function)
- Ring Again (activate or deactivate)
- Room Status (any function)
- Speed Call Controller (add to Speed Call list), and
- Store Number (erase).

Confirmation Tone for FFC is returned when a predefined string is used as the end-of-dialing indicator for the following activities:

- Call Forward (activate)
- Permanent Hold (any function)
- Speed Call (store)
- Store Number (store), and
- Flexible Feature Code (any verification).

Confirmation Tone is provided for Speed Call store after the End-of-Dial string, such as the octothorpe (#), is entered.

Operating parameters

The SPRE feature must exist in order for FFC to operate.

The FFCs selected must be unique numbers up to seven digits long. They cannot conflict with any Directory Number (DN) already in the dialing plan.

LD 57 can allow no more than 100 FFCs to be modified in a single pass through Service Change.

Customers using the octothorpe (#) as part of their dialing plan can use a predefined string of digits for end-of-dialing indicators.

Changes to the Station Control Passwords (SCPWs) do not take affect until after a data dump and SYSLOAD. Configuring the system or enabling the feature changes SCPL = 0 in LD 15 to any length. This change takes effect immediately. Any other change to SCPL in LD 15 requires a data dump and SYSLOAD before taking effect. When the Station Control Password Length (SCPL) is changed, all associated passwords change accordingly at the next data dump and SYSLOAD. Changing SCPL from three to five automatically inserts leading zeros before all existing three-character passwords. Conversely, changing SCPL from five to three automatically truncates the leading characters of all existing five-character passwords.

Feature interactions

Attendant Blocking of Directory Number

If a Flexible Feature Code is dialed after pressing the Semi-automatic Camp-on (SACP) key to initiate an Attendant Blocking of DN attempt, overflow tone will be provided and the attempt cancelled.

Automatic Wake Up

Telephones can activate Automatic Wake Up (AWU) features for their own station with Common Controlled Switching Arrangement Class of Service.

The Automatic Wake Up feature may be active at the same time as Multiple Wake Up.

The attendant query function is not supported for Multiple Wake Up.

Multiple Wake Up from Attendant Consoles is not supported.

The Background Terminal (BGT) is not supported for Multiple Wake Up.

If one Automatic Wake Up time has been set using the Automatic Wake Up Activate (AWUA) FFC, only three additional Multiple Wake Up calls may be entered using the Multiple Wake Up Activate (MWUA) FFC.

Call Forward All Calls

When FFC is configured for a customer, #1 automatically becomes the FFC DN for both Call Forward Activate (CFWA) and Call Forward Deactivate (CFWD). When the same DN is used for both CFWA and CFWD, FFC toggles the Call Forward activated/deactivated state of the telephone. When Call Forward is activated for a telephone, entering #1 automatically deactivates Call Forward, no matter what follows #1. When Call Forward is deactivated for a telephone, the result of entering #1 depends on what follows:

- If the telephone goes on hook immediately, Call Forward is activated for the telephone to its previous call forward number.
- If a valid DN is entered after #1, call forward is activated for the telephone to that valid DN.
- If an invalid DN is entered after #1, call forward remains deactivated for the telephone.

Call Forward

Attendant and Network-Wide Remote

If the Outpulsing of Asterisk and Octothorpe (OPAO) package is equipped, the octothorpe (#) is treated as a dialed digit and does not signal the end of dialing. From one to three end-of-entry characters are defined in LD 15.

Call Pickup

Call Pickup, Directed

FFC codes are not supported on a Meridian 1 proprietary telephone during an attempt to pick up a Dial Intercom ringing call.

China – Flexible Feature Codes - Outgoing Call Barring

Flexible Feature Codes containing a “*” or an “#” will always be allowed by Outgoing Call Barring (OCB). Therefore, FFCs which can be used to make a call should be entirely numeric if barring of them is required.

Some FFCs are equivalent to Special Prefix functions and these will be subject to barring based on the equivalent Special Prefix codes, even if the FFC is entirely numeric.

Controlled Class of Service

If Electronic Lock (ELK) is activated, the CCRS Class of Service is used whether Controlled Class of Service (CCOS) is active or not. ELK takes precedence over CCOS. If ELK is deactivated, the set is treated as per existing operation.

When FFC ELKA and a password is entered, this set will use the CCRS Class of Service configured in LD 15. The CCRS Class of Service will always be used whether or not CCOS is currently controlling the set's Class of Service. When FFC ELKD and a password is entered, the set will use the appropriate Class of Service associated with this set. If CCOS is enabled for the set, the associated customer Class of Service is used (i.e., CCRS, ECC1, or ECC2). If CCOS is not enabled for this set, the set's own Class of Service is used.

When FFC ELK is deactivated, the set reverts back to the Class of Service as it should be without FFC ELK, instead of always reverting back to the set's Class of Service (i.e., if CCOS is enabled, it will use the customer's Class of Service; if CCOS is not enabled, it will use the set's Class of Service).

Intercept Treatment

If Intercept Treatment has been specified for a call to a vacant number (CTVN), the Digit Display (DDs) on the Attendant Console is affected by Flexible Feature Codes (FFCs). If no FFC has been defined, the dialed digits are displayed up to and including the first digit that fails to match any Directory Number (DN). If one or more FFCs have been defined, the dialed digits are displayed, up to and including the first digit that fails to match any FFC.

ISDN QSIG/EuroISDN Call Completion

Analog (500/2500 type) set can use Flexible Feature Codes (FFCs) to activate Call Completion to Busy Subscriber requests.

Pretranslation

Flexible Feature Codes must be accessible through a Pretranslation Table entry in order for users to activate features in this manner.

The Flexible Feature Code (FFC) feature will not be affected if the FFCs begin with "*" or "#", since before translation begins if the first digit is an "*" or "#" pretranslation will not be done. If any digits follow the FFC code, the first of the digits that follows will be pretranslated.

Special Prefix

Users are still able to use Special Prefix (SPRE) dialing (if the feature is enabled) with or without FFC defined.

Speed Call, System

With Flexible Feature Code (FFC), a confirmation tone is provided for Speed Call store after the end-of-dial (EOD) string is entered.

Feature packaging

Flexible Feature Codes (FFC) package 139 requires Controlled Class of Service (CCOS) package 81 only if Electronic Lock (ELK) is desired.

In addition, the SPRE dialing feature must be enabled for FFC functions.

2500 Telephone Features (SS25) package 18, and 500 Set Dial Access to Features (SS5) package 73 are required to support the following features:

- Call Forward
- Speed Call Controller
- Speed Call User
- Permanent Hold
- Call Park, and
- System Speed Call.

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

1 LD 15 – Set parameters for Flexible Feature Code.

2 LD 10 – Set Station Control Password Length for analog (500/2500 type) telephones.

3 LD 11 – Set Station Control Password Length for Meridian 1 proprietary telephones.

4 LD 57 – Define numbers for Flexible Feature Code.

LD 15 – Set parameters for Flexible Feature Code.

Prompt	Response	Description
REQ:	CHG	Change.
TYPE:	CDB CCS	Customer Data Block. Controlled Class of Service Options.
CUST	0-99 0-31	Customer number. For Option 11C.
- CCRS	aaa	Controlled Class of Service (CCOS) (assigned when Electronic Lock (ELK) is activated), where: aaa = UNR (Unrestricted), TLD (Toll Denied), CTD (Conditionally Toll Denied), CUN (Conditionally Unrestricted), SRE (Semi-restricted), FRE (Fully Restricted), FR1 (Fully Restricted Level 1), FR2 (Fully Restricted Level 2).
TYPE	FFC	Flexible Feature Code Options.
- SCPL	x	Station Control Password Length (SCPL), 0-8. Entering 0 disables ELK and Remote Call Forward (RCFW) features at next data dump and SYSLOAD.
- FFCS	(NO) YES	(Do not) change FFC end-of-dialing indicator.
- - STRL	x	String length 1-3 (prompted only if FFCS = YES).
- - STRG	aaa	Character string to be used (up to string length; prompted only if FFCS = YES).

LD 10 – Set Station Control Password Length for analog (500/2500 type) telephones.

Prompt	Response	Description
REQ:	CHG	Change.
TYPE:	500	Telephone type.
TN	l s c u c u	Terminal Number. For Option 11C.

SCPW	xx...xx X	Station Control Password (must be same length as SCPL in LD 15; enter X to delete password).
CLS	CCSA	Enable CCOS for Electronic Lock (ELK) and Remote Call Forward (RCFW).

LD 11 – Set Station Control Password Length for Meridian 1 proprietary telephones.

Prompt	Response	Description
REQ:	CHG	Change.
TYPE:	aaaa	Telephone type, where: aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, or 3000.
TN	l s c u c u	Terminal Number. For Option 11C.
SCPW	xx...xx X	Station Control Password. Must be the same length as SCPL in LD 15. Enter X to delete the password. Delete the password only if SCPL = 0; otherwise receive an error code for no password to fit the SCPL.
CLS	CCSA	Enable CCOS for ELK and Remote Call Forward (RCFW).

LD 57 – Define numbers for Flexible Feature Code.

Prompt	Response	Description
REQ	NEW CHG OUT	Build new FFC data block, change FFC data block, remove FFC code.
TYPE	FFC	Flexible Feature Codes.
CUST	0-99 0-31	Customer number. For Option 11C.
FFCT	(NO) YES	FFC Confirmation Tone.

CEPT	(NO) YES	Conférence Européen des Postes Tel defaults are (not) allowed, to be defined (prompted only if REQ = NEW).
REP*	n	Single-character replacement for * and # in CEPT defaults.
	<CR>	Create defaults only.
ALL	(NO) YES	(Do not) remove all FFCs (prompted only if REQ = OUT).
CODE	aaaa	FFC type.
	ALL	All prompts.
	<CR>	No prompts.
- ASRC	xxxx	Automatic Set Relocation code.
- ATDA	xxxx	Autodial Activate code.
- ATDD	xxxx	Autodial Deactivate code.
- AUTH	xxxx	Authorization Code.
- AWUA	xxxx	Automatic Wake Up Activate code.
- AWUD	xxxx	Automatic Wake Up Deactivate code.
- AWUV	xxxx	Automatic Wake Up Verify code.
- CDRC	xxxx	Call Detail Recording Charge Account code.
- CFHO	xxxx	Call Forward/Hunt Override code.
- CFWA	xxxx	Call Forward All Calls Activate code.
- CFWD	xxxx	Call Forward All Calls Deactivate code.
- CFWV	xxxx	Call Forward All Calls Verify code.
- COND	xxxx	Conference Diagnostics code.
- CPAC	xxxx	Park Access Call code.
- CPRK	xxxx	Park Call code.
- CSHF	xxxx	Centrex Switchhook Flash code.

- C6DS	xxxx	Six-Party Conference code.
- CWGA	xxxx	Call Waiting Activate code.
- CWGD	xxxx	Call Waiting Deactivate code.
- DEAF	xxxx	Deactivate Ring Again and FWD codes.
- DPVS	xxxx	Data Port Verification code.
- ELKA	xxxx	Electronic Lock Activate code.
- ELKD	xxxx	Electronic Lock Deactivate code.
- GRPF	xxxx	Group Call code.
- GRCL	xxxx	Group Call List number.
- HOLD	xxxx	Permanent Hold code.
- ICFA	xxxx	Internal Call Forward Activate code.
- ICFD	xxxx	Internal Call Forward Deactivate code.
- ICFV	xxxx	Internal Call Forward Verify code.
- IMS	xxxx	Integrated Message System Access code.
- LILO	xxxx	Log-in, Log-out code for analog (500/2500 type) ACD telephones.
- MNTC	xxxx	Maintenance Access code.
- MSBA	xxxx	Make Set Busy Activate code.
- MSBD	xxxx	Make Set Busy Deactivate code.
- MTRC	xxxx	Malicious Call Trace code.
- MWRA	xxxx	Multiple Wake Up Repeat Activate code.
- MWUA	xxxx	Multiple Wake Up Activate code.
- MWUD	xxxx	Multiple Wake Up Deactivate code.

- NRDY	xxxx	Not Ready Activate or Deactivate code for analog (500/ 2500 type) ACD telephones.
- OVRD	xxxx	Override/Priority Override code.
- PUDN	xxxx	Pick Up Directory Number code.
- PUGR	xxxx	Pick Up Group code.
- PURN	xxxx	Pick Up Ringing Number code.
- RCFA	xxxx	Remote Call Forward Activate code.
- RCFD	xxxx	Remote Call Forward Deactivate code.
- RCFV	xxxx	Remote Call Forward Verify code.
- RDLN	xxxx	Redial Last Number code.
- RDNE	xxxx	Redial Number Erase code.
- RDSN	xxxx	Redial Saved Number code.
- RDST	xxxx	Redial Store code.
- RGAA	xxxx	Ring Again Activate code.
- RGAD	xxxx	Ring Again Deactivate code.
- RGAV	xxxx	Ring Again Verify code.
- RMST	xxxx	Room Status code.
- SADS	xxxx	Scheduled Access Restriction Disable code.
- SAEN	xxxx	Scheduled Access Restriction Enable code.
- SALK	xxxx	Scheduled Access Restriction Lock code.
- SAUN	xxxx	Scheduled Access Restriction Unlock code.
- SCPC	xxxx	Station Control Password Change code.
- SPCC	xxxx	Speed Call Controller code.

- SPCU	xxxx	Speed Call User code.
- SSPU	xxxx	System Speed Call User code.
- TFAS	xxxx	Trunk Answer from Any Station code.
- TRMD	xxxx	Terminal Diagnostics code.
- TRVS	xxxx	Trunk Verification code.
- USCR	xxxx	User Selectable Call Redirection.
- USTA	xxxx	User Status code.

Feature operation

For some features, the user can dial a different FFC to activate or deactivate a feature or to verify some feature operations. The tone for each event (activate, deactivate, verify) is the same as the default Confirmation Tone (special dial tone).

The Electronic Lock and Remote Call Forward FFCs are described here because Electronic Lock is packaged with Flexible Feature Codes and affects Remote Call Forward.

For information about using FFCs for other features, see the individual feature descriptions.

Electronic Lock

Electronic Lock (ELK), packaged with FFC, provides an SCPW for changing the status from the telephone. The SCPW also protects against changes to the Remote Call Forward (RCFW) feature. Entering a password length of 0 in LD 15 (SCPL) disables password control for both ELK and RCFW. Operating ELK requires enabling CCOS package 81.

To change the Class of Service from a telephone:

1 Dial the Electronic Lock Activate (ELKA) code.

2 Dial the SCPW. The telephone's Class of Service is changed to the CCRS value defined in LD 15.

To return the telephone to the originally defined Class of Service:

1 Dial the Electronic Lock Deactivate (ELKD) code.

2 Dial the SCPW. The telephone's Class of Service is changed to the values defined in LD 10 and LD 11.

Because the Class of Service defined for CCRS in LD 15 is usually lower than the Class of Service defined in LD 10 or LD 11, the Class of Service for a telephone is lowered by dialing the Electronic Lock Activate (ELKA) FFC and the password associated with that telephone. The user can activate from a remote telephone by dialing the ELKA FFC, the SCPW and the Directory Number to be changed. The same operation can deactivate the feature, using the Electronic Lock Deactivate (ELKD) code programmed in LD 57.

ELK operation has the following requirements:

- CCOS allowed, with CCSA Class of Service in LD 10 and LD 11, and CCRS defined in LD 15
- Set the password length in LD 15, at the SCPL prompt
- Add passwords in LD 10 and LD 11, at the SCPW prompt, and
- FFCT = YES in LD 57.

To change the SCPW for ELK:

1 Select a free extension.

2 Dial the SCPC code.

3 Dial the SCPW for your telephone.

4 Dial the new password.

5 To confirm, dial the new password again.

6 Hang up or press **Rls**.

Flexible Key Assignment

Contents

The following are the topics in this section:

Feature description

The Flexible Key Assignment feature allows the assignment of features other than volume up, volume down, and hold to the three keys located below the dial pad on an SL-1 telephone. Any feature not requiring a lamp indicator can be assigned to these keys.

Operating parameters

There are no operating parameters associated with this feature.

Feature interactions

There are no feature interactions associated with this feature.

Feature packaging

This feature is packed under International Supplementary Features (SUPP), package 131.

Feature implementation

Task summary list

The following task is required:

LD 11 – Assign key functions to keys.

LD 11 – Assign key functions to keys.

Prompt	Response	Description
...		
KEY	xx aaa	Key number (0-9) and key function.

Feature operation

Press the appropriate key on the SL-1 telephone to activate the feature assigned to it.

Flexible Orbiting Prevention Timer

Contents

The following are the topics in this section:

Feature description

The Orbit Prevention feature prevents an infinite loop from being created in a network-wide Call Forward configuration resulting from set A being call forwarded (all calls) to set B at another node, which in turn has been call forwarded back to set A. A check is provided through the Flexible Orbiting Prevention Timer (FOPT) that prohibits any set from call forwarding more than one call off-node for a period of 14 seconds.

The Orbit Prevention feature allows the Flexible Orbiting Prevention Timer (FOPT), to be service changeable from 0 to 30 seconds (even numbers only). If a value of 0 is defined, then Orbit Prevention is disabled and call forwarding is not inhibited in any way.

Operating parameters

There are no operating parameters associated with this feature.

Feature interactions

There are no feature interactions associated with this feature.

Feature packaging

This feature is included in base X11 System Software.

Feature implementation

Task summary list

The following task is required:

LD 15 – Enter an even value between 0-30 seconds, at the FOPT prompt to define the Orbit Prevention Timer.

LD 15 – Enter an even value between 0-30 seconds, at the FOPT prompt to define the Orbit Prevention Timer.

Prompt	Response	Description
REQ:	NEW CHG	Add, or change.
TYPE:	CDB NET	Customer Data Block. ISDN and ESN Networking Options.
...		
- FOPT	0-(14)-30	Flexible Orbiting Prevention Timer. The number of seconds in two-second intervals that CFW should be suspended on a set that has just forwarded a call off node. If an odd number is entered, the number is rounded up to the next even number, and the message “FOPT ROUNDED TO xx” is printed.

Feature operation

No specific operating procedures are required to use this feature.

Flexible Tone and Digit Switch Control

Contents

The following are the topics in this section:

Reference list

The following are the references in this section:

- *Administration* (553-3001-311)

Feature description

This feature allows the Meridian 1 to generate the many tones and cadences required for call processing in various countries. The system must be equipped with Flexible Tone and Digit Switch (TDS) circuit packs. One TDS pack is inserted in each network shelf in place of a network circuit pack.

The TDS packs are pre-overlay programmed with certain basic tone characteristics (frequencies, levels and cadences) which are then combined in various ways to produce the following tones:

- ACD ring-again ringback tone

- busy tone
- call forward dial tone
- call forward message-waiting dial tone
- camp-on confirm tone
- control dial tone
- dial tone
- dial-0 recall tone
- hold confirmation tone
- listed DN tone
- message waiting dial tone
- overflow tone
- preemption tone
- ringback tone
- test tone

These tones are also service changeable in LD 56. When call processing requires a particular tone, software sends the code defining that tone to the TDS pack. The TDS pack then generates the tone.

A number of other tones and associated cadences are available from the TDS but are assigned by software in LD 56. These are:

- agent observe tone
- call waiting tone
- intrusion tone
- override tone

The following tones are likely to be defined as bursts, but are still software controlled:

- ATV completion busy tone
- observe blocking tone

- off-hook queuing tone
- set relocate tone
- telset messaging alert tone
- telset messaging OK tone
- telset status update tone

Three exceptions to the categories of tones described so far are special dial tone, expensive route warning tone, and precedence call waiting tone. These tones are flexible only in their sound and not in their cadence.

Also included are distinctive or precedence ringing for 500/2500-type, M1000-series, SL-1, and digital telephones. Refer to LD 56 in the *Administration* (553-3001-311) for the identification of these tones and cadences.

The tone and ringing requirements of the customer determine which TDS is required.

This feature also provides the following:

- an additional make/break ratio is available for ten pulses per second dialpulsing
- variable inter-digit pause time is flexible and can be assigned in LD 56 for digitone and dialpulse digits
- two additional DTMF outpulsing rates are available and assigned in LD 17, and

Operating parameters

There are no operating parameters associated with this feature.

Feature interactions

There are no feature interactions associated with this feature.

Feature packaging

This feature is packaged under, Flexible Tones and Cadences (FTC) package 125.

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

1 LD 17 – Modify the system hardware and software parameters:

2 LD 56 – Modify or change customer's tone and ringing parameters:

LD 17 – Modify the system hardware and software parameters:

Prompt	Response	Description
...		
PARM	(NO) YES	Change system parameters.
ABCD	(NO) YES	16-Button DTMF operation is (is not) enabled.
	<CR>	Original value is left unchanged.
DTRB	100	100 millisecond bursts of DTMF with 100 millisecond interdigit pause.
	50	50 millisecond bursts of DTMF with 50 millisecond interdigit pause.
	60	60 millisecond bursts of DTMF with 90 millisecond interdigit pause.
	70	70 millisecond bursts of DTMF with 70 millisecond interdigit pause.

LD 56 – Modify or change customer's tone and ringing parameters:

Prompt	Response	Description
...		
TYPE	FTC	Flexible tone and ringing.

Feature operation

No specific operating procedures are required to use this feature.

Flexible Trunk to Trunk Connections

Contents

The following are the topics in this section:

Feature description

The Flexible Trunk to Trunk Connections (FTT) feature controls trunk to trunk connections for Transfer, Supervised Conference, and unsupervised Conference, based upon the Station's Class of Service. This feature is used with or without the Trunk Barring (TBAR) feature. The Flexible Trunk to Trunk Connections feature provides the following options at a set level:

- allows trunk to trunk connections for Transfer and Conference

- denies trunk to trunk connections for Transfer and Conference
- allows trunk to trunk connections for Supervised Conference only, and denies trunk to trunk connections for Transfer and unsupervised Conference

The Conference feature allows additional parties to join an established call. One internal Directory Number must always be involved in the Conference call for a Supervised Conference. A Meridian 1 user can conference two or more trunks and then drop out of the conference, leaving the other trunks connected. This is an unsupervised Conference.

When Flexible Trunk to Trunk Connections is used in conjunction with the Trunk Barring feature, **one** of the following options may be selected:

- Additional set level restrictions can be added to the existing Customer level Trunk Barring.
- The restrictions placed by Trunk Barring, based upon the set's Flexible Trunk to Trunk Connections Class of Service, can be lifted.
- All set based trunk to trunk connections can be controlled for Conference and Transfer, depending upon the set's Flexible Trunk to Trunk Connections Class of Service, whether or not the route is barred by TBAR.

The functionality of the Flexible Trunk to Trunk Connections feature is activated by Flexible Trunk to Trunk Connections Options (FTOP prompt) in the Customer Data Block and controlled by the Station's Class of Service. The options that are available at a Customer level are dependent upon whether or not Trunk Barring (package 132) is configured.

Functionality of Flexible Trunk to Trunk Connections without Trunk Barring configured

When Flexible Trunk to Trunk Connections is used without Trunk Barring configured, the following Classes of Service are provided at a set level:

- When CLS = FTTU, Flexible Trunk to Trunk Connections Unrestricted, trunk to trunk connections are allowed for both Conference and Transfer. Flexible Trunk to Trunk Connections Unrestricted (FTTU) is the default value.

- When CLS = FTTR, Flexible Trunk to Trunk Connections Restricted (FTTR), trunk to trunk connections are denied for both Conference and Transfer.
- When CLS = FTTC, Flexible Trunk to Trunk Connections Conditional, trunk to trunk connections are allowed for Supervised Conference. Trunk to trunk connections are denied for Transfer and unsupervised Conference. Flexible Trunk to Trunk Connections Conditional (FTTC) is the default for new sets.

When Flexible Trunk to Trunk Connections is used without Trunk Barring configured, the following Flexible Trunk to Trunk Connections Options are available at a Customer level:

- When FTOP = FRES, Flexible Trunk to Trunk Connections Restricted, the Flexible Trunk to Trunk Connections feature does not function. The customer can still configure the set's Class of Service; however, the Class of Service does not take effect. Flexible Trunk to Trunk Connections Restricted (FRES) is the default value.
- When FTOP = FTLY, Flexible Trunk to Trunk Connections Only, trunk to trunk connections are controlled exclusively by the Flexible Trunk to Trunk Connections feature, based upon the set's Class of Service.

Figure 42 illustrates the functionality of Flexible Trunk to Trunk Connections without Trunk Barring configured.

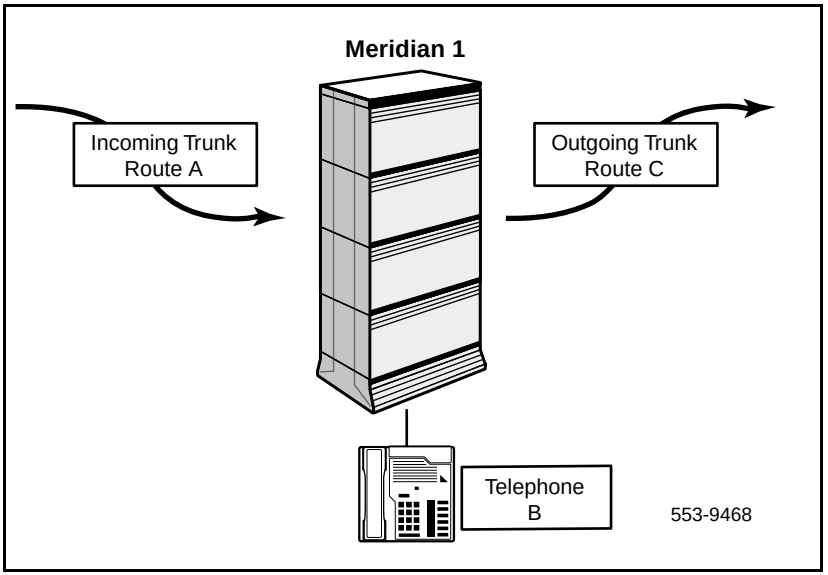
In Figure 42, Set B is established with Trunk Route A and initiates a transfer or a conference with Trunk Route C.

Flexible Trunk to Trunk Connections Options (FTOP) = Flexible Trunk to Trunk Connections Only (FTLY)

Referring to Figure 42, when Flexible Trunk to Trunk Connections Options is set to Flexible Trunk to Trunk Connections Only (**FTLY**) and the Class of Service of Set B is set to Flexible Trunk to Trunk Connections Unrestricted (**FTTU**), the following is true:

- Telephone B can complete the Call Transfer between Trunk Routes A and C, as long as no other restrictions apply.
- Telephone B can conference Trunk Routes A and C and then disconnect. In this case, Trunk Routes A and C remain connected, as long as no other restrictions apply.

Figure 42
Functionality of Flexible Trunk to Trunk Connections without Trunk Barring configured



When Flexible Trunk to Trunk Connections Options is set to Flexible Trunk to Trunk Connections Only (**FTLY**) and the Class of Service of Set B is set to Flexible Trunk to Trunk Connections Restricted (**FTTR**), the following is true:

- Telephone B cannot transfer Incoming Trunk Route A to Outgoing Trunk Route C.
- Telephone B cannot complete the conference involving Trunk Routes A and C.

With Class of Service set to Flexible Trunk to Trunk Connections Restricted (FTTR), a consultation connection initiated by telephone B to Trunk Route C is not affected by Flexible Trunk to Trunk Connections.

Referring to Figure 42, when Flexible Trunk to Trunk Connections Options is set to Flexible Trunk to Trunk Connections Only (**FTLY**) and the Class of Service of Set B is set to Flexible Trunk to Trunk Connections Conditional (**FTTC**), the following is true:

- Telephone B cannot complete the Call Transfer from Trunk Route A to Trunk Route C.
- Telephone B can complete the Supervised Conference with Trunk Routes A and C, as long as no other restrictions apply. If Set B drops out of this conference, Trunk Routes A and C are disconnected.

Table 50 is a matrix that summarizes the possible selections for Station Class of Service and Flexible Trunk to Trunk Connections Options available for Flexible Trunk to Trunk Connections without Trunk Barring configured.

Table 50
CLS and FTOP Matrix for Flexible Trunk to Trunk Connections without Trunk Barring configured

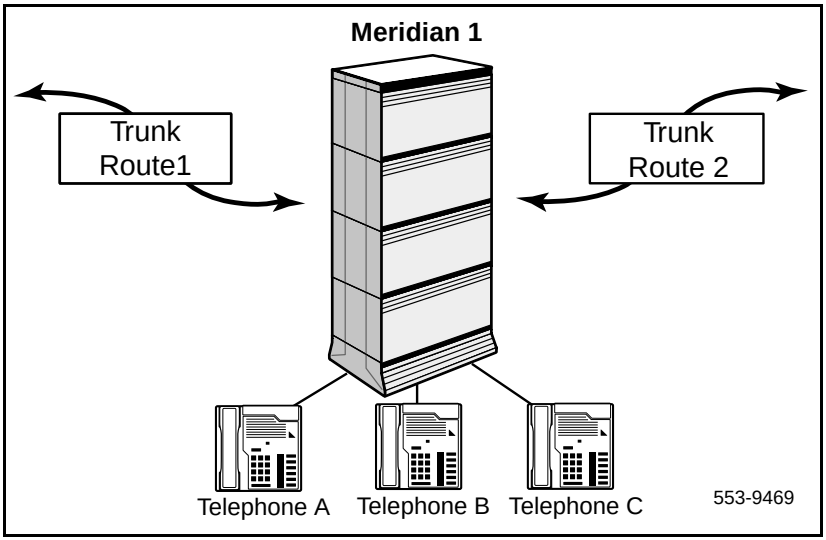
Station Classes of Service (LDs 10 and 11)	Customer Level Options (LD 15)	
	FTOP = FRES (Default)	**FTOP = FTLY**
CLS = FTTU (Default for existing sets)	No effect on Class of Service. Existing restrictions still apply.	Allows trunk to trunk connections for both Transfer and Conference.
CLS = FTTR	No effect on Class of Service. Existing restrictions still apply.	Blocks all trunk to trunk connections for Transfer and Conference.
CLS = FTTC (Default for new sets)	No effect on Class of Service. Existing restrictions still apply.	Allows trunk to trunk connections for Supervised Conference only. Denies trunk to trunk connections for Transfer and unsupervised Conference.

Functionality of Flexible Trunk to Trunk Connections for Supervised Conference

For Supervised Conference, at least one internal set must be involved in the conference. With the Flexible Trunk to Trunk Connections feature configured, if the last set that drops out of the conference has Class of Service set to Flexible Trunk to Trunk Connections Restricted (FTTR) or Flexible Trunk to Trunk Connections Conditional (FTTC), the call is disconnected. If the last set that drops out of the conference has Class of Service (CLS) set to Flexible Trunk to Trunk Connections Unrestricted (FTTU), the call is not disconnected.

Figure 43 illustrates the functionality of Flexible Trunk to Trunk Connections for Supervised Conference.

Figure 43
Flexible Trunk to Trunk Connections for Supervised Conference



Referring to Figure 43, Telephones A, B, and C have Class of Service set to Flexible Trunk to Trunk Connections Unrestricted (FTTU), Flexible Trunk to Trunk Connections Restricted (FTTR), and Flexible Trunk to Trunk Connections Conditional (FTTC) respectively. Telephones A, B, and C and Trunk Routes 1 and 2 are involved in a conference.

- If A is the last internal telephone to drop out of the conference, the call is not disconnected by the Flexible Trunk to Trunk Connections feature, as Class of Service is set to Flexible Trunk to Trunk Connections Unrestricted (FTTU) for A. Other restrictions, however, may cause the call to disconnect. This is an unsupervised conference. The present functionality is maintained.
- If B is the last internal telephone to drop out of the conference, the call is disconnected, as Class of Service is set to Flexible Trunk to Trunk Connections Restricted (FTTR) for B.
- If C is the last internal telephone to drop out of the conference, the call is disconnected, as Class of Service is set to Flexible Trunk to Trunk Connections Conditional (FTTC) for C.

Functionality of Flexible Trunk to Trunk Connections with Trunk Barring configured

Trunk Barring provides the option of denying a direct or modified connection between Customer defined routes. Trunk Barring works with Route Access Restriction Tables (ARTs), as defined in Overlay 56.

When the Flexible Trunk to Trunk Connections feature is used with Trunk Barring (TBAR) configured, additional flexibility in controlling the trunk to trunk connections for Transfer and Conference is provided.

If Flexible Trunk to Trunk Connections is implemented with the Trunk Barring feature, the following four options are available at a customer level:

- When FTOP = FRES, Flexible Trunk to Trunk Connections Restricted, the Flexible Trunk to Trunk Connections feature does not function. The customer can still configure the set's Class of Service; however, the Class of Service does not take effect. Flexible Trunk to Trunk Connections Restricted (FRES) is the default value.

- When FTOP = TBFT, Trunk Barring Flexible Trunk to Trunk Connections, additional restrictions are applied, depending upon the set's Class of Service. Trunk to trunk connections barred by TBAR always remain restricted. Connections not barred by TBAR utilize the set's Class of Service.
- When FTOP = FTTB, Flexible Trunk to Trunk Connections Trunk Barring, Flexible Trunk to Trunk Connections lifts TBAR restrictions for routes barred by TBAR, based upon the set's Class of Service. Flexible Trunk to Trunk Connections does not apply any new restrictions for non-barred routes.
- When FTOP = FTLY, Flexible Trunk to Trunk Connections Only, trunk to trunk connections for Transfer or Conference that are on barred and non-barred routes are controlled exclusively by the Flexible Trunk to Trunk Connections feature.

The Flexible Trunk to Trunk Connections feature provides the same Class of Service options at a set level with or without Trunk Barring configured. (CLS = FTTU, FTTR, FTTC).

Flexible Trunk to Trunk Connections Options (FTOP) = Trunk Barring Flexible Trunk to Trunk Connections (TBFT)

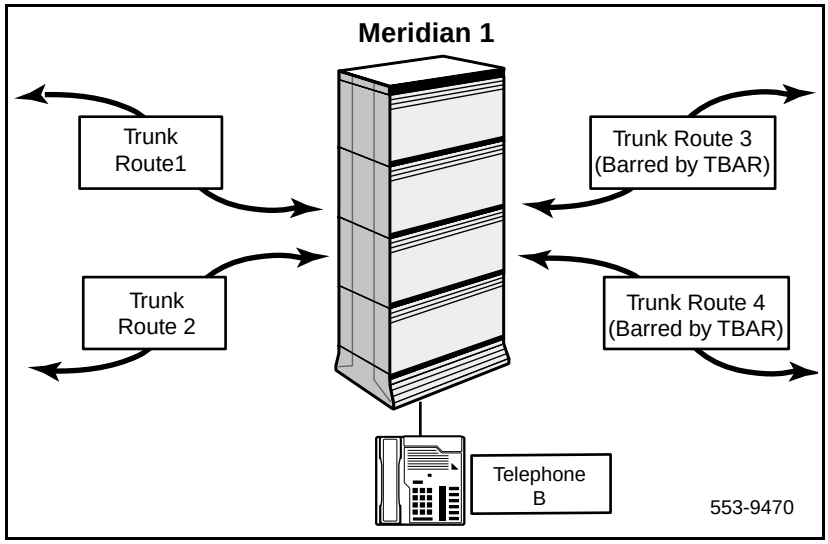
Figure 44 illustrates Flexible Trunk to Trunk Connections functionality with Trunk Barring configured and FTOP set to TBFT in Overlay 15.

In Figure 44, B is established on a call with Trunk Route 1. Trunk Routes 1 and 2 are not barred by TBAR, but Trunk Routes 3 and 4 are barred connection to any other route. Trunk Routes 1, 2, 3, and 4 are both incoming and outgoing.

Referring to Figure 44, when Flexible Trunk to Trunk Connections Options is set to Trunk Barring Flexible Trunk to Trunk Connections (**TBFT**) and the Class of Service of B is set to Flexible Trunk to Trunk Connections Unrestricted (**FTTU**), the following is true:

- B can complete the Call Transfer between Trunk Routes 1 and 2.

Figure 44
Functionality of Flexible Trunk to Trunk Connections with Trunk Barring configured and FTOP = TBFT



- B can conference Trunk Routes 1 and 2 and then disconnect. In this case, Trunk Routes 1 and 2 remain connected, as TBAR does not bar the connection between the two trunks.
- B cannot complete Transfer or Conference from Trunk Routes 1 or 2 to Trunk Routes 3 or 4, as these trunk routes are barred by TBAR.

Referring to Figure 44, when Flexible Trunk to Trunk Connections Options is set to Trunk Barring Flexible Trunk to Trunk Connections (**TBFT**) and the Class of Service of B is set to Flexible Trunk to Trunk Connections Restricted (**FTTR**), the following is true:

- B cannot complete Transfer or Conference with Trunk Routes 1 and 2, even though the connectivity between the trunks is allowed by TBAR. This Class of Service functions as though the two trunks are blocked by the Trunk Barring feature.
- B cannot complete Transfer or Conference from Trunk Routes 1 and 2 to Trunk Routes 3 or 4, as these trunks are barred by TBAR.

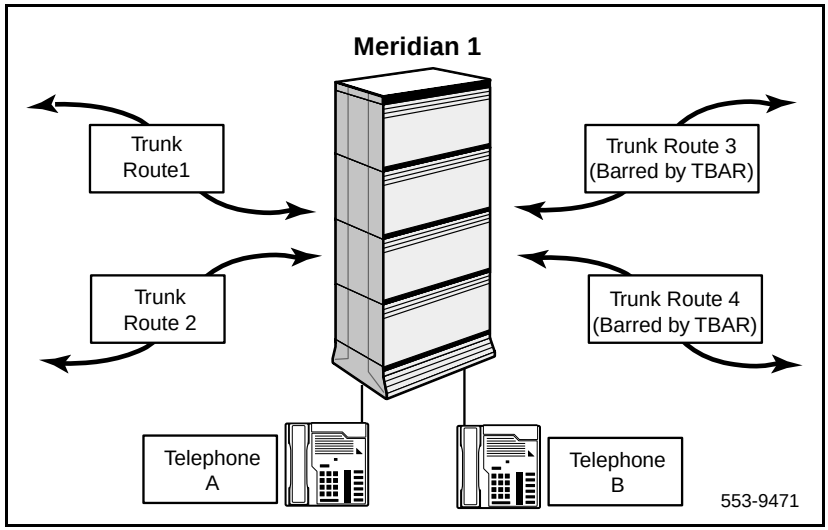
Referring to Figure 44, when Flexible Trunk to Trunk Connections Options is set to Trunk Barring Flexible Trunk to Trunk Connections (**TBFT**) and the Class of Service of Set B is set to Flexible Trunk to Trunk Connections Conditional (**FTTC**), the following is true:

- B cannot complete the Call Transfer from Trunk Route 1 to Trunk Route 2
- B can complete the Supervised Conference with Trunk Routes 1 and 2. If Set B drops out of this conference, Trunk Routes 1 and 2 are disconnected.
- B cannot complete both Transfer and Conference from Trunk Routes 1 or 2 to Trunk Routes 3 or 4, as these trunks are barred by TBAR.

Flexible Trunk to Trunk Connections Options (FTOP) = Flexible Trunk to Trunk Connections Trunk Barring (FTTB)

Figure 45 illustrates Flexible Trunk to Trunk Connections functionality with Trunk Barring configured and FTOP set to FTTB.

Figure 45
Flexible Trunk to Trunk Connections with Trunk Barring configured and FTOP = FTTB



In Figure 45, Routes 1, 2, 3, and 4 are both incoming and outgoing. Access to different trunks is given as follows:

- From Trunk Route 1, connection is allowed to Trunk Routes 2, 3, and 4.
- From Trunk Route 2, connection is allowed to Trunk Routes 1, 3, and 4.
- From Trunk Route 3, connection is denied to Trunk Routes 1, 2, and 4.
- From Trunk Route 4, connection is denied to Trunk Routes 1, 2, and 3.

In short, any call from/to Trunk Route 1 or Trunk Route 2 is allowed. Any call from Trunk Route 3 and Trunk Route 4 is denied to all other trunk routes.

Referring to Figure 45, when the Flexible Trunk to Trunk Connections Options is set to Flexible Trunk to Trunk Connections Trunk Barring (**FTTB**) and the Class of Service of B is set to Flexible Trunk to Trunk Connections Unrestricted (**FTTU**), all TBAR restrictions for Transfer and Conference are lifted.

On a TBAR unrestricted trunk, B receives a call on incoming Trunk Route 1. The call is established. B initiates a call with any of the Trunk Routes 2, 3, or 4.

When TBAR does not restrict connection from Trunk Route 1 to any other trunk route:

- B can transfer the call on Trunk Route 1 to any of the Trunk Routes 2, 3, or 4.
- B can conference the call on Trunk Route 1 with any of the Trunk Routes 2, 3, or 4.

On a TBAR restricted trunk, B receives a call on incoming Trunk Route 3. The call is established. B initiates a call with any of the Trunk Routes 1, 2, or 4.

In this case, TBAR restricts connection from Trunk Route 3 to any other trunk route. However, as B has CLS set to FTTU, the TBAR restriction is lifted for B. Therefore:

- B can transfer the call on Trunk Route 3 to any of the Trunk Routes 1, 2, or 4
- B can conference the call on Trunk Route 3 with any of the Trunk Routes 1, 2, or 4.

Referring to Figure 45, when the Flexible Trunk to Trunk Connections Options (FTOP) is set to Flexible Trunk to Trunk Connections Trunk Barring (**FTTB**) and the Class of Service of B is set to Flexible Trunk to Trunk Connections Restricted (**FTTR**), the existing TBAR functionality is retained.

On a TBAR unrestricted trunk, B receives a call on incoming Trunk Route 1, which is a TBAR unrestricted trunk. The call is established. B initiates a call with any of the Trunk Routes 2, 3, or 4.

When TBAR does not restrict connection from Trunk Route 1 to any other trunk route:

- B can transfer the call on Trunk Route 1 to any of the Trunk Routes 2, 3, or 4.
- B can conference the call on Trunk Route 1 with any of the Trunk Routes 2, 3, or 4.

On a TBAR restricted trunk, B receives a call on incoming Trunk Route 3. The call is established. B initiates a call with any of the Trunk Routes 1, 2, or 4.

In this case, TBAR restricts connection from Trunk Route 3 to any other trunk route. As B has Class of Service set to FTTR, the TBAR restriction is not lifted for this set.

- B cannot transfer the call on Trunk Route 3 to any of the Trunk Routes 1, 2, or 4.
- B cannot conference the call on Trunk Route 3 with any of the Trunk Routes 1, 2, or 4.

Referring to Figure 45, when the Flexible Trunk to Trunk Connections Options is set to Flexible Trunk to Trunk Connections Trunk Barring (**FTTB**) and the Class of Service of B is set to Flexible Trunk to Trunk Connections Conditional (**FTTC**), TBAR restrictions for Supervised Conference are lifted. TBAR restrictions for Transfer and unsupervised Conference are maintained.

On a TBAR unrestricted trunk, B receives a call on incoming Trunk Route 1. The call is established. B initiates a call with any of the Trunk Routes 2, 3, or 4.

When TBAR does not restrict connection from Trunk Route 1 to any other trunk route:

- B can transfer the call on Trunk Route 1 to any of the Trunk Routes 2, 3, or, 4.
- B can conference the call on Trunk Route 1 with any of the Trunk Routes 2, 3, or 4.

On a TBAR restricted trunk, B receives a call on incoming Trunk Route 3. The call is established. B initiates a call with any of the Trunk Routes 1, 2, or 4.

When TBAR restricts connection from Trunk Route 3 to any other trunk routes:

- B cannot transfer the call on Trunk Route 3 to any of the Trunk Routes 1, 2, or 4.

However, as B has Class of Service set to FTTC, the TBAR restriction is lifted for Supervised Conference. Therefore:

- B can conference the call on Trunk Route 3 with any of the Trunk Routes 1, 2, or 4.
- Once B drops out of the conference, the two remaining TBAR trunks are disconnected.

Since all telephones that are already present in the system default to a Class of Service of Flexible Trunk to Trunk Connections Unrestricted (FTTU), when the Customer Option is changed to Flexible Trunk to Trunk Connections Trunk Barring (FTTB), TBAR restrictions for all telephones are lifted for Conference and Transfer. Therefore, the Class of Service must be changed to Flexible Trunk to Trunk Connections Restricted (FTTR), in order to maintain the existing TBAR functionality. The telephone sets that are new to the system default to a Class of Service of FTTC.

Flexible Trunk to Trunk Connections Options (FTOP) = Flexible Trunk to Trunk Connections Only (FTLY)

When Flexible Trunk to Trunk Connections Options is set to Flexible Trunk to Trunk Connections Only (**FTLY**) and the Class of Service is set to Flexible Trunk to Trunk Connections Unrestricted (**FTTU**), trunk to trunk connections are allowed for both Conference and Transfer, irrespective of whether or not TBAR is activated.

When Flexible Trunk to Trunk Connections Options is set to Flexible Trunk to Trunk Connections Only (**FTLY**) and the Class of Service is set to Flexible Trunk to Trunk Connections Restricted (**FTTR)**, trunk to trunk connections are denied for both Conference and Transfer, irrespective of whether or not TBAR is activated.

When Flexible Trunk to Trunk Connections Options is set to Flexible Trunk to Trunk Connections Only (**FTLY**) and the Class of Service is set to Flexible Trunk to Trunk Connections Conditional (**FTTC**), trunk to trunk connections are allowed for Supervised Conference only. Trunk to trunk connections for Transfer and unsupervised Conference are denied, irrespective of whether or not TBAR is activated.

Table 51 is a matrix that summarizes the possible selections for Station Class of Service and Flexible Trunk to Trunk Connections Options available for Flexible Trunk to Trunk Connections when Trunk Barring is configured.

Table 51
CLS and FTOP Matrix for Flexible Trunk to Trunk Connections with TBAR configured

Station Classes of Service (LDs 10 and 11)	Customer Level Options (LD 15)			
	FTOP = FRES (Default)	**FTOP = TBFT**	**FTOP = FTTB**	**FTOP = FTLY**
CLS = FTTU (Default for existing sets)	Existing TBAR functionality.	Existing TBAR functionality.	Lifts all TBAR restrictions for Transfer and Conference.	Allows Transfer and Conference, irrespective of whether or not TBAR is activated, unless other restrictions exist.
CLS = FTTR	Existing TBAR functionality.	Blocks all trunk to trunk connections for both Transfer and Conference.	Existing TBAR functionality.	Blocks all trunk to trunk connections for Transfer and Conference.
CLS = FTTC (Default for new sets)	Existing TBAR functionality.	Allows trunk to trunk connections for Supervised Conference on non-TBAR routes. Denies Transfer and unsupervised Conference on all trunk to trunk connections not blocked by TBAR.	Lifts TBAR restrictions for Supervised Conference only. Maintains TBAR restrictions for unsupervised Conference and Transfer.	Blocks trunk to trunk connections for Transfer and unsupervised Conference. Allows trunk to trunk connections for Supervised Conference.

Operating parameters

Flexible Trunk to Trunk Connections is configured at a set level, by defining the Class of Service (CLS) prompt in Overlays 10 or 11.

All existing telephone sets default to a Class of Service of Flexible Trunk to Trunk Connections Unrestricted (FTTU) upon initial software conversion. When new telephone sets are added and configured, they default to a Class of Service of Flexible Trunk to Trunk Connections Conditional (FTTC).

In the Customer Data Block, Flexible Trunk to Trunk Connections Options can be set to Trunk Barring Flexible Trunk to Trunk Connections (TBFT) and Flexible Trunk to Trunk Connections Trunk Barring (FTTB) only when the Trunk Barring is configured. Flexible Trunk to Trunk Connections Options (FTOP) is set to the default, Flexible Trunk to Trunk Connections Restricted (FRES), to maintain the existing functionality.

A telephone set with a Class of Service of Flexible Trunk to Trunk Connections Restricted (FTTR) cannot initiate a Conference call to an outgoing trunk, although it can be included in a conference. If this type of telephone set is the last set to disconnect from the conference, the call is ended. The established trunks are released.

If a conference is on hold and an additional telephone set attempts to join the conference over a barred trunk route and through a telephone set that has Class of Service set to Flexible Trunk to Trunk Connections Restricted (FTTR), then Flexible Trunk to Trunk Connections does not permit a consultation connection. This is as per the existing operation.

If more than two trunks are involved in a call and all internal calls drop from the conference, Flexible Trunk to Trunk Connections does not affect the Conference disconnection.

Multiple Appearance, Single Call Arrangement DNs allow a single call to be active on the DN, regardless of its number of appearances. If the Single Call Ringing DN is established in a call, another appearance of the DN can enter into the call, if the Privacy feature is not in effect, by going off hook or by pressing the Multiple Appearance Single Call DN key. Flexible Trunk to Trunk Connections restrictions for Conference are applicable in such a case.

As per the existing operation, answer and disconnect supervision is a requirement for Transfer and Conference.

Flexible Trunk to Trunk Connections does not support Basic Rate Interface (BRI) telephone sets or Attendant Console operations.

Flexible Trunk to Trunk Connections supports Analog and ISDN trunks. R2MFC and AC15 signaling is also supported. Flexible Trunk to Trunk Connections does not support Service trunks, such as Recorded Announcement (RAN), Paging (PAG), Dictation (DIC), Music (MUS), and Automatic Wake Up Recorded Announcement (AWR).

Call Redirection features are not supported with Flexible Trunk to Trunk Connections.

With Flexible Trunk to Trunk Connections, unless the Trunk to Trunk Connection feature is configured, two outgoing trunk connections are blocked for Transfer and unsupervised Conference.

Customer Controlled Routing (CCR), Meridian Link, and Application Module Link (AML) applications are not affected by the Flexible Trunk to Trunk Connections feature.

> ***Note:*** When adding a new telephone set, the default Class of Service is Flexible Trunk to Trunk Connections Conditional (FTTC). This could impact an application's ability to conference or transfer a call to an outgoing trunk. In the case where this functionality is required, the Class of Service must be changed on the set to Flexible Trunk to Trunk Connections Unrestricted (FTTU).

Flexible Trunk to Trunk Connections blocks the initiation of Conference. Applications, such as Break In, Barge In, Bridging, and Overriding, are not supported.

Feature interactions

Access Restrictions

Access Restrictions limits terminal access to the exchange network, private network, and certain features and services. During the call origination process, access checks are made by the system on the following:

- Class of Service of an individual terminal
- Trunk Group Access Restrictions (TGAR) code of a terminal, if a direct trunk access code is dialed or as an optional feature when a Basic Alternate Route Selection (BARS) or Network Alternate Route Selection (NARS) access code is dialed
- area code and exchange code, if dialed by terminals with toll denied or conditional toll denied Class of Service, using direct trunk access codes and Code Restriction Tables
- Network Class of Service (NCOS) of a terminal, if Basic Alternate Route Selection (BARS)/Network Alternate Route Selection (NARS) or Coordinated Dialing Plan (CDP) access codes are dialed, or if direct trunk access codes are dialed and New Flexible Code Restriction (NCFR) tables are programmed

Previously restricted connections by any feature other than Trunk Barring cannot be lifted or avoided by the Flexible Trunk to Trunk Connections feature. Basically, all existing restrictions apply with the exception of Trunk Barring restrictions.

Call Transfer

If Flexible Trunk to Trunk Connections allows a telephone set to transfer to an outgoing trunk, Access Restrictions can still block the transfer. If a telephone is denied transfer by the Flexible Trunk to Trunk Connections feature, then the transfer is blocked regardless of Access Restrictions.

For a transfer to be completed, both Access Restrictions and Flexible Trunk to Trunk Connections must allow the transfer.

Conference

If the Flexible Trunk to Trunk Connections feature allows a telephone set to conference to an outgoing trunk, then Conference is allowed unless it is blocked by other existing restrictions. If a telephone set disconnects from a conference, Flexible Trunk to Trunk Connections restrictions verify whether the telephone set is allowed to transfer the call between the two trunks. If allowed, this unsupervised conference is completed, unless and until barred by another feature.

Attendant Console Operations

Flexible Trunk to Trunk Connections does not support Attendant Console operations. If an attendant attempts to extend an originating trunk connection on a route barred by the Trunk Barring feature, overflow tone is provided. The Flexible Trunk to Trunk Connections feature does not lift this restriction.

Although Attendant Consoles have a Conference key, Flexible Trunk to Trunk Connections does not apply any restrictions.

Basic Alternate Route Selection
Network Alternate Route Selection
Coordinated Dialing Plan
Flexible Numbering Plan

Regardless of the method of dialing used to originate the call with the outgoing trunk, Flexible Trunk to Trunk Connections restrictions apply for Transfer and Conference.

Call Redirection

Call Forward features

When a telephone set performs Call Forward to an external trunk and receives an incoming trunk call, it may result in a trunk to trunk connection. The Flexible Trunk to Trunk Connections Station Class of Service is not applied when forwarding incoming trunk calls to a barred route.

Call Pickup

The new Station's Classes of Service, introduced by the Flexible Trunk to Trunk Connections feature, do not impose any restrictions on Call Pickup.

Meridian Mail Trunk Access Restriction

Flexible Trunk to Trunk Connections limitations do not apply to Meridian Mail Trunk Access Restriction (MTAR). Irrespective of the Station's Class of Service, external calls are prevented from being transferred/conferenced to Meridian Mail.

Multi-Party Operations - Call Join

The functionality of Flexible Trunk to Trunk Connections applies to conferences made by the Call Join operation.

No Hold Conference

When a Meridian 1 proprietary telephone set is established with a trunk call and a No Hold Conference is initiated, Trunk Barring restrictions do not apply, and the conference is completed. However, if the last internal telephone set involved in the No Hold Conference has a Class of Service of Flexible Trunk to Trunk Connections Conditional (FTTC) or Flexible Trunk to Trunk Connections Restricted (FTTR), then the call is disconnected if that telephone set drops out of the conference.

Scheduled Access Restrictions

With the Flexible Trunk to Trunk Connections feature configured, existing restrictions are not avoided. Additional restrictions imposed by Flexible Trunk to Trunk Connections Classes of Service are introduced when Scheduled Access Restrictions is configured.

Toll Operator Break In

The Flexible Trunk to Trunk Connections Classes of Service have no impact on Toll Operator Break In.

Trunk Access From Any Station

There is no limitation with the new Flexible Trunk to Trunk Connections Station Classes of Service that can restrict the station from picking up the call by Trunk Access From Any Station (TAFAS).

Trunk to Trunk Connection

Flexible Trunk to Trunk Connections takes precedence over the Trunk to Trunk Connection feature.

Virtual Network Services

Flexible Trunk to Trunk Connections does not apply any restrictions to existing Virtual Network Services (VNS) functionality.

Feature packaging

This feature is included in base X11 System Software.

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

1 LD 15 – Configure Flexible Trunk to Trunk Connections options.

2 LD 10 – Configure Flexible Trunk to Trunk Connections for analog (500/2500 type) sets.

3 LD 11 – Configure Flexible Trunk to Trunk Connections for Meridian 1 proprietary sets.

LD 15 – Configure Flexible Trunk to Trunk Connections options.

Prompt	Response	Description
REQ:	CHG	Change existing data.
TYPE:	NET	Trunk and network options.
CUST	xx	Customer number.
...		
FTOP		Flexible Trunk to Trunk Connections Options.
	(FRES) TBFT FTTB FTLY	FTT feature is inactive. FTT adds new restrictions on connections not barred by TBAR. FTT lifts TBAR restrictions for routes barred by TBAR. FTT cannot add any new restrictions for non-barred routes. All set based trunk to trunk connections for Transfer and Conference are controlled by FTT only.
...		

LD 10 – Configure Flexible Trunk to Trunk Connections for analog (500/2500 type) sets.

Prompt	Response	Description
REQ:	CHG	Change existing data.
TYPE:	500	500/2500 type telephone set data block.
TN	l s c u c u	Terminal number. For Option 11C.
...		
CLS	(FTTC)	Flexible Trunk to Trunk Connections Conditional (default for new sets).
	FTTU	Flexible Trunk to Trunk Connections Unrestricted (default).
	FTTR	Flexible Trunk to Trunk Connections Restricted.
...		

LD 11 – Configure Flexible Trunk to Trunk Connections for Meridian 1 proprietary sets.

Prompt	Response	Description
REQ:	CHG	Change existing data.
TYPE:	xxxx	Telephone type, where xxxx is: SL1, 2006, 2008, 2009, 2016, 2018, 2212, 2216, 2317, 2616, 3000.
TN	l s c u c u	Terminal number. Option 11C.
...		
CLS	(FTTC)	Flexible Trunk to Trunk Connections Conditional (default for new sets).
	FTTU	Flexible Trunk to Trunk Connections Unrestricted (default for existing sets).
	FTTR	Flexible Trunk to Trunk Connections Restricted.
...		

Feature operation

No specific operating procedures are required to use this feature.

Flexible Voice/Data Terminal Number

Contents

The following are the topics in this section:

Feature description

The Flexible Voice/Data Terminal Number feature allows both bearer (B) channels on the M2000 series Meridian 1 proprietary sets to be available for either voice or data calls on a dynamic (per-call) or static basis. This feature has been developed exclusively for VISIT equipment functionality.

With the dynamic capabilities of this feature, a user has access to two simultaneous voice or two simultaneous data connections on the Time Compression Multiplexing (TCM) loop. This capability is practical for users with various desktop multimedia applications, such as VISIT video, that require various combinations of voice and data connections on a per-call basis.

Dynamic voice/data Terminal Numbers (TNs) have two Directory Numbers (DNs) to place and receive calls. The primary voice DN is assigned to key 00 on the telephone. Another key is assigned to the data DN. This key is designated as the data mode key. All data calls are placed and received via this key. Any other secondary DN keys assigned to a dynamic voice/data TN can place and receive voice calls only.

With the static capabilities of this feature, each B-channel on the set is configured as either voice or data. This provides the opportunity for two voice or two data B-channels on the same TCM loop. This configuration doubles the density of the digital line card (XDLC). Since the TN has either a voice or data Class of Service, calls placed from any DN key on the set are either voice or data.

Operating parameters

There are no restrictions against placing data calls on hold.

When a Terminal Number (TN) is in the voice mode, the short hunting feature is terminated when a Data Mode (DTM) key is encountered.

Data calls to a dynamic voice/data TN are not redirected. All TN redirection features such as Call Forward All Calls and Hunting are applicable to voice calls only. If a data call is not presented to the DTM key the call is given reorder tone.

A Data Mode (DTM) key can be assigned to M2000 series Meridian 1 proprietary sets with the exception of the M2006 set.

Data Directory Numbers (DNs) for dynamic voice/data TNs cannot have Multiple Appearance DNs (MADNs).

A dynamic voice/data TN can only have one data DN.

No audible progress tones, such as dial tone or ringback, are provided for data calls to or from dynamic TNs. Only Time Compression Multiplexing (TCM) progress messages are sent for data calls. Audible progress tones are provided for voice calls.

If set relocation takes place, upper and lower TNs of a Time Compression Multiplexing (TCM) loop are relocated together. This occurs even if upper and lower TNs were assigned as dynamic or static. A relocated lower TN (0-15) must be in voice mode. Following relocation, both TNs maintain their prior voice or data settings.

When a service change is performed on a dynamic TN in data mode, it is automatically changed to voice mode.

To prevent improper setup, the new Class of Service Flexible Terminal Number Allowed (FLXA) must be specified to assign Data Class of Service to a lower TN or Voice Class of Service to an upper TN.

Feature interactions

Call Forward All Calls
Call Forward, Internal Calls

Voice calls directed to a dynamic voice/data Terminal Number are forwarded, if either of these features are enabled. Data calls, to a dynamic voice/data TN, are not forwarded.

Call Redirection

If a call is not presented to the Data Mode (DTMK) key, the call is given reorder tone.

Call Waiting
Camp-On

These features are not supported on data calls to a dynamic voice/ data TN.

Call Waiting and Camp On are supported for voice calls to dynamic voice/ data TN. However, no tone is inserted during a Camp On attempt if the Terminal Number is in a busy data mode.

Message Waiting Forward Busy
Call Forward Busy

Voice calls directed to a call processing busy dynamic voice/data TN are redirected via Message Waiting Forward Busy or Call Forward Busy provided these features are configured for the TN. Data calls to dynamic voice/data TNs are not redirected.

Voice Call

If a dynamic TN has a single appearance DN key that terminates on a Voice Call (VCC) key, the called party hears a single beep if occupied on another DN. However, if the called party is a dynamic TN in data mode, the DN key lamp flashes. A beep is not provided.

Feature packaging

The Flexible Voice/Data Terminal Number feature is contained in M2000 Digital Sets (DSET) package 88.

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

1 LD 11 – Assign the Static Voice Terminal Number.

2 LD 11 – Assign the Static Data Terminal Number.

3 LD 11 – Assign the Dynamic Terminal Number.

LD 11 – Assign the Static Voice Terminal Number.

Prompt	Response	Description
REQ:	NEW CHG	New, or Change.
TYPE:	xxxx	Telephone type, where xxxx = 2006, 2008, 2016, 2216 or 2616.
TN	l s c u c u	Terminal Number where u = 0 - 31. For Option 11C.
CLS	FLXA VCE	Flexible voice/data allowed.FLXA is only required if voice TN unit is less than 15. (FLXD) = Flexible voice/data denied. This Class of Service can only be assigned to 2006, 2008, 2016, 2216 or 2616 sets. When configured to CLS = FLXA, Voice Class of Service (VCE) is assigned the upper TN unit (16 - 31).

LD 11 – Assign the Static Data Terminal Number.

Prompt	Response	Description
REQ:	NEW CHG	New, or Change.
TYPE:	xxxx	Telephone type, where xxxx = 2006, 2008, 2016, 2216 or 2616.
TN	l s c u c u	Terminal Number where u = 0 - 31. For Option 11C.
CLS	FLXA DTA	Flexible voice/data allowed. FLXA is only required if data TN unit is greater than 15. (FLXD) = Flexible voice/data denied. This Class of Service can only be assigned to 2006, 2008, 2016, 2216 or 2616 sets. When configured to CLS = FLXA, Data Class of Service (DTA) can be assigned to the lower TN unit (0 -15).

LD 11 – Assign the Dynamic Terminal Number.

Note: Terminal Numbers with Voice Class of Service and Flexible Voice/Data Allowed can become dynamic voice/data Terminal Number by assigning a secondary SCR/SCN key at the DTMK prompt. The DN specified with this key becomes the data DN.

Prompt	Response	Description
REQ:	NEW CHG	New, or Change.
TYPE:	xxxx	Telephone type, where xxxx = 2006, 2008, 2016, 2216 or 2616.
TN	l s c u c u	Terminal Number where u = 0 - 31. For Option 11C.

CLS	FLXA VCE	Flexible voice/data allowed. (FLXD) = Flexible voice/data denied. This Class of Service can only be assigned to 2006, 2008, 2016, 2216 or 2616 sets. When configured to CLS = FLXA Voice Class of Service (VCE) can be assigned to the upper TN unit (16 - 31) and Data Class of Service (DTA) can be assigned to the lower TN unit (0 -15). A Single Call Ringing (SCR) key can be designated a Data Mode (DTMK) key.
DTMK	xx	Key assignment for Data Mode Key. This key must be a single appearance SCR/SCN key and cannot be assigned key 00.
- KEY	00 aaa xxxx	Prime Directory Number Key, where aaa = SCR, SCN, MCR or MCN and xxxx = Voice Directory number
- KEY	xx SCR yyyy xx SCN yyyy	Single Call Ringing Single Call Non Ringing Data Mode Key, where xx = key number and yyyy = Data Directory Number.

When call processing switches between voice and data mode on the dynamic Terminal Number, some Class of Service option data is automatically modified. In data mode, the dynamic TN has options Warning Tone Denied (WTD) and Maintenance Telephone Denied (MTD). When switched back to voice mode, the original settings for these options is automatically restored, and the Class of Service is not printed.

Feature operation

No specific operating procedures are required to use this feature.

Forced Camp-On and Priority Override

Contents

The following are the topics in this section:

Feature description

Forced Camp-On is similar to the regular station-to-station Camp-On, except that it can be done without an internal or external call on hold. When used with Priority Override, the capability is called Enhanced Override.

Priority Override allows an established call to be broken into and another call presented to the desired party. Before Break-In occurs, a warning tone is given to all parties involved in the established call. The set performing the override must have a priority level equal to or higher than the set being overridden.

Operating parameters

Priority Override and Forced Camp-On can operate independently of each other.

All stations involved in an established call being broken into must have Warning Tone Allowed (WTA) Class of Service.

Priority Override and Forced Camp-On cannot be applied to telephones involved in any of the following:

- non-established call
- conference call
- attendant call
- Release Link attendant call
- attendant call through Centralized Attendant Service or a Primary Rate Access/Integrated Services Digital Network trunk
- Automatic Call Distribution (ACD) call
- data call
- parked call
- call waiting call
- held call
- operator Call Back or toll operator Break-In call
- Make Set Busy active, or
- Do Not Disturb active.

External trunks cannot perform priority override. They can be overridden only if they are the undesired party of an established call being broken into.

Feature interactions

Multi-party Operations

With Multi-Party Operations (MPO), when a consultation call is made on a set equipped with Priority Override, a control digit has to be dialed from the set to perform a recall and return the call on hold.

Override

When Priority Override is activated, it replaces normal override. Once Priority Override has been performed on a set, its Digit Display shows the DN of the overriding set.

Feature packaging

Priority Override/Forced Camp-On (POVR) is packaged under package 186.

Dependencies:

- Flexible Feature Codes (FFC) package 139
- Multi-party Operations (MPO) package 141

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

1 LD 10, LD 11 – Respond to CLS prompt with CPFA to allow Camp-On to another set, or CPFD to deny such Camp-On. Respond to PLEV prompt with a value between 1 and 7, to set the priority level for this set.

2 LD 11 – Respond to the KEY prompt with a key number, followed by EOVR, to define an Enhanced Override key for each Meridian 1 proprietary telephone.

3 LD 14 – Trunks to be involved in such Camp-On override calls must have Warning Tone Allowed (WTA) Class of Service allowed

4 LD 15 – To select either automatic or manual forced Camp-On for a customer, respond to the AFCO prompt with either YES (automatic) or NO (manual).

5 LD 16 – At the PLEV prompt, specify priority levels for trunk routes.

6 LD 57 – The Enhanced Override flexible feature code must be defined by responding to the EOVR prompt with an appropriate FFC digit sequence to be assigned that function.

The following are additional to the definitions required for telephone set configuration without this feature.

LD 10, LD 11 – Respond to CLS prompt with CPFA to allow Camp-On to another set, or CPFD to deny such Camp-On. Respond to PLEV prompt with a value between 1 and 7, to set the priority level for this set.

Prompt	Response	Description
...		
CLS	(CPFA) CPTD	Forced Camp-On from another set (allowed) denied.
PLEV	0-(2)-7	Priority Level, prompted with Priority Override/Forced Camp-On (POVR) package 186. 2 = set can override sets of level 1 and 2, and can be overridden by sets of level 2-7.

LD 11 – Respond to the KEY prompt with a key number, followed by EOVR, to define an Enhanced Override key for each Meridian 1 proprietary telephone.

Prompt	Response	Description
...		
KEY	xx EVOR	Key number; Enhanced Override.

LD 14 – Trunks to be involved in such Camp-On override calls must have Warning Tone Allowed (WTA) Class of Service allowed

Prompt	Response	Description
...		
CLS	(WTA) WTD	Warning Tone (allowed) denied.

LD 15 – To select either automatic or manual forced Camp-On for a customer, respond to the AFCO prompt with either YES (automatic) or NO (manual).

Prompt	Response	Description
...		
AFCO	(NO) YES	(Manual) Automatic Forced Camp-On, prompted with Priority Override/Forced Camp-On (POVR) package 186.

LD 16 – At the PLEV prompt, specify priority levels for trunk routes.

Prompt	Response	Description
...		
PLEV	0-(2)-7	Priority Level, prompted with Priority Override/Forced Camp-On (POVR) package 186. 2 = set can override sets of level 1 and 2, and can be overridden by sets of level 2-7

LD 57 – The Enhanced Override flexible feature code must be defined by responding to the EOVR prompt with an appropriate FFC digit sequence to be assigned that function.

Prompt	Response	Description
...		
- EOVR	xxxx	Enhanced Override (manual Forced Camp-On followed by Priority Override).

Feature operation

Forced Camp-On is activated automatically (if Automatic Forced Camp-On is defined), or it can be activated manually using the Enhanced Override (EOVR) key on Meridian 1 proprietary telephones or the Enhanced Override Flexible Feature Code on analog (500/2500 type) telephones. If the EOVR key is pressed again or the Enhanced Override Flexible Feature Code dialed again, Priority Override is activated.

If Forced Camp-On is not equipped, the first depression of the EOVR key, or the first dialing of the Enhanced Override Flexible Feature Code activates Priority Override.

To activate Priority Override, the user of an analog (500/2500 type) telephone dials the Override Flexible Feature Code, while the user of a Meridian 1 proprietary telephone presses the Override key (OVR). Priority Override can also be activated using the Enhanced Override Flexible Feature Code or the Enhanced Override key (EOVR), as described previously.

Forward No Answer Call Waiting Direct Inward Dialing

Contents

The following are the topics in this section:

Feature description

The Forward No Answer Call Waiting Direct Inward Dialing (FCWD) feature allows a Direct Inward Dialing (DID) call that encounters a busy set with Call Waiting Allowed to be routed to an attendant (or recalled to the night DN during Night Service), if it is not answered within a customer-defined period (between 2-126 seconds). If Return to Same Attendant is equipped, the call is routed to the first available attendant.

Operating parameters

There are no operating parameters associated with this feature.

Feature interactions

Call Waiting Redirection

With the Call Waiting Redirection feature also enabled, the Call Waiting Redirection feature takes precedence over the FCWD feature. The existing CFNA also takes precedence over the existing Attendant Recall of Call Waiting calls. Since the Call Waiting Redirection feature applies CFNA treatment to a Call Waiting call while the FCWD feature applies an attendant recall timer, the Call Waiting Redirection feature also has precedence over the FCWD timer.

Feature packaging

This feature is packaged under French Type Approval (FRTA), package 197.

Feature implementation

Task summary list

The following task is required:

LD 15 – Respond to FCWD prompt with an even-numbered value between 0 and 126 seconds.

LD 15 – Respond to FCWD prompt with an even-numbered value between 0 and 126 seconds.

Prompt	Response	Description
REQ:	NEW CHG	Add, or change.
TYPE:	CDB RDR	Customer Data Block. Call Redirection.
...		
- FCWD	(0)-126	Number of seconds a DID call should wait on a set before being forwarded to the attendant, prompted with French Type Approval (FRTA) package 197. If (0) is chosen, the call is not forwarded to an attendant. Valid entries are even numbers between 1 and 126; odd numbers are rounded down.

Feature operation

No specific operating procedures are required to use this feature.

Generic XFCOT Software Support

Contents

The following are the topics in this section:

Feature description

The Generic XFCOT is a circuit card developed to meet the North American Transmission Plan, with the following functionalities:

- tone supervision
- battery supervision
- Periodic Pulse Metering (PPM)
- loopstart signaling

This feature provides the choice of Dynamic Pad Switching in the North American Environment for Central Office trunks (LD 97), enhances the trunk-to-trunk connection, and improves the use of disconnect supervision in features like ACD, Meridian Mail, DISA, Call Park, and Camp-On.

With this feature, a disconnect-supervised loopstart Central Office trunk follows normal XFCOT rules for trunk-to-trunk connection and disconnection.

Functionality is provided on the following IPE circuit cards:

- NTCK16AD for PPM/BAT/BTS
- NTCK16BD for BAT/BTS

Operating parameters

There are no operating parameters associated with this feature.

Feature interactions

Automatic Call Distribution

This feature is used when a large number of incoming calls are to be answered by a designated group of telephone sets. Calls that cannot be answered immediately are put in an Automatic Call Distribution (ACD) queue.

ACD is allowed on disconnect supervised or unsupervised loopstart trunks. If a caller on an unsupervised loopstart trunk disconnects while the call is in an ACD queue, it is detected when the call is answered by an ACD agent.

With this development, caller disconnection is detected by disconnect-supervised loopstart trunk on an XFCOT card and disconnected callers are then dropped from the ACD queue.

Other ACD operations that require a disconnect-supervised COT such as INTERFLOW, NCFW and NITE RAN are now allowed on a disconnect-supervised loopstart trunk on an XFCOT card.

Call Park

Call Park feature allows an attendant or telephone user to place a call in parked state (connected to a parked DN) where it can be retrieved by any attendant console or station set. If the call is not retrieved after a customer-defined time, the call is recalled to the telephone user who parked it.

Call Park is allowed on disconnect-supervised or unsupervised IPE loopstart Central Office trunks. If a caller on an unsupervised loopstart trunk disconnects while the call is in parked state is detected when the parked call is recalled or answered.

Caller disconnection during park state is detected by a disconnect supervised loopstart trunk on an XFCOT card. The disconnected caller is then dropped from the parked DN.

Camp-On

The Camp-On feature allows an attendant to route one additional call to a busy DN so it can be rung when it becomes free. If the busy DN is not free after a customer-defined time, the call is recalled to the attendant.

A call from a loopstart disconnect supervised or unsupervised loopstart trunk can be camped on. If a caller on an unsupervised loopstart trunk disconnects while the call is camped on, it is detected when the call is recalled or answered.

Caller disconnection during Camp-On operation is detected by a disconnect-supervised loopstart trunk on an XFCOT card and the camped on call is dropped.

Digital Trunk Interface (DTI) Pad Switching

The DTI pad process intervenes when a DTI port is involved in a connection. It is independent from the normal pad and it handles the DTI port side and the other port side.

This process is changed to handle XFCOT units when the North American Transmission Plan is selected as XUT units.

Direct Inward System Access

This feature allows selected external users to access the Meridian 1 switch by dialing a special directory number, and to use some features of the system as an internal station.

A Direct Inward System Access (DISA) call is allowed on a disconnect supervised or unsupervised loopstart trunk. If a caller on an unsupervised loopstart trunk disconnects during a DISA operation, it is detected by a dial time out or when the call is answered.

Caller disconnection during a DISA operation is detected by a disconnect-supervised loopstart trunk on an XFCOT card and the operation can then be ended.

European XFCOT Software Support

This feature supports international IPE trunks with new functionalities such as supervision on loopstart trunk, PPM, and static pad switching.

The Generic XFCOT Software Support is a product improvement of this feature regarding the pad switching, the trunk-to-trunk disconnection, and the use of disconnect supervision for loopstart trunk in some features.

Meridian Mail

The Meridian Mail feature allows a caller to leave a voice mail message for a person unable to be reached. Once the caller is connected to the voice mail- there is a maximum duration allowed for the message after which the call is disconnected.

Meridian Mail is allowed on disconnect supervised or unsupervised loopstart trunks. If a caller on an unsupervised loopstart trunk disconnects while accessing Meridian Mail, the call is disconnected when the connection-time to the mail box exceeds the maximum duration.

Caller disconnection is detected by the disconnect-supervised loopstart trunk on an XFCOT card and the caller is then dropped from the queue for messaging service or from the mail box.

Periodic Clearing

Periodic Clearing is the sending of a periodic signal from the Meridian 1 to a Central Office when an incoming call has been answered but is not in an established state (for instance, ringing, held, parked). The connection is disconnected if the originator goes on-hook.

The Periodic Clearing condition is timed by the disconnect timer (DCTI) to prevent this situation from lasting for an extended time. When the DCTI timer expires the trunk is disconnected.

The Disconnect Timer can be used without having the feature Periodic Clearing configured particularly when the Central Office trunk has no disconnect supervision. It can be disabled by setting the DCTI to 0 in LD 16.

A loopstart trunk can be marked as disconnect supervised. When it has a class of service providing disconnect supervision, in Periodic Clearing condition the trunk is disconnected when the calling station releases the call.

Feature packaging

This feature is packaged under the following packages:

- Meridian 1 XPE (XPE) package 203
- International Supplementary Features (SUPP) package 131
- M1 Enhanced Conference, TDS and MFS (XCT0) package 204
- M1 Superloop Administration (XCT1) package 205 (unrestricted when the XPE package is equipped)

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

1 LD 97 – Choose the North American Transmission Plan by answering YES to the NATP prompt

2 LD 14 – This prompt is used to define a disconnect supervised loopstart trunk on an XFCOT. The Periodic Pulse Metering parameters on a per country basis are defined in this overlay in response to the PPID prompt.

LD 97 – Choose the North American Transmission Plan by answering YES to the NATP prompt

Prompt	Response	Description
REQ	aaa	Request (CHG, END, PRT)
TYPE	LOSP	TYPE = LOSP (Loss Plan Tables)
NATP	YES	North American Transmission Plan for Generic XFCOT

LD 14 – This prompt is used to define a disconnect supervised loopstart trunk on an XFCOT. The Periodic Pulse Metering parameters on a per country basis are defined in this overlay in response to the PPID prompt.

Busy tone is provided by the PSTN when the far end releases from outgoing and incoming trunks. The tone supervised COT depends on the busy tone frequency and cadence characteristic of the particular country and is configured on a card basis by responding to the BTID prompt.

Prompt	Response	Description
REQ	NEW	New.
TYPE	COT	Central Office Trunk.
TN	ll ss cc uu	Terminal number of the unit; loop, shelf, card, and unit.
XTRK	XCOT	Type is IPE COT.
CDEN	(8D)	Card density is 8D.
SIGL	LOP	Loop start signaling.
PPID	xx	Where xx is one of the following: 0 – United Kingdom (50 Hz) 1 – France (12 Khz) 2 – France (50 Hz) 3 – Germany, Egypt, Turkey, Venezuela, Indonesia, Finland (16 Khz) 4 – Switzerland, Ireland, Portugal, Italy, Spain, Lebanon, Turkey (12 Khz) 5 – Denmark (12 Khz) 6 – Norway, Belgium (16 Khz) 7 – Holland (50 Hz) 8 – Australia (two different packs) (12Khz/50 Hz) 9-15 – Reserved for future use.

BTID	xx	Enter the country busy tone ID as follows: 0-2 – Reserved for future use 3 – Germany, Ireland 4 – Switzerland 5 – Denmark 6 – Norway, Kuwait, Chile, Venezuela, Indonesia, Thailand, Korea 7 – Holland 8 – Australia, Mexico 9 – Ireland 10 – Taiwan, Brazil, Tortola, Mexico 11 – Singapore 12 – Argentina, Italy 13 – Lebanon, Italy 14 – Turkey 15 – Reserved for future use.
SUPN	YES (NO)	Trunk Supervision required (not required)
STYP	BTS BAT	Busy tone supervision enabled Loop break supervision enabled
CLS	(LOL) SHL (DIP) DTN (P10) P20, P12	Attenuation pads in (out). Digitone signaling (digipulse). Make-break ration for pulse dialing speed.

Feature operation

There are no specific implementation procedures for this feature.

Group Call

Contents

The following are the topics in this section:

Reference list

The following are the references in this section:

- “Dial Access to Group Calls” on page 1229

Feature description

Group Call allows a user of a Meridian 1 proprietary telephone to place a call to up to ten Directory Numbers (DNs) simultaneously by activating a Group Call key. The called DNs must have been previously defined as members of a group.

Each customer within the Meridian 1 system can have up to 64 groups assigned. Each group has up to 20 group members. Any DN in the system can be assigned as a member of a group, and a DN can be a member of more than one group. For Option 11C, six members per group are allowed.

Each Multiple Appearance, MCR/MCN DN reduces the number of telephone sets that can be added to a Group Call. For example, if two telephones have the same MCR appearance of a DN, the number of telephones in the Group Call becomes 19. That is, each appearance of a DN counts as one member, up to a maximum of 20, of the Group Call.

> ***Note:*** Multiple Appearance, SCR/SCN DNs count as one member of a Group Call, irrespective of its number of DN appearances.

Groups are defined through Service Change in LD 18. When a group is defined, each member of the group is assigned a member number. If network or conference blocking is encountered, members are assigned priorities for connection to the Group Call in the order of their group member numbers (member 0 has the highest priority). It is recommended that group members be assigned from different network loops to minimize the possibility of network blocking.

The Group Call key is used to originate a Group Call to all members of the group to which the Group Call key is assigned. The Group Call key for a given group can appear on more than one telephone. More than one Group Call key can be assigned to a group, but only one Group Call key can be active for a given group at any time. A telephone with a Group Call key need not be equipped with a Directory Number (DN) that is defined as a group member.

Activation of a Group Call key originates a call to all assigned members of the group. When the first member of the group answers, ringback tone is removed and a speech path is set up between the member and the originator of the call. As subsequent members answer, they are added to the call. The lamp associated with the Group Call key at the originator's telephone flashes until all members of the group have answered the call.

If a Directory Number (DN) is actively engaged in a call and a Group Call is originated for that DN, either the Group Call is camped on or Call Waiting is activated for the DN and a special warning tone is provided. The special warning tone consists of three rapid bursts of tone followed by 10 seconds of silence, then an additional three rapid bursts of tone.

An active Group Call is under complete control of the originator of the call. If the originator goes on hook, the call is completely broken down. Members who are taking part in a Group Call can disconnect from the call at any time, but once disconnected, they cannot be reconnected.

Operating parameters

A Group Call can be originated only from a Meridian 1 proprietary telephone with a Group Call key.

Group Call does not support data calls.

With the Extended Conference TDS (XCT) card (NT8D17) audio interference can occur if many of the call participants are on “older-style” mechanical analog (500/2500-type) sets. This problem does not occur when participants are on Meridian Digital Telephones or “newer-style” electronic analog (500/2500-type) sets. Mechanical analog (500/2500-type) sets produce more audio noise and degrade the sound quality of the conference as the number of participants exceeds 12-15 members. As the number of participants drops below this threshold, the sound quality of the Group Call returns to normal.

The maximum number of members per group is 20.

For Option 11C, the maximum number of members per group is six.

The maximum number of groups per customer is 64.

Each group member DN must have a Warning Tone Allowed Class of Service.

Off-premise Extension (OPX) lines cannot be members of a group.

Calls to a DN that is active in a Conference call, or Group Call, are blocked.

Feature interactions

Automatic Line Selection

This feature is not selected for automatic Outgoing Line Selection or Non-Ringing Line Selection. It is selected for Incoming Ringing Line Selection.

Call Forward All Calls

A Group Call to a telephone with Call Forward active is forwarded one step only. The Call Forward number must be a valid DN.

Call Forward/Hunt Override Via Flexible Feature Code

It is not possible to use Call Forward/Hunt Override FFC as a Group Call DN.

Call Pickup

This feature can be used to answer a Group Call if it is activated by a valid telephone in the same Call Pickup group, or by using Directory Number (DN) Pickup or Group Pickup.

Call Pickup Network Wide

The Group Call feature does not allow a remote party in a Group Call list. Therefore, a Group Call cannot be picked up by a remote station. If during the network scanning a Group Call is found, it will be ignored and the network scanning will continue.

Call Transfer
Conference

Neither Call Transfer nor Conference can be initiated during a Group Call. If an analog (500/2500 type) telephone user flashes the switchhook during an established Group Call, the user is dropped from the call.

Directory Number Delayed Ringing

When a group call is made to an SCN/MCN key with Directory Number Delayed Ringing (DNDR) defined, audible notification will be given after the DNDR delay has expired.

Display of Calling Party Denied

The calling party's display shows the DN of the last set to connect into the Group Call regardless of the Class of Service. The called set displays the Group Number only.

Hold

Only the originator of a Group Call can put the Group Call on hold.

Hot Line

Hot Lines can be members of a Group Call. They cannot, however, have a Group Call key.

ISDN QSIG/EuroISDN Call Completion

Call Completion cannot be applied to a Group Call.

Make Set Busy
Individual Do Not Disturb

A Group Call to a telephone in Make Set Busy or Individual Do Not Disturb mode cannot be completed. The telephone will not be rung and is not counted as part of the Group Call (for instance, if all other members in the group have answered, the lamp next to the Group Call key on the originator's telephone lights steadily).

Network Intercom

When Directory Number Delayed Ringing (DNDR) is defined and an incoming call to set configured with Hot Type I or D Key and DNDR occurs, the set winks until the DNDR timer expires. After this timer expires, the set rings as normal.

Short Buzz for Digital Telephones

The special three-second buzz for Group Call is not affected by this feature.

Telephone features

The following features cannot be applied on a Group Call:

- Call Forward No Answer
- Call Forward Busy
- Call Forward/Hunt Override Via Flexible Feature Code
- Call Join
- Call Park
- Call Transfer
- Conference
- Hunting
- Privacy Release
- Ring Again

Feature packaging

This feature is packaged under Group Call (GRP), package 48 and has no feature package dependencies.

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

1 LD 18 – Add or change a Group Call list.

2 LD 11 – Add or change Group Call for Meridian 1 proprietary telephones.

3 LD 20 – Print Group Call data.

LD 18 – Add or change a Group Call list.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	GRP	Group Call data block.
CUST	0-99 0-31	Customer number, as defined in LD 15. For Option 11C.
GRNO	0-63	Number of the Group Call list.
STOR	xx yyy...y <CR>	Group member number (xx) and associated DN (yyy...y). End input of stored Group Call entries

LD 11 – Add or change Group Call for Meridian 1 proprietary telephones.

Prompt	Response	Description
REQ:	CHG	Change.
TYPE:	aaaa	Telephone type, where: aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, or 3000.

TN	l s c u c u	Terminal Number. For Option 11C.
KEY	xx GRC yy	Add a Group Call key, where: xx = key number, and yy = Group Call list number (0-63).

LD 20 – Print Group Call data.

Prompt	Response	Description
REQ	PRT	Print.
TYPE	GRP	Group Call data.
CUST	0-99 0-31	Customer number, as defined in LD 15. For Option 11C.
GRNO	0-63 <CR>	Number of the Group Call group. Print data for all Group Call groups.

Feature operation

To make a Group Call:

- Press **Group Call**. All group members are automatically called. The LCD indicator beside the Group Call key flashes until all members have answered. Then it lights steadily.

To make a Group Call using a Flexible Feature Code, see the feature module “Dial Access to Group Calls” on page 1229 of this document.

Group Hunt

Contents

The following are the topics in this section:

Feature description

Group Hunting is similar to the Hunting feature. If a call encounters a busy DN and a Group Hunting Pilot DN is specified, then the call is routed to the next idle DN in a prearranged group. However, unlike the existing Hunting feature, Group Hunting allows a customer to:

- configure all members of a hunt group in one block instead of in many different station data blocks

- prevent group hunt termination on any idle member via a Group Hunt Deactivate Flexible Feature Code (FFC) or via a GHD (Group Hunt Deactivate) key
- limit the hunting steps to the total number of DNs in the list
- initiate hunting by dialing or accessing a group hunt Pilot DN directly, and
- configure a DN to be a member of more than one hunt group.

Pilot DN

Pilot DNs are defined as PLDN Flexible Feature Codes (FFC) in LD 57.

Pilot DNs may be used in two ways:

1 If the USE prompt is set to GPHT, then the Pilot DN is defined to activate Group Hunting.

2 If the USE prompt is set to SCLC (Speed Call List Controller) or SCLU (Speed Call List User), then the Pilot DN is defined to access the Speed Call or System Speed Call lists that are associated with the Pilot DN.

Termination conditions

When a group hunt Pilot DN is dialed, Group Hunting searches the list associated with the Pilot DN, according to the hunt type specified, until one of the following conditions is met:

1 an idle DN is encountered

2 an Automatic Call Distribution (ACD) DN,
Integrated Voice Messaging Service (VMS) DN,
Message Center (MC) DN,
Listed Directory Number (LDN),
or attendant DN is encountered

3 a route access code is encountered

4 ESN access code is encountered

5 a group hunt Pilot DN is encountered, or

6 all DNs in the group have been hunted to, or
the maximum number of hunting groups has been reached.

If condition 1 or 2 is met, then incoming calls are completed to that DN. Due to the fact that all DNs listed in condition 2 are associated with a queue the following should be kept in mind when configuring group hunt lists:

- These DNs always appear idle to a hunt cycle, regardless of their actual status. The hunt always redirects to the indicated destination, and never comes back into the group hunt list, therefore these calls are never queued against the Pilot DN.
- It is recommended that if these DNs must be used in a group hunt list, only one such DN be used. This DN must always be the last entry in the list.
- Also, linear hunting must be used. In this configuration, any redirected call is subject to the call processing treatment of the destination.
- Listed DNs may be configured as a last entry in a hunt group list, if linear hunting is used. The redirected call is presented to the associated LDN Incoming Call Indicator (ICI) key on the Attendant Console. The call can be transferred back to the Hunt Group Pilot DN; once transferred, it cannot be recalled to the attendant.
- Attendant DNs may be configured as a last entry in a hunt group list, if linear hunting is used. The call can be transferred back to the Hunt Group Pilot DN; once transferred, it cannot be recalled to the attendant.
- Automatic Call Distribution (ACD) DNs can be configured as a last entry in a hunt group list, if linear hunting is used. The call can be transferred back to the Hunt Group Pilot DN. If the ACD queue has the Hunt Group Pilot DN defined as the night DN, the call is transferred back into the hunt group list.

If termination condition 3 or 4 is met, then call terminations depends upon either the access code or the number which followed. The following should be kept in mind when configuring a group hunt list:

- Only one access code should be used per group hunt list. The access code must always be the last entry in the list.
- Also, linear hunting must be used. In this configuration, any redirected call is subject to the call processing treatment of the destination.

- If an access code is used as a group hunt member it must be entered as "access code and complete destination number" to ensure proper routing to the destination, not just the access code alone.
- Trunk optimization does not apply.

If termination condition 5 is met, the search ends for the current list and begins for the list associated with the new Pilot DN. A Pilot DN may not be a member of its own Hunting Group.

If termination condition 6 is met, then incoming calls are placed in a queue on an order of arrival basis. They are then presented to the next DNs in the group as the members become available.

Direct Inward Dialing (DID) calls are placed in a Group Hunting queue only if the group is still in service. If the group is not in service (i.e., if all of its members have deactivated group hunting), DID calls are routed directly to the attendant.

Calls are removed from a Group Hunting queue when they are abandoned, when they are presented to an available member, or when they are attendant-extended calls and the slow answer recall timer has expired.

Ringback tone is heard by callers who are waiting in Group Hunting queues for service.

If the attempted DN for termination by Group Hunting is not a valid member or number, then an error message (ERR 8985) is printed, hunting is terminated, and the calls will be routed to overflow tone, or as specified by the intercept treatment.

Hunting Types

Two types of Group Hunting are provided; linear and round robin.

Only one hunting type is allowed per group hunt list.

Linear:

Hunting starts at the first DN in the list and ends when one of the conditions mentioned in “Termination conditions” on page 1596 is met.

Round Robin:

Hunting starts at the DN next in the list to the last DN that was hunted to. Hunting ends when one of the conditions mentioned in “Termination conditions” on page 1596 is met.

Group Hunt Lists

Group hunt lists are defined and modified via service change overlay (LD 18). The Pilot DN entered for each list must have been previously defined as a group hunt FFC in LD 57. When a group hunt list is defined, the members are assigned a member number as in configuring a Speed Call List. The maximum DN size of each member is 31 digits. The members in a list can be one of the following:

- single or multiple appearance DN
- ACD-DN, VMS-DN, MC-DN, LDN, attendant DN
- route access code, route access code + number
- ESN access code + number, etc.
- group hunt Pilot DN, and
- members of another group hunt list.

Note: A group hunt list can also be modified via a Speed Call or System Speed Call Controller key, via an analog (500/2500 type) telephone feature Speed Call Controller, or via Group Hunting Speed Call or System Speed Call Controller Flexible Feature Codes (FFC).

Queuing

If all members of a group hunt list are busy, calls are queued against the Pilot DN of that group hunt list. Ring back tone is provided. There are a number of options available to control the number of calls allowed to be queued against any given Pilot DN. These options are:

- Group Hunt Queuing Limitation allows the system administrator to select, via service change, the number of calls allowed to queue against the Pilot DN. The selection is made by responding to the MQUE (Maximum Queue) prompt in LD 57. The valid responses to this prompt are:
  - **0** — No calls allowed to queue.
  - **1** — One call allowed to queue.
  - **ALL** — No limit to the number of calls allowed to queue.
- Group Hunt Queuing enhancement, which limit the number of calls allowed in the queue to the number of members in the list requires that the French Type Approval package (197) be equipped.
- For systems equipped with the French Type Approval package (197) an additional response is allowed:
  - **ACTM** — The number of calls allowed to queue must be less than or equal to the number of active group hunt list members.

Group Hunting Activation and Deactivation

Group hunting deactivation allows an idle station to appear busy to a specific hunt group, or to all hunt groups. Therefore, the set is effectively removed from the group hunt list.

To deactivate a set from a specific hunt group, the station user dials the GHTD (Group Hunt Termination Denied) FFC followed by the group hunt Pilot DN associated with that group and then goes on-hook. Overflow tone is returned if the operation is not successful.

To deactivate a set from all hunt groups, the station user dials the GHTD FFC and then goes on-hook. For Meridian 1 proprietary telephone station users, this option can also be selected for the Primary Directory Number (PDN) on key 0 by depressing the GHD (Group Hunt Denied) key. The associated indicator turns on steadily if the operation is successful.

To activate Group Hunting again for a specific hunt group, the station user dials the GHTA (Group Hunt Termination Allowed) FFC followed by the group hunt Pilot DN associated with that group and then goes on-hook. Overflow tone is returned if the operation is not successful.

To activate Group Hunting again for all groups, the station user dials the GHTA FFC and then goes on-hook. A analog (500/2500 type) telephone station user can achieve the same result by activating the existing DEAF (Deactivation of Feature) FFC. And the same result can also be achieved for Meridian 1 proprietary telephone station users for the PDN by depressing the GHD key again. The associated indicator deactivates.

Sets may not be activated or deactivated over the network.

Access to group hunt lists

A group hunt list may be accessed by dialing the associated Pilot DN, through:

- manual dialing
- automatic dialing (such as Autodial, Hotline, Speed Call)
- redirection (such as Call Transfer, Call Forward, Hunt)
- ACD Night Service
- ACD interflow/overflow, and
- trunk access.

A Pilot DN can be accessed like any other DN in the network, so that any network user can access all group hunt lists defined for a network from anywhere in the network. This allows a centralized group hunt list to be set up for all network users.

However, group hunting is not possible across the network, since, as has been explained, calls encountering access code entries are always directed to the destination and never return to the hunt queue.

Operating parameters

The Group Hunting feature does not support data calls.

Hunting is limited to the following:

- the total number of DNs in the group
- a maximum of 30 hunting groups for each hunting sequence (for multi-group systems)
- a maximum of 18 hunting groups for each hunting sequence (for all other systems)

Hunting may be limited to the total number of DNs in the group, or to a maximum of 30 (for multi-group systems) or 18 (for all other systems) hunting groups per hunting sequence.

A maximum of 31 digits can be entered in each list entry.

A maximum of 96 entries can be placed in each list.

A specific station can be defined within a group, among different groups, or a combination thereof a maximum of 96 times.

A maximum of 8000 group hunt lists can be defined on a system (programmable via the existing MSCL prompt in LD 17 and reduced by the number of defined Speed Call and System Speed Call lists.)

For larger applications, the ACD package must be equipped to optimize call control and call distribution.

It is recommended that the Group Hunt feature be primarily used with set-associated DNs.

A group hunt pilot DN cannot be a member of its own list.

The round robin type of hunting should only be used if all entries in the group hunt list are the same type (e.g., are all set-associated DNs or system-associated DNs).

A Pilot DN may be accessed from a network TIE trunk. Also, members of the Group Hunt list may be located at remote nodes.

Feature interactions

Access Restrictions

If a routing-associated DN is programmed in a group hunt list, the access restrictions based on the Class of Service and/or TGAR of the calling station/ route apply.

Attendant Alternative Answering

A Pilot DN can be defined as an alternative DN. Calls forwarded to a Pilot DN as an alternative DN are directed to the next DN in the group.

Attendant Blocking of Directory Number

It is not possible to activate the Attendant Blocking of DN feature for a Pilot DN (PLDN). If an attempt is made to block a PLDN, the attempt will be canceled and overflow tone will be returned. If a DN that is a member in a Group Hunt (or Hunt) list is blocked by the Attendant Blocking of DN feature, the DN is considered to be busy.

Attendant Break-in and Toll Operator Break-in

Attendant Break-in and Toll Operator Break-in will not be supported when dialing a Pilot DN directly.

Attendant Busy Verify

An attendant is not allowed to busy-verify when dialing a Pilot DN directly.

Attendant Overflow Position

A PLDN cannot be configured as an Attendant Overflow DN (AODN).

Call Forward All Calls

When Group Hunting attempts to terminate on a DN which has CFW All Calls active, it will continue with the next DN in the group if the attempted DN is busy, or if the DN is idle and the response to the Call Forward Ignore (CFWI) prompt in LD 57 is “NO”. If the attempted DN is idle and the response to the CFWI prompt in LD 57 is “YES”, then Group Hunting will terminate and the stations associated with the DN will be rung.

Call Forward Busy

Group Hunting has priority over the Call Forward Busy feature.

If the DN attempted for termination has FBA (Forward Busy Allowed) Class of Service, and if it is busy, then Group Hunting continues with the next DN in the group.

Call Forward/Hunt Override Via Flexible Feature Code

Primary Line Directory Numbers (PLDNs) are not overridden by the Call Forward/Hunt Override Via FFC feature. Any attempt will be ignored and access denied treatment will result.

Call Forward No Answer

Call Forward No Answer (CFNA) can optionally be configured to use a Pilot DN. This option is available when the HUNT DN or the FDN is defined as a Pilot DN.

If an idle station attempted for termination has CFNA defined, then the station will be rung. If the station does not answer within the customer specified number of ring cycles, then group hunting will continue with the next DN in the group. The calling party will continue to hear ring back tone until one of the conditions mentioned in “Termination conditions” on page 1596 (the last condition is not applicable in this case) is met, or until they releases the call.

Call Forward No Answer, Second Level

Second Level Call Forward No Answer will not be applied to calls that are Group Hunting.

Call Forward No Answer by Call Type

CFNA by Call Type can optionally be configured on use a Pilot DN. This option is available when the EFD, or EHT DN is defined as a Pilot DN.

When Group Hunting terminates on an idle station with Call Forward No Answer by Call Type active, treatment will be the same as in the case of CFNA.

Call Forward No Answer, Second Level

Second Level CFNA will not be applied to calls with Group Hunting active.

Call Detail Recording on Redirected Incoming Calls

For the Call Detail Recording on Redirected Incoming Calls feature, in the case of Group Hunt, the Pilot DN is the one before the last set in the redirection chain.

Call Transfer

Any call may be transferred to a Group Hunt Pilot DN. If there are no idle sets available for the call transfer, the call is queued to the Pilot DN and the caller receives ring back tone. If the call cannot be queued because the queue threshold has been reached, the caller receives busy tone.

Call Waiting

Call Waiting to a Pilot DN will not be supported.

Camp-on

Camping an incoming call on to a Pilot DN is not be supported.

Digit Display and Name Display

Until a call is answered, the calling party will see the dialed DN. When the call is answered, the caller will see the dialed DN appended with the DN and name, if Calling Party Name Display (CPND) is equipped, of the called party. The terminating set will always see the originating DN appended by a Pilot DN.

Digital Private Network Signaling System (DPNSS1)/Digital Access Signaling System (DASS2) Uniform Dialing Plan (UDP) Interworking

Only basic DPNSS1 UDP calls are supported with Group Hunting. Interactions between DPNSS1 Supplementary Services and Group Hunting are not supported.

DPNSS1 Diversion

Only simple DPNSS1 calls support Group Hunting. All DPNSS1 supplementary services do not support Group Hunting.

Do Not Disturb

Do Not Disturb (DND) has priority over Group Hunting. Group Hunting will skip over sets with DND active.

Enhanced Night Service

If a Pilot DN is defined as one of the NITE DNs from the list associated with the Trunk Night Group, then incoming calls directed to the Pilot DN will be presented to the next idle DN in the hunt group.

Electronic Switched Network

Group Hunting can be applied to Network calls. An Electronic Switched Network (ESN) access code (trunk steering code), if encountered during Group Hunting, will terminate the hunting sequence.

Hunting

Group Hunting has priority over Hunting. If the DN attempted for termination by Group Hunting has HTA COS, and if it is busy, Group Hunting continues with the next DN in the group instead of following the DN's hunting configuration.

ISDN QSIG/EuroISDN Call Completion

Call Completion to Busy Subscriber cannot be applied to Pilot DN when no idle set is located during a Group Hunt call.

Last Number Redial
Stored Number Redial

A Pilot DN will be stored as a Last Number Redial (LNR) and Stored Number Redial (SNR) number when it is dialed directly.

Make Set Busy

Make Set Busy (MSB) has priority over Group Hunting. Group Hunting will skip over sets with MSB active.

Multiple Appearance Directory Number

While Multiple Appearance DNs (MADN) single call arrangements are treated the same as Single Appearance DNs (SADN), MADN multiple call arrangements must be avoided in a group hunt list.

With MADN multiple call arrangement, the idle or busy status of the MADN is determined by the terminal number (TN) data block of the prime appearance of the called DN. If there is more than one prime appearance of the called DN, the idle or busy status is then selected from the last TN in the DN block for the MADN (DNB prompt in LD 22). This means that there may be idle appearances of the MADN, while the hunt cycle regards them as busy and attempts to terminate on the next idle member of the group hunt list.

If a MADN multiple call arrangement must be used, a supervisor set must be assigned to the hunt group. This supervisor set must be given the one and only prime appearance of the MADN. Any other appearance must have the MADN programmed as a secondary DN (any DN key other than 0). In this way, the supervisor set controls the status of the MADN and thus the group hunt treatment. If the supervisor set is busy, the hunt does not terminate on the MADN.

Multi-Party Operations

As per the existing Multi-Party Operations (MPO) feature, recovery of misoperation of call transfer will not be applied to incoming calls which are transferred on ringing to a Pilot DN by transferring parties who are waiting in GPHT queues for service.

Night Answer by Time of Day

If a Pilot DN is defined as one of the NITE DNs in LD 15, then incoming calls directed to the Pilot DN will be presented to the next idle DN in the group. At the instant of changeover (change from one night DN to another), Group Hunting, if still active, will keep on hunting for the next idle DN in the group.

Night Service

If a Pilot DN is defined as a NITE DN or trunk NITE DN, then incoming calls directed to the NITE DN or trunk NITE DN will be presented to the next idle station in the hunt group.

On Hold on Loudspeaker

Group Hunt to a loudspeaker DN can be programmed, but will be ignored if configured as Make Set Busy (MSB) by call processing.

Override
Ring Again

Override and Ring Again will not be supported.

Recall to Same Attendant

Calls redirected from a group hunt list via the listed DN or flexible attendant DN, and transferred back to the Pilot DN, are recalled if the Slow Answer Recall Timer expires. However, in practical configurations, the hunt terminates on the entry with the listed DN or attendant DN before the Slow Answer Recall Timer expires; consequently, the call is not redirected to that DN and presented on the applicable ICI key on the console. Therefore, the call is never presented as a recall, so that Recall to the Same Attendant does not apply.

Recorded Announcement

Calls which are queued against the Group Hunt Pilot DN cannot receive Recorded Announcement.

Ring Again on No Answer

Ring Again on No Answer cannot be applied if the DN dialed was a Pilot DN.

Slow Answer Recall

Calls extended by the attendant to the Group Hunt Pilot DN are recalled to the same attendant, after the Slow Answer Recall timer expires. This only applies to a standalone configuration; Network Attendant Service (NAS) is not supported.

Tenant Service

If a Pilot DN is defined as a Tenant NITE DN, then incoming calls directed to the Pilot DN will be presented to the next idle DN in the hunt group.

Total Redirection Count

Group Hunt takes precedence over the Total Redirection Count feature, in that the TRCNT limit is not applied to a Group Hunt call.

Warning Tone

Warning Tone is not applied to queued calls, if the French Type Approval package (197) is not equipped. If the French Type Approval package (197) is equipped, a warning tone of Camp-on may be provided to the first active member of a group hunt list that has Warning Tone Allowed (WTA) Class of Service (COS). Any new call in the queue is announced to the next set in the hunt chain that has WTA COS.

16-Button Digitone/Multifrequency Operation

Group Hunt Pilot DN (GRHP) function will not be supported. Group Hunting and Speed Call DN Access can be accessed via the Autodial function.

Feature packaging

For markets other than France:

Group Hunt/DN Access to SCL (PLDN) package 120.

Dependencies:

- International Supplementary Features (SUPP) package 131
- Flexible Feature Codes (FFC) package 139, and
- System Speed Call (SSC) package 34.

For the French market only:

French Type Approval (FRTA) package 197; and Group Hunt/DN Access to SCL (PLDN) package 120.

Dependencies:

- International Supplementary Features (SUPP) package 131
- Flexible Feature Codes (FFC) package 139, and
- System Speed Call (SSC) package 34.

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

1 LD 10 – Allow a group hunt Pilot DN (PLDN) to be entered in response to the following prompts. The overlay is also modified to disallow the removal of a DN which is part of a group hunt list. This ensures that the DN is removed from all group hunt lists prior to being removed from a set.

2 LD 11 – Allow a new Group Hunting Denied (GHD) key to be assigned and to allow a group hunt PLDN to be entered in response to the following prompts. The overlay is also modified to disallow the removal of the last appearance of a Single Call Non-ringing (SCN), Single Call Ringing (SCR), Multiple Call Non-ringing (MCN), or Multiple Call Ringing (MCR) DN which is part of a group hunt list. This ensures that the DN is removed from all group hunt lists prior to being removed from a set.

3 LD 12 – Allow a group hunt PLDN to be entered in response to the following prompt.

4 LD 14 – Allow a group hunt PLDN to be entered in response to the following prompts.

5 LD 15 – Allow a group hunt Pilot DN (PLDN) to be entered in response to the following prompts.

6 LD 18 – Allow a the creation of group hunt lists. Response are required to the following prompts when a group hunt list is modified, created, or removed. This overlay disallows the removal of a group hunt list if it is still associated with a PLDN that exists in LD 57. This ensures that the PLDN is removed prior to removing the group hunt list.

7 LD 20 – This overlay is modified to support the following print sequence if the PLDN package is equipped:

8 LD 22 – Print “PLDN” when Group Hunt/DN Access to SCL (PLDN) package 120 is equipped and a package print is requested.

9 LD 57 – Define, change, or print data associated with FFC.

10 LD 57 – Configure Flexible Feature Codes data block for Group Hunt Termination.

LD 10 – Allow a group hunt Pilot DN (PLDN) to be entered in response to the following prompts. The overlay is also modified to disallow the removal of a DN which is part of a group hunt list. This ensures that the DN is removed from all group hunt lists prior to being removed from a set.

Prompt	Response	Description
REQ:	...	
...		
IAPG	...	
HUNT	x...x	Hunt DN may be defined as a PLDN.
...		
AACD	...	
FTR		Feature
	EFD x...x	External Call Forward No Answer DN may be defined as a PLDN.
	EHT x...x	External Hunt DN may be defined as a PLDN.
	FND x...x	Call Forward No Answer DN may be defined as a PLDN.

LD 11 – Allow a new Group Hunting Denied (GHD) key to be assigned and to allow a group hunt PLDN to be entered in response to the following prompts. The overlay is also modified to disallow the removal of the last appearance of a Single Call Non-ringing (SCN), Single Call Ringing (SCR), Multiple Call Non-ringing (MCN), or Multiple Call Ringing (MCR) DN which is part of a group hunt list. This ensures that the DN is removed from all group hunt lists prior to being removed from a set.

Prompt	Response	Description
REQ:	...	
...		
AOM	...	
FDN	x...x	Call Forward No Answer DN may be defined as a PLDN.
...		
ICT	...	
EFD	x...x	External Call Forward No Answer DN may be defined as a PLDN.
HUNT	x...x	Hunt DN may be defined as a PLDN.
EHT	x...x	External Hunt DN may be defined as a PLDN.
...		
LANG	...	
KEY		Telephone key assignments.
	xx CFW yy z...z	Key number (xx), Call Forward function (CFW), length (yy), Call Forward target DN (z...z) may be defined as a PLDN.
	xx GHD	Key number (xx), Group Hunting Denied function (GHD). The GHD key is added to allow a station user to toggle the Primary (key 0) Directory Number (PDN) in and out of all groups of which that PDN is a member.

LD 12 – Allow a group hunt PLDN to be entered in response to the following prompt.

Prompt	Response	Description
REQ	...	
...		
ICP	...	
AADN	x...x	Alternate Answering DN may be defined as a PLDN.

LD 14 – Allow a group hunt PLDN to be entered in response to the following prompts.

Prompt	Response	Description
REQ	...	
...		
NGRP	...	
NITE	x...x	Night service DN may be defined as a PLDN.
ATDN	x...x	Auto-terminate DN may be defined as a PLDN.
MNDN	x...x	Manual DN may be defined as a PLDN.

LD 15 – Allow a group hunt Pilot DN (PLDN) to be entered in response to the following prompts.

Prompt	Response	Description
REQ:	NEW CHG	Add, or change.
TYPE:	CDB NIT	Customer Data Block. Night Service Options.
...		
NITE	x...x	Night service DN may be defined as a PLDN.
- NIT1	x...x	First Night service by time of day DN may be defined as a PLDN.
- TIM1	...	
- NIT2	x...x	Second Night service by time of day DN may be defined as a PLDN.
- TIM2	...	
- NIT3	x...x	Third Night service by time of day DN may be defined as a PLDN.
- TIM3	...	
- NIT4	x...x	Fourth Night service by time of day DN may be defined as a PLDN.
- TIM4	...	

LD 18 – Allow a the creation of group hunt lists. Response are required to the following prompts when a group hunt list is modified, created, or removed. This overlay disallows the removal of a group hunt list if it is still associated with a PLDN that exists in LD 57. This ensures that the PLDN is removed prior to removing the group hunt list.

Prompt	Response	Description
REQ	CHG MOV NEW OUT	Requested operation: Modify, move, create, or remove a data block.
TYPE	GHT	Type of data block: Group Hunt list.
LSNO	xxxx	List Number: enter Group Hunt list number where the range of is from 0 to the value enter in response to the MSCL prompt in LD 17 minus one (i.e., MSCL-1). The response to the MSCL prompt determines the maximum number of lists a system may have.
CUST	0-99 0-31	Customer to which this list belongs, as defined in LD 15. For Option 11C. Prompted when response to REQ is CHG and response to LSNO is a carriage return, or when response to REQ is NEW and response to LSNO is not a carriage return.
PLDN	x...x	Pilot DN: Prompted when response to LSNO is a carriage return.
DNSZ	4-(16)-31	Directory Number Size (maximum length of [number of digits in] DNs that will be stored in this list.): Enter value that is equal to or greater than the length of the longest entry expected. 16 is the default.
SIZE	 1-96 1-1000	Size of list (maximum number of entries allowed in list). Range is 1 to 96 entries if response to TYPE is GHT. Range is 1 to 1000 if response to TYPE is SCL or SSC.

WRT	(YES) NO	Write (write information to data store).
STOR	x...x y...y	Store: Enter entry (member) number (x...x) and Group Hunt target DN (y...y). x...x is any number in the range 0 to the value entered in response to the SIZE prompted minus one (i.e., 0-(SIZE-1)). y...y is the target DN, the length of which must be less than or equal to the value entered in response to the DNSZ prompt (i.e., length of y...y ≤ DNSZ).

LD 20 – This overlay is modified to support the following print sequence if the PLDN package is equipped:

Prompt	Response	Description
REQ	PRT	Requested operation: Print data block.
TYPE	GHT	Type of data block: Group Hunt list.
LSNO	x...x	List Number requested.

Output	Description
GHLN XXXX	Group Hunt List Number.
GHT	
PLDN X...X	Pilot DN for this list.
DNSZ XX	Maximum length of DN in list.
STOR 00 X...X	Entry stored as member 0.
STOR 01 X...X	Entry stored as member 1.
...	

LD 22 – Print “PLDN” when Group Hunt/DN Access to SCL (PLDN) package 120 is equipped and a package print is requested.

Prompt	Response	Description
REQ	PRT	Requested operation: print information.
TYPE	PKG	Type of information to print: equipped packages.

LD 57 – Define, change, or print data associated with FFC.

Prompt	Response	Description
REQ	CHG NEW	Request: Modify or create data block.
TYPE	FFC	Type: Flexible Feature Codes data block.
CUST	0-99 0-31	Customer number, as defined in LD 15. For Option 11C.
FFCT	<CR>	Flexible Feature Confirmation Tone.
CODE	PLDN	Code to be modified or created: Pilot DN.
PLDN	xxxx <CR>	Pilot DN: enter Pilot DN to be modified or created. Enter a carriage return to proceed to next prompt.
USE	 GPHT	USE: enter USE for Pilot DN Group Hunting.
LSNO	xxxx	List Number: enter group hunt list number. Group hunt list must exist in LD 18.
HTYP	(LIN) RRB	Hunting Type: enter either (Linear) or Round Robin as the type of hunting to be used for the group hunt list.
CFWI	(NO) YES	Call Forward All Calls Idle: enter NO if Group Hunting is to skip idle stations with Call Forward All Calls active, or enter YES if Group Hunting is to terminate on idle stations with Call Forward All Calls active.

MQUE		Maximum Queue (maximum number of calls allowed to queue against the Pilot DN.):
	0	Enter 0 to deny all calls from queuing
	1	Enter 1 to allow only one no call to queue
	(ALL)	Enter ALL, the default, to allow all calls to queue (i.e., there is no limit as to the number of calls allowed to queue), or
	ACTM	Enter ACTM to limit the number of calls allowed to queue to be less than or equal to the number of active members of the group hunt list. ***Note:*** The ACTM response is only accepted if the French Type Approval (FRTA) package (197) is equipped.

LD 57 – Configure Flexible Feature Codes data block for Group Hunt Termination.

Prompt	Response	Description
REQ	CHG NEW	Request: Modify or create data block.
TYPE	FFC	Type: Flexible Feature Codes data block.
CUST	0-99 0-31	Customer number, as defined in LD 15. For Option 11C.
FFCT	<CR>	Flexible Feature Confirmation Tone.
CODE	GHTA	Code to be modified or created: Group Hunt Termination Allowed.
GHTA	x...x	Enter code to be dialed to allow group hunt termination on a set.
CODE	GHTD	Code to be modified or created: Group Hunt Termination Denied.
GHTD	x...x	Enter code to be dialed to deny group hunt termination on a set.
...		

Feature operation

No specific operating procedures are required to use this feature.

Group Hunting Queuing Limitation

Contents

The following are the topics in this section:

Feature description

The Group Hunting Queuing Limitation feature restricts the maximum number of calls that can be queued against a Pilot Directory Number (DN).

The Group Hunting Queuing Limitation feature adds a prompt (MQUE - Maximum Queue) in LD 57 which allows a user to define a limit on the number of calls queued against a Pilot DN. The valid inputs are:

- 0 No calls can be queued.
- 1 One call can be queued.
- ALL All calls may be queued (default).
- <CR> Setting is left as is.

When the maximum is exceeded, the next call that attempts to queue will be given busy treatment.

The following are examples of the treatment calls receive with MQUE set to the various settings:

MQUE set to 0

1 Pilot DN Z can hunt two sets, A and B. Both of these sets are busy.

2 Set (or DID trunk) C dials Pilot DN Z.

3 If C is a set it receives busy tone and cannot be queued, but if it is a Direct Inward Dialing (DID) trunk it receives whatever busy treatment has been requested for that DID route.

MQUE set to 1

1 Pilot DN Z can hunt two sets, A and B. Both of these sets are busy.

2 Set C dials the Pilot DN Z. The call is queued.

3 Set D dials the Pilot DN Z. This call receives busy tone.

4 Set A goes on-hook first. The first call is presented to set A.

MQUE set to ALL

This option disables the Group Hunt Queuing Limitation enhancement. With ALL selected there is no limit as to the number of calls which can be queued against the Pilot DN.

Operating parameters

There are no operating parameters associated with this feature.

Feature interactions

Camp-on

No Camp-on tone is provided for Group Hunting.

Music

No music is provided for Group Hunting Queuing Limitation.

Feature packaging

This feature is packaged under the International Supplementary Features (SUPP) package 131; Group Hunt/DN Access to SCL (PLDN) package 120; and all PLDN package (120) dependencies.

Feature implementation

Task summary list

The following task is required:

LD 57 – The MQUE prompt accepts a limit for the number of calls allowed to be queued against a Pilot DN. When printing the Flexible Feature Codes (FFC) data block, the value against the MQUE prompt is displayed.

LD 57 – The MQUE prompt accepts a limit for the number of calls allowed to be queued against a Pilot DN. When printing the Flexible Feature Codes (FFC) data block, the value against the MQUE prompt is displayed.

Modify, create, or print Flexible Feature Codes data block as follows:

Prompt	Response	Description
REQ	CHG NEW PRT	Request: Modify, create, or print data block.
TYPE	FFC	Type of data block: Flexible Feature Codes.
CUST	0-99 0-31	Customer number, as defined in LD 15. For Option 11C.
...	xxxx	Automatic Call Distribution Directory Number.
CODE	PLDN	Code to modify, create: Pilot Directory Number.
- PLDN	XXXX	Enter PLDN to be modified or created.
- - USE	GPHT	Use of this PLDN, Group Hunt Pilot DN.
...		
- - CFWI	...	

- - MQUE		Maximum Queue – Maximum number of calls that may be queued against a Group Hunt Pilot DN.
	(ALL) 0 1 <cr>	All calls may be queued (default). No calls can be queued. One call may be queued. Use default setting if this is a new Pilot DN, leave existing setting as is if the Pilot DN is being modified.
...		

Printing the FFC data block will include the MQUE prompt and its response.

Feature operation

No specific operating procedures are required to use this feature.

Group Hunting Queuing Limitation Enhancement

Contents

The following are the topics in this section:

Feature description

This feature introduces a Group Hunt Threshold (GHTH) which limits the number of calls that can be linked in the Pilot DN (PLDN) waiting queue. The threshold is calculated dynamically and is set equal to the number of active members in the group hunt list. This limits the number of calls in the PLDN queue to one per active member of the group hunt list. The feature is activated via the MQUE prompt in LD 57. The MQUE prompt now accepts a response of ACTM (Active Members) to invoke the GHTH.

Along with the Group Hunt Threshold this feature introduces the use of Camp-on tone to indicate that there are queued calls.

Operating parameters

Although Automatic Call Distribution (ACD) DNs, Integrated Voice Messaging Service (VMS) DNs, Listed Directory Numbers (LDNs), Route access codes, Electronic Switched Network (ESN) access codes, and other Pilot DNs can be defined as a group hunt list member, it is recommended that they are not used due to the fact that these targets are considered as active when computing the threshold, regardless of their actual state.

Feature interactions

Call Forward by Call Type
Call Forward No Answer

An external call is made to the PLDN. An idle group hunt list member station is rung but does not answer. If the member station has Call Forward No Answer (FNA) or Call Forward by Call Type Allowed (CFTA) Class of Service, then the call is transferred to the attendant after the number of ring cycles defined for Call Forward No Answer has been reached. If the call is an internal call, then the system searches for another idle group hunt list member.

Call Transfer

If a call is transferred to the PLDN, and all Group Hunt list members are busy, the call is queued to the PLDN, if the number of queued calls is less than the Group Hunt Threshold limit. If the number of queued calls has reached the Group Hunt Threshold limit, the call is not queued and busy tone is returned to the transferring party.

Feature packaging

This feature is packaged under French Type Approval (FRTA) package 197; and Group Hunt/DN Access to SCL (PLDN) package 120.

Feature implementation

Task summary list

The following task is required:

LD 57 – For the Group Hunt Queuing Limitation Enhancement, responses to the following prompts are required:

LD 57 – For the Group Hunt Queuing Limitation Enhancement, responses to the following prompts are required:

Prompt	Response	Description
REQ	CHG NEW	Modify or create data block.
TYPE	FFC	Flexible Feature Codes data block.
CUST	0-99 0-31	Customer number, as defined in LD 15. For Option 11C.
FFCT	<CR>	Flexible Feature Confirmation Tone.
CODE	PLDN	Pilot DN.
PLDN	xxxx <CR>	Enter Pilot DN to be modified or created. Enter a carriage return to proceed to next prompt
USE	 GPHT	Enter use for Pilot DN. Group Hunting.
LSNO	xxxx	Enter group hunt list number. Group hunt list must exist in LD 18.
HTYP	(LIN) RRB	Enter either (Linear) or Round Robin as the type of hunting to be used for the group hunt list.
CFWI	(NO) YES	Call Forward All Calls Idle: enter NO if Group Hunting is to skip idle stations with Call Forward All Calls active, or enter YES if Group Hunting is to terminate on idle stations with Call Forward All Calls active.
MQUE	ACTM	Maximum Queue (maximum number of calls allowed to queue against the Pilot DN.): enter ACTM (Active Members) to limit the number of calls allowed to queue to be less than or equal to the number of active members of the group hunt list.

Feature operation

A group hunt list member is active if any call to the PLDN can terminate on the member set when it is idled. Conversely, a group hunt list member is not active if Group Hunt Termination Denied (GHTD) Flexible Feature Code (FFC) is dialed, and, or, Call Forward All Calls is active for the member and Call Forward Ignore (CFWI) in LD 57 is NO for the PLDN.

When the response to the MQUE prompt is ACTM and a call is routed to or dials a PLDN and it cannot terminate on an active member station, the call is linked to the PLDN queue (if the number of calls waiting in the PLDN queue is lower than the threshold limit). If the number of calls waiting in the PLDN queue reaches the threshold limit, calls are no longer linked to the PLDN queue. If the call is an internal call or attendant-extended call, busy tone is given to the originating party. If the originating call is a Direct Inward Dialing (DID) or Central Office (CO) trunk, it is routed to the attendant as a Call Forward Busy call. The Attendant Console display shows the PLDN (the attendant cannot Break-in or Busy Verify to a PDLN).

When a call is queued against a PLDN, Camp-on tone is given to the first member of the group hunt list having Warning Tone Allowed (WTA) Class of Service. If none of the members has WTA Class of Service, the Camp-on tone is not provided.

Handset Volume Reset

Contents

The following are the topics in this section:

Feature description

This feature is supported by the A44 chip in Meridian digital sets and causes a telephone's handset volume to be reset to a specified volume every time that the telephone user hangs up or uses handsfree. If the user wishes to adjust the volume, the user must manually do so for each call.

Operating parameters

There are no operating parameters associated with this feature.

Feature interactions

There are no feature interactions associated with this feature.

Feature packaging

This feature is included in base X11 system software.

Feature implementation

Task summary list

The following task is required:

LD 17 – Define the Handset Volume Reset setting.

LD 17 – Define the Handset Volume Reset setting.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	CFN ATRN	Configuration Record. Aries Transmission.
...		
ATRN	YES	Aries (Meridian Modular) transmission parameters. Only prompted if response to TYPE is CFN.
...		
- VOLR	(NO) YES	Volume Reset.

Feature operation

When a transmission download occurs, following a SYSLOAD or when the set line cord is plugged in, the option setting defined in LD 17 is included in the message. The message is interpreted by the set firmware and the appropriate setting is applied. A system initialization will not download this message.

Handsfree Transmission Parameter Download

Contents

The following are the topics in this section:

Feature description

This feature provides parameters to support the handsfree transmission parameter download on Meridian 1 proprietary telephones. These parameters are downloaded to each telephone upon system reload or set power-up, after the handset parameters.

Two prompts are defined in LD 17 allowing control of handsfree transmit and receive loudness ratings.

Operating parameters

There are no operating parameters associated with this feature.

Feature interactions

There are no feature interactions associated with this feature.

Feature packaging

This feature is included in base X11 system software.

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

1 LD 11 – Modify the system hardware and software parameters.

2 LD 17 – Create or modify the digital telephone data blocks.

3 LD 22 – Print Handsfree transmission parameter download settings.

LD 11 – Modify the system hardware and software parameters.

Prompt	Response	Description
...		
CLS	(HFD) HFA	Digital Telephone Handsfree (denied) allowed. Note: Not allowed on M2006, M2008, M2016S, or M2216 sets. M2016 must be defined as a 2616 with HFD Class of Service allowed for M2018 and M2616 sets. HFA is the default for M2317 and M3000 sets.

LD 17 – Create or modify the digital telephone data blocks.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	CFN ATRN	Configuration Record. Aries Transmission.
ATRN	YES	Meridian Modular telephone transmission parameters. Only prompted if response to TYPE is CFN.
- HRLR	(0)-8 32-40	Handsfree receive objective loudness rating.
- HTLR	(0)-11 32-54	Handsfree transmit objective loudness rating.

LD 22 – Print Handsfree transmission parameter download settings.

Prompt	Response	Description
REQ	PRT	Print.
TYPE	CFN ATRN	Configuration. Meridian Modular telephone transmission parameters. ***Note:*** When the Handsfree transmission download parameters are printed they are output as their dB value (i.e., an input of 0 in response to the HRLR prompt is printed as +42.00, while a response of 0 to the HTLR prompt is printed as -44.00).

Input value	HRLR (dB)	HTLR (dB)
0	+42.00	-44.00
1	+42.85	-43.50
2	+43.70	-43.50
3	+44.55	-43.00
4	+45.40	-42.50

Input value	HRLR (dB)	HTLR (dB)
21	N.A.	N.A.
22	N.A.	N.A.
23	N.A.	N.A.
24	N.A.	N.A.
25	N.A.	N.A.

Input value	HRLR (dB)	HTLR (dB)
5	+46.25	-42.00
6	+47.10	-42.00
7	+47.95	-41.50
8	+48.80	-41.00
9	N.A.	-40.50
10	N.A.	-40.50
11	N.A.	-40.00
12	N.A.	N.A.
13	N.A.	N.A.
14	N.A.	N.A.
15	N.A.	N.A.
16	N.A.	N.A.
17	N.A.	N.A.
18	N.A.	N.A.
19	N.A.	N.A.
20	N.A.	N.A.
42	N.A.	-48.00
43	N.A.	-48.00
44	N.A.	-48.50
45	N.A.	-49.00
46	N.A.	-49.50

Input value	HRLR (dB)	HTLR (dB)
26	N.A.	N.A.
27	N.A.	N.A.
28	N.A.	N.A.
29	N.A.	N.A.
30	N.A.	N.A.
31	N.A.	N.A.
32	+42.00	-44.00
33	+41.15	-44.50
34	+40.30	-45.00
35	+39.45	-45.00
36	+38.60	-45.50
37	+37.75	-46.00
38	+36.90	-46.50
39	+36.05	-46.50
40	+35.20	-47.00
41	N.A.	-47.50
53	N.A.	-52.00
54	N.A.	-52.50
55	N.A.	N.A.
56	N.A.	N.A.
57	N.A.	N.A.

Input value	HRLR (dB)	HTLR (dB)
47	N.A.	-49.50
48	N.A.	-50.00
49	N.A.	-50.50
50	N.A.	-51.00
51	N.A.	-51.00
52	N.A.	-51.50

Input value	HRLR (dB)	HTLR (dB)
58	N.A.	N.A.
59	N.A.	N.A.
60	N.A.	N.A.
61	N.A.	N.A.
62	N.A.	N.A.
63	N.A.	N.A.

Note: All values are Objective Loudness Ratings (OLR) measured without inserted loss or gain for trunk card interfaces and computed per IEEE methods. Receive ratings are at maximum volume. Transmit ratings are measured in an anechoic environment with less than 25 dBa room noise.

Feature operation

Whenever a download occurs, following SYSLOAD or when the telephone line cord is plugged in, the Relative Loudness Rating settings defined in LD 17 are included in the message. The message is interpreted by the telephone firmware and the appropriate settings are applied.

Held Call Clearing

Contents

The following are the topics in this section:

Feature description

The Held Call Clearing feature allows both the active call and the held call to be released when the user of a Meridian 1 proprietary telephone replaces the handset. Pressing the Release key only releases the active call.

For Single Appearance DNs, an on-hook action from a station clears the active call and all held calls belonging to that station. Pressing the Release key clears only the active call on the station. Activated feature keys, not involving an active or held call on the set, are not affected by the on-hook or Release key action. If an on-hook action occurs while a feature key is being activated, the Meridian 1 system follows the Release key functionality. In most cases, this causes the feature key to be idled.

Where several DNs appear on the same set, an on-hook or Release key action does not affect any unanswered incoming calls which are unanswered call waiting calls or are in a ringing state, whether or not the ringing tone is audible. Answered call waiting calls (those which are active or being held) are cleared by an on-hook action. A Release key action clears only active call-waiting calls.

For Multiple Appearance DNs, an on-hook action from a station having one appearance of a Multiple Appearance DN clears only the current active call and the held calls belonging to that station. Pressing the Release key clears only the active call on the station. Calls active or held on another appearance of the same DN, on a different set, are not affected.

For Data DNs, an on-hook or Release key action clears active data calls on a Data DN. A data call is considered active on a set when the “Data Shift” LED is lit. A call on a Data DN which is not the set's active call is not affected by an on-hook or Release key action. For data terminals, only active data calls are released by an on-hook or Release key action.

Operating parameters

The Held Call Clearing feature cannot be used on analog (500/2500 type) telephones.

Feature interactions

Call Park

A call put on hold during a Call Park is not cleared by an on-hook action on that set.

Call Transfer

Active Call Transfer calls are cleared by either an on-hook or Release key action. Held Call Transfer calls are cleared only by an on-hook action, and not by a Release key action.

Called Party Control on Internal Calls

With Called Party Control on Internal Call enabled, a call on hold is not cleared when the calling party releases. This occurs whether or not the Held Call Clearing feature has been activated.

Conference

Active Conference calls are cleared by an on-hook or Release key action. Conference calls being held are cleared by an on-hook action only, and not by a Release key action. In either case, all other parties on the conference remain connected.

Handsfree

For a set equipped with a Handsfree add-on unit, the on-hook action is suppressed if the Handsfree key is pressed simultaneous to the on-hook. In this case, all active and held calls on the set are not affected by the on-hook action. For a Meridian M1000 or digital telephone, an on-hook action does not affect an active call on the set. In all cases, a Release key action clears an active call, whether in handsfree mode or not.

Misoperation on Call Transfer

An on-hook action clears a call that is put on hold during Call Transfer. This action may lead to a misoperation if the user of the set from which the call is being transferred goes on-hook before a valid DN is dialed. In this case, the misoperation is handled in the same manner as for a 500-type set.

On Hold on Loudspeaker

Going on-hook when Held Call Clearing is activated will clear the loudspeaker as for a normal held call. Therefore, it is recommended not to use this feature with the On Hold on Loudspeaker feature.

Feature packaging

This feature is packaged under International Supplementary Features (SUPP), package 131.

Feature implementation

Task summary list

The following task is required:

LD 15 – Activate Held Call Clearing in response to the HCC prompt to implement this feature.

LD 15 – Activate Held Call Clearing in response to the HCC prompt to implement this feature.

Prompt	Response	Description
REQ:	NEW CHG	Add, or change.
TYPE:	CDB FTR	Customer Data Block. Gate opener.
...		
- HCC	(NO) YES XFER	Held Call Clearing is to be activated, (deactivated) or set to transfer the held call.

Feature operation

Place the handset of your Meridian 1 proprietary telephone on-hook to release both the active and held call.

Note: Pressing the **Rls** key only releases the active call.

History File

The History File provides the capability to allocate an area of protected data to store system messages until a printout is requested by a technician. The size of the History File is defined on a system basis and can be up to 65,534 characters. Since one word of protected data stores two History File characters, the size of the History File is up to 32,767 words of protected data.

For a complete description of the History File, please refer to *System Management Applications* (553-3001-301).

Hong Kong Digital Trunk Interface

Contents

The following are the topics in this section:

Feature description

This feature modifies the 1.5 Mbps Digital Trunk Interface (DTI) in order to allow the Meridian 1 to interface with the Hong Kong Telephone Company (HKT). The design modification alters the Dual-tone Multifrequency (DTMF) signaling protocol to conform with the HKT requirements. This DTMF design modification involves altering the AB bit protocol used in the DID/TIE convention, which is the convention used for the Meridian 1 to HKT connectivity. The AB bit values for the normal DID/TIE convention are reversed for the HKT interface. For example, if the normal convention for a DID/TIE going off-hook requires that AB bit values 0 and 0 be sent to the far end, the convention for HKT is that AB bit values 1 and 1 be sent.

This feature also meets the requirement of requiring the Meridian 1, after a trunk seizure, to wait 600 milliseconds before accepting the dialed digits from the far end. This 600 milliseconds dialing delay is provided by the Dial Delay Timer, whose maximum configurable delay has been extended to 1,023 milliseconds. The timer is set on a per-route basis.

Operating parameters

Hong Kong Digital Trunk Interface modification applies only to 1.5 Mbits DTI trunks.

Feature interactions

There are no feature interactions associated with this feature.

Feature packaging

This feature is packaged under 1.5 Mbps Digital Trunk Interface (DTI) package 75.

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

1 LD 14 – Respond to the CLS prompt by entering HKA to allow the Hong Kong feature modification.

2 LD 16 – Enter a dialing pause for the Dial Delay Timer at the Time prompt:

LD 14 – Respond to the CLS prompt by entering HKA to allow the Hong Kong feature modification.

Prompt	Response	Description
...		
CLS	(HKD) HKA	Hong Kong DTI (denied) allowed. May only be used with DTI TNs with DTN CLS on DID or TIE routes.

LD 16 – Enter a dialing pause for the Dial Delay Timer at the Time prompt:

Prompt	Response	Description
...		
- TIMR	DDL 0-(70)-511	Dial Delay Timer. A value of 0 disables the timer.

Feature operation

No specific operating procedures are required to use this feature.

Hot Line

Contents

The following are the topics in this section:

Feature description

Flexible Hot Line

Flexible Hot Line (HOT) allows designated analog (500/2500 type) telephones to place calls to a predetermined destination simply by lifting the handset. The destination may be internal or external to the Meridian 1, and the call does not require attendant intervention.

Flexible Hot Line (HOT) is provided to designated analog (500/2500 type) telephones on a Class of Service basis. A telephone is assigned the Hot Line feature through Service Change and a Manual Line (MNL) Class of Service. Address digits must be stored for the predetermined destination. If no digits are defined, the call will route to the Attendant Console.

When the user lifts the handset, no dial tone is returned. The Meridian 1 translates the stored digits and performs one of two operations:

- It rings an internal Directory Number (DN), then returns ringback tone.
- It translates to an external Trunk Access Code (TRC) and DN, then returns external call-progress tones or announcements.

Flashing the switchhook at any time during call setup or during the call will be ignored.

If the caller is a Hot Line, the prime Directory Number of the calling telephone is displayed on the terminating telephone, if equipped with a display.

Operating parameters

Flexible Hot Line applies to analog (500/2500 type) telephones only.

Feature interactions

Autodial

Flexible Hot Line and/or Enhanced Hot Line are mutually exclusive with the Autodial feature.

Calling Party Privacy

A Hot Line call will carry the Privacy Indicator if the Calling Party Privacy (CPP) code followed by the normal dialing sequence is stored in the Hot Line DN. The CPP will count against the maximum number of digits (currently 31) allowed for the Hot Line DN.

China – Flexible Feature Codes - Busy Number Redial

Enhanced Flexible Feature Codes - Busy Number Redial

Busy Number Redial cannot be used on Flexible Hot Line sets.

Conference

A Flexible Hot Line (non-enhanced) telephone cannot place conference calls, but an Enhanced Hot Line telephone can activate the conference feature. If the Hot Line restriction option is set, the conference call can terminate only to other Hot Line telephones. If the restriction option is not set, the conference call can terminate to any type of telephone

Enhanced Hotline

Flexible Hotline and Enhanced Hotline are mutually exclusive; a telephone cannot have both Manual Line (MNL) and Enhanced Hot Line Allowed (EHTA) Classes of Service.

EuroISDN Continuation

Flexible Hotline does not support EuroISDN Continuation.

Flexible Feature Code Boss Secretarial Filtering

Flexible Feature Code Boss Secretarial Filtering takes precedence over Private Line and Hot Line.

Hunting

Calls will hunt before being routed to the attendant. Any Hot Line telephone can be assigned Hunting (excluding Short Hunt) Class of Service, but it applies only to the two-way Hot Line capability

ISDN QSIG/EuroISDN Call Completion

Call Completion cannot be used in conjunction with the Hot Line feature.

Make Set Busy

Make Set Busy is overridden by the Hot Line feature. If a Meridian 1 proprietary telephone is in Make Set Busy mode, incoming Hot Line calls still terminate (ring) on the telephone.

No Hold Conference

The Conference-Hot Line key supports only one-way Hot Line calls.

On Hold on Loudspeaker

It is possible to program Hot Line with a loudspeaker DN, but operation will be the same as for direct dial to a loudspeaker DN.

Override

A Hot Line call can be entered using the Override feature.

Phantom Terminal Numbers

Hot Line does not support Phantom Terminal Numbers.

Private Line Service

A Hot Line key cannot be a Private Line, as this would defeat the benefits of Private Line service.

Room Status

The Room Status feature is incompatible with any telephone for which going off-hook activates Hot Line.

Speed Call, System

When the System Speed Call package is equipped, Hot Line lists have the characteristics and limitations of SSC lists. If the package is not equipped, Hot Line lists function like standard Speed Call lists.

User Selectable Call Redirection

An analog (500/2500 type) telephone with a Hot Line feature cannot use User Selectable Call Redirection, because it cannot access any features through SPRE or FFC.

Voice Call

The terminating DN of a Voice Call arrangement may be the incoming DN of a two-way Hot Line. When engineering call-modification paths (such as Hunting and Call Forward No Answer), the Hot Line Restriction option will cancel the normal call-modification operation for internal non-Hot Line calls.

Feature packaging

The Flexible Hot Line feature is contained in Enhanced Hot Line (HOT) package 70. There are no feature package dependencies.

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

1 LD 10 – Add or change Flexible Hot Line for analog (500/2500 type) telephones at the FTR prompt.

LD 10 – Add or change Flexible Hot Line for analog (500/2500 type) telephones at the FTR prompt.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	500	Telephone type.
TN	l s c u c u	Terminal Number. For Option 11C.
CLS	MNL	Manual signaling – requires transfer denied (XFD) Class of Service.
FTR	HOT D 1-31 xxx...x yyy...y	Add Flexible Hot Line. 1-31 = maximum digits for Hot Line DNs. xxx...x = Flexible Hot Line DN. yyy...y = Phantom DN for a two-way Hot Line.

Feature operation

To make a Flexible Hot Line Call, follow these steps:

1 Lift the handset. The Hot Line number is automatically dialed.

2 To end the call, hang up.

Enhanced Hot Line

Enhanced Hot Line (EHOT) provides Hot Line services to telephones with programmable keys. This feature is designed for, and is compatible with, analog (500/2500 type) telephones and Meridian 1 proprietary telephones. All capabilities from Flexible Hot Line (HOT) are provided to any key/lamp pair for one- and two-way Hot Lines on a per station basis. When the handset is lifted, or when a preprogrammed key is activated, the system speed calls a preprogrammed DN. Hot Lines access a set of terminal numbers programmed by direct entry using LD 11, or by list entry such as by System Speed Call (SSC) using LD 18. There is no difference in operation for the Hot Line user.

Once a Hot Line call enters the ringing state, it is the same as any normal call.

Enhanced Hot Line (EHOT) allows a distinction between analog (500/2500 type) telephone Hot Lines and manual Hot Lines without dial capabilities. For example, telephones with EHOT enabled and dial facilities support Dial Access features such as Call Transfer or Conference calling.

A Hot Line key can be defined with a Directory Number (DN) of its own, allowing other calls to terminate on that HOT key. The DN must be defined before it can be specified as the DN for a HOT key. For Meridian 1 proprietary telephones, the HOT key must be assigned to a DN during Service Change to create a two-way Hot Line. Analog (500/2500 type) telephones are always two-way Hot Lines, as they always have a DN assigned.

Operating parameters

Incoming calls to Hot Line telephones or keys can be restricted to calls originating from other Hot Line telephones or keys, Voice Call keys, and Group Call keys. This restriction is turned on or off on a per customer basis.

Telephones without a keypad or rotary dial cannot be assigned the Enhanced Hot Line Allowed (EHTA) Class of Service.

A maximum of 31 digits can be stored against a Hot Line telephone or key.

Only one Hot Line list is allowed per customer.

HOT cannot access a list created by the list-entry method for Enhanced Hot Line (EHOT).

A specific Hot Line key on a Meridian 1 proprietary telephone can have access to only one entry in the Hot Line list, but more than one telephone can have access to the same entry.

Analog (500/2500 type) telephones with Manual Line (MNL) Class of Service cannot be defined as Enhanced Hot Line Allowed (EHTA); Enhanced Hot Line Denied (EHTD) is the default. Users of these telephones must continue to use the HOT feature.

If a key is assigned as an EHOT Directory Number (DN), all appearances of that DN must also be EHOT keys.

Feature interactions

Attendant Administration

Use of an Attendant Console to change the database for EHOT is not supported.

Autodial

Flexible Hot Line and/or Enhanced Hot Line are mutually exclusive with the Autodial feature.

Automatic Answerback

The Automatic Answerback feature is fully compatible with a two-way Hot Line key assigned as the Prime DN.

Automatic Call Distribution

A Hot Line DN key can be assigned to an Automatic Call Distribution telephone.

Automatic Line Selection

Since the Hot Line key acts as a Single Call Ring (SCR) key, incoming ringing line preference can be applied. Outgoing line preference automatically selects a line other than the current Hot Line, so that a Hot Line call is not accidentally activated.

Automatic Redial

An Automatic Redial (ARDL) call can be activated from an Enhanced Hot Line key. However, the call is only redialed when the calling party's HOT key is free.

Call Forward Busy
Call Forward No Answer
Hunting

Any Hot Line telephone can be assigned Call Forward Busy, Call Forward No Answer and Hunting (excluding Short Hunt) Class of Service, but it applies only to the two-way Hot Line capability.

Call Park

Analog (500/2500 type) Hot Line telephones with EHTA and XFA Class of Service are allowed to park calls using the established Call Park procedures. Once a call is parked on an analog (500/2500 type) Hot Line telephone and the telephone is placed on hook, it cannot be unparked. Parked calls will recall to the parking telephone after the Call Park timeout. Two-way Meridian 1 proprietary telephone Hot Line stations that are equipped with a Call Park key/lamp pair are allowed to park calls in the normal fashion. As with analog (500/2500 type) telephones, a call parked from a Hot Line key cannot be picked up using the same key.

Call Pickup

Telephones with two-way Hot Line keys, and analog (500/2500 type) Hot Line telephones, can be assigned to pickup groups. Incoming Hot Line calls may be picked up by group members. To prevent someone from picking up a Hot Line call, do not put the Hot Line user into a Call Pickup group.

China – Flexible Feature Codes - Busy Number Redial

Busy Number Redial cannot be used on Enhanced Hot Line sets.

Controlled Class of Service

When a Hot Line DN is on a telephone that has Controlled Class of Service activated, Hot Line calls ignore the imposed Class of Service if the System Speed Call (SSC) package is present and the Hot Line list is given an adequate Network Class of Service (NCOS) for the override.

Dial Intercom

The analog (500/2500 type) Hot Line telephones cannot be members of Dial Intercom Groups (DIGs).

Digit Display

A Display key on a telephone with a Hot Line appearance will display the Hot Line target DN data stored for that key.

Display of Calling Party Denied

Display information on sets in a Hot Line call is based on the individual Class of Service of each set.

Enhanced Flexible Feature Codes - Busy Number Redial

The Busy Number Redial feature cannot be used on Enhanced Hotline sets.

Group Call

Hot Lines can be members of a Group Call. They cannot, however, have a Group Call key.

HOT

EHOT and HOT are mutually exclusive. A telephone cannot have both MNL and EHTA Classes of Service.

Internal Call Detail Recording

Hot Line stations can be assigned the appropriate Class of Service that allows Call Detail Recording records to be printed for calls originating on that telephone.

Make Set Busy

Make Set Busy is overridden by the Hot Line feature. If a Meridian 1 proprietary telephone is in Make Set Busy mode, incoming Hot Line calls still terminate (ring) on the telephone.

Override

A Hot Line call can be entered using the Override feature.

Permanent Hold

Analog (500/2500 type) telephones with EHTA cannot have Permanent Hold.

Prime Directory Number

If the Hot Line key is assigned to key 0 on a Meridian 1 proprietary telephone, it acts as the prime DN. When the user goes off-hook without selecting a DN key, the Hot Line is activated and the call is placed without further user action.

Private Line

A Hot Line key cannot be a Private Line, as this would defeat the benefits of Private Line service.

Room Status

The Room Status feature is incompatible with any telephone for which going off-hook activates Hot Line.

Speed Call, System

When the System Speed Call (SSC) package is equipped, Hot Line lists have the characteristics and limitations of SSC lists. If the package is not equipped, Hot Line lists function like standard Speed Call lists.

User Selectable Call Redirection

An analog (500/2500 type) telephone with a Hot Line feature cannot use User Selectable Call Redirection, because it cannot access any features through SPRE or FFC.

Voice Call

The terminating DN of a Voice Call arrangement may be the incoming DN of a two-way Hot Line.

When engineering call-modification paths (such as Hunting and Call Forward No Answer), the Hot Line Restriction option will cancel the normal call-modification operation for internal non-Hot Line calls.

Feature packaging

Enhanced Hot Line (HOT) package 70 requires:

- Network Class of Service (NCOS) package 32, and
- System Speed Call (SSC) package 34.

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

1 LD 17 – Assign the number of Speed Call lists, including Hot Line lists.

2 LD 15 – Add or change Enhanced Hot Line for a customer.

3 LD 18 – Use this prompt sequence to determine if there are enough memory and disk records for new Speed Call lists. Compare the output with the MEM AVAIL and DISK AVAIL values output before the REQ prompt.

4 LD 18 – Add or change a Hot Line Speed Call list.

5 LD 10 – Add Enhanced Hot Line for analog (500/2500 type) telephones.

6 LD 11 – Allow or deny Enhanced Hot Line for Meridian 1 proprietary telephones.

LD 17 – Assign the number of Speed Call lists, including Hot Line lists.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	CFN PARM	Configuration Record. System Parameters.
MSCL	0-8191	Maximum number of Speed Call lists.

LD 15 – Add or change Enhanced Hot Line for a customer.

Prompt	Response	Description
REQ:	CHG	Change.
TYPE:	CDB FTR	Customer Data Block. Features and Options.
CUST	0-99 0-31	Customer number. For Option 11C.
OPT	(HTU) HTR	Hot Line (unrestricted) or restricted. This program determines whether the call is going to a Hot Line DN or to any available DN. HTR restricts Hot Line calls to Hot Line DNs, but HTU does not.

LD 18 – Use this prompt sequence to determine if there are enough memory and disk records for new Speed Call lists. Compare the output with the MEM AVAIL and DISK AVAIL values output before the REQ prompt.

Prompt	Response	Description
REQ	COMP	Compute disk and memory.
TYPE	SCL	Speed Call lists.
NOLS	1-8191	Number of lists to be added.
DNSZ	4-16-31	Maximum length of DN allowed for Speed Call list.
SIZE	1-1000	Maximum number of DN entries in Speed Call list.

LD 18 – Add or change a Hot Line Speed Call list.

Prompt	Response	Description
REQ	NEW CHG OUT	Add, change, or remove a Speed Call list.
TYPE	HTL	Hot Line List.
CUST	0-99 0-31	Customer number, as defined in LD 15. For Option 11C.
LNSO	0-8190	Hot Line List number (only one Hot Line List per customer).
NCOS	0-99	NCOS to be assigned to calls accessing the list.
DNSZ	xx	Maximum number of digits in a list entry (4, 8, 12, 16, 20, 24, 28, or 31).
SIZE	1-1000	Maximum number of entries in the Speed Call list.
STOR	xxx yy...y	xxx = list entry number (0-9, 0-99, or 0-999). yy...y = digits to be stored against the entry (must be equal to or less than DNSZ).
- WRT	(YES) NO	Data (is) is not correct and list (can) cannot be updated. The WRT prompt follows SIZE and STOR prompts asking for confirmation of the data just entered. If data is correct, enter YES or <CR>. A response of NO to WRT after SIZE returns the REQ prompt. A response of NO to WRT after STOR causes the data just entered to be ignored and a restart message (SCH3213) to be generated. A response of **** aborts the program. The last STOR value is lost but all other values for which WRT was YES are saved. The following information is output with the WRT prompt: ADDS: MEM: xxxxx DISK: yy.y (xxxxx is the amount of protected memory; yy.y is the number of disk records required for the new speed call list. Check the MEM AVAIL and DISK REC AVAIL values output before the REQ prompt).

LD 10 – Add Enhanced Hot Line for analog (500/2500 type) telephones.

Prompt	Response	Description
REQ:	CHG	Change.
TYPE:	500	Telephone type.
TN	l s c u c u	Terminal Number. For Option 11C.
CLS	DTN DIP	Digitone or dial pulse service (manual service is not allowed).
	EHTA	Enhanced Hot Line allowed.
	(LDN) LNA	Last Number Redial (denied) allowed – optional.
	(XFD) XFA	Call Transfer (denied) allowed – optional.
	(CWD) CWA	Call Waiting (denied) allowed – optional.
	(XRD) XRA	Ring Again (denied) allowed – optional.
FTR	HOT D nn x...x	Direct Hot Line DN. nn = number of digits (1-31) for target DN x...x.
	HOT L 0-999	Hot Line List entry number defined in LD 18.

LD 11 – Allow or deny Enhanced Hot Line for Meridian 1 proprietary telephones.

Prompt	Response	Description
REQ:	CHG	Change.
TYPE:	aaaa	Telephone type, where: aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, 3000.

TN	l s c u c u	Terminal Number. For Option 11C.
KEY	nn HOT D cc x...x nn HOT L aaa nn HOT D cc x...x xxxx nn HOT L aaa xxx...x nn CH D cc x...x nn CH L aaa	One-way Hot Line key. One-way Hot Line List key. Two-way Hot Line key. Two-way Hot Line List key. Combined No Hold Conference and Direct Hot Line feature Combined No Hold Conference and Hot Line List feature nn = key number. cc = number of digits for target DN (1-31). x...x = target DN (up to 31 digits). aaa = Hot Line List entry defined in LD 18. xxx...x = DN for Hot Line key.

Feature operation

To make an EHOT call on an analog (500/2500 type) telephone:

- Lift the handset. The Hot Line number is automatically dialed.
- To transfer or conference an EHOT call on analog (500/2500 type) telephones:
- Flash the switchhook (or press **Link**) and dial the third-party extension.
- To make an EHOT call on a Meridian 1 proprietary telephone:
- Press **Hotline**.
- To answer an incoming Hot Line call on a Meridian 1 proprietary telephone:
- Press the flashing **Hotline** key.

To end an Enhanced Hot Line call:

- Hang up or press **Rls**.

Hunting

Contents

The following are the topics in this section:

Feature description

Hunting allows calls encountering a busy Directory Number (DN) to route automatically to another DN. Hunting continues along a predefined path, known as the hunt chain, until reaching an idle DN, the end of the hunt chain, or the maximum number of hunt steps. Hunting is specified on a DN basis. DNs in the hunt chain can be consecutive or nonconsecutive numbers.

The four types of hunt chains provided by the Meridian 1 are:

- Circular hunting
- Linear hunting
- Secretarial hunting
- Short hunting

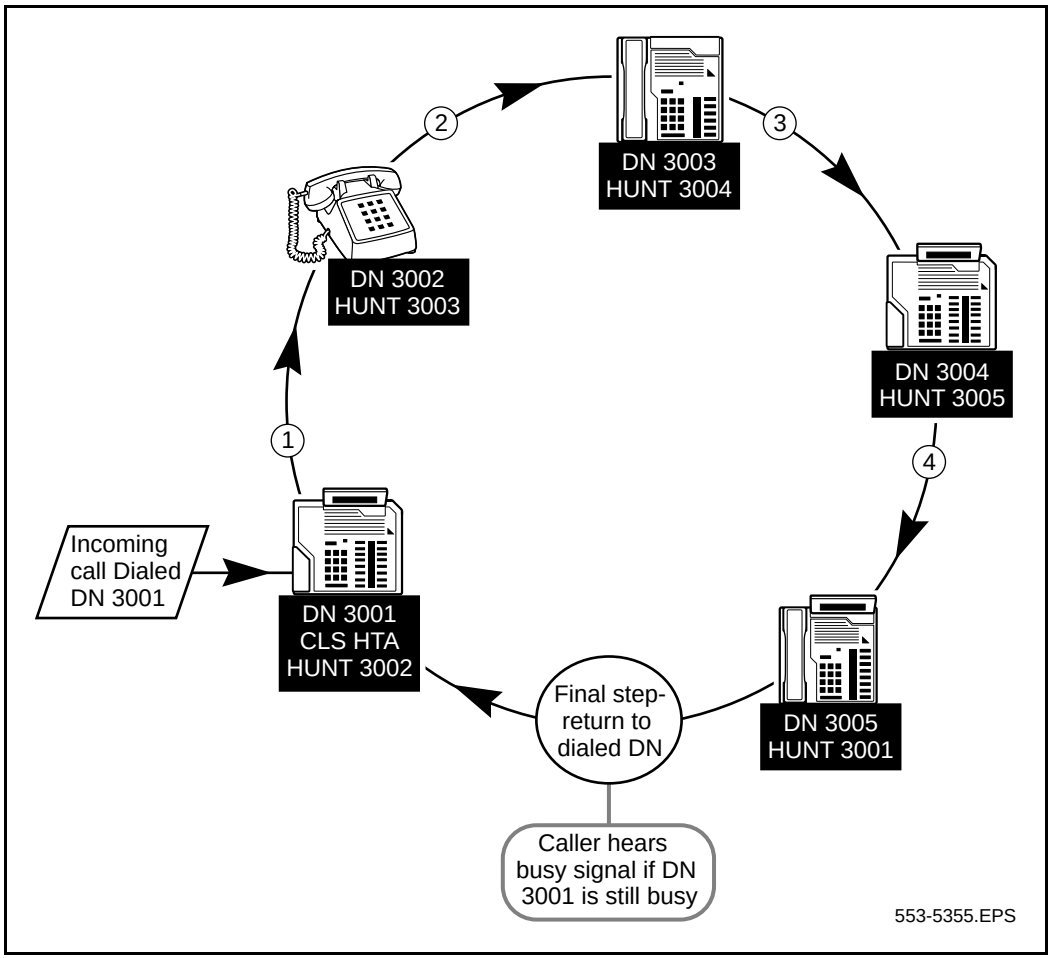
The following pages describe and illustrate each of these ways to hunt.

In addition, Data Port Hunting is described on page 1680, and Trunk Hunting is described on page 1685.

Circular Hunting

Circular Hunting begins at the dialed DN and travels through every DN in the hunt group. The chain can begin at any point in the circle. The call goes around the circle until answered, or until returned to the initial DN. If all the DNs in the chain are busy, the caller hears busy tone. Figure 46 shows an example of circular hunting.

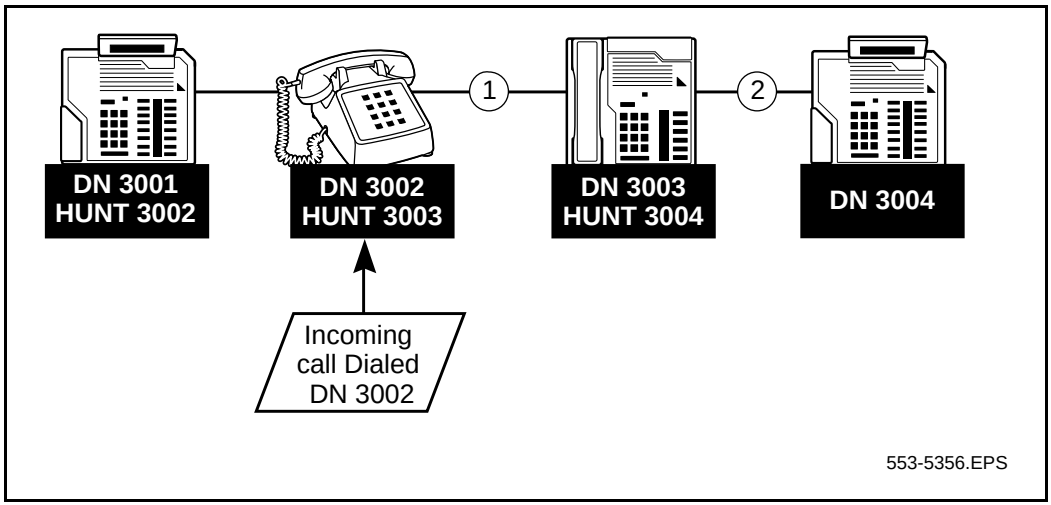
Figure 46
Example of Circular Hunting



Linear Hunting

Linear Hunting begins at the dialed DN. The call travels in one direction only when hunting along a linear chain. If a call comes into the second DN of a four-DN chain, it hunts to the third and fourth DNs only. If all the DNs are busy, the caller hears busy tone. Figure 47 shows an example of Linear Hunting.

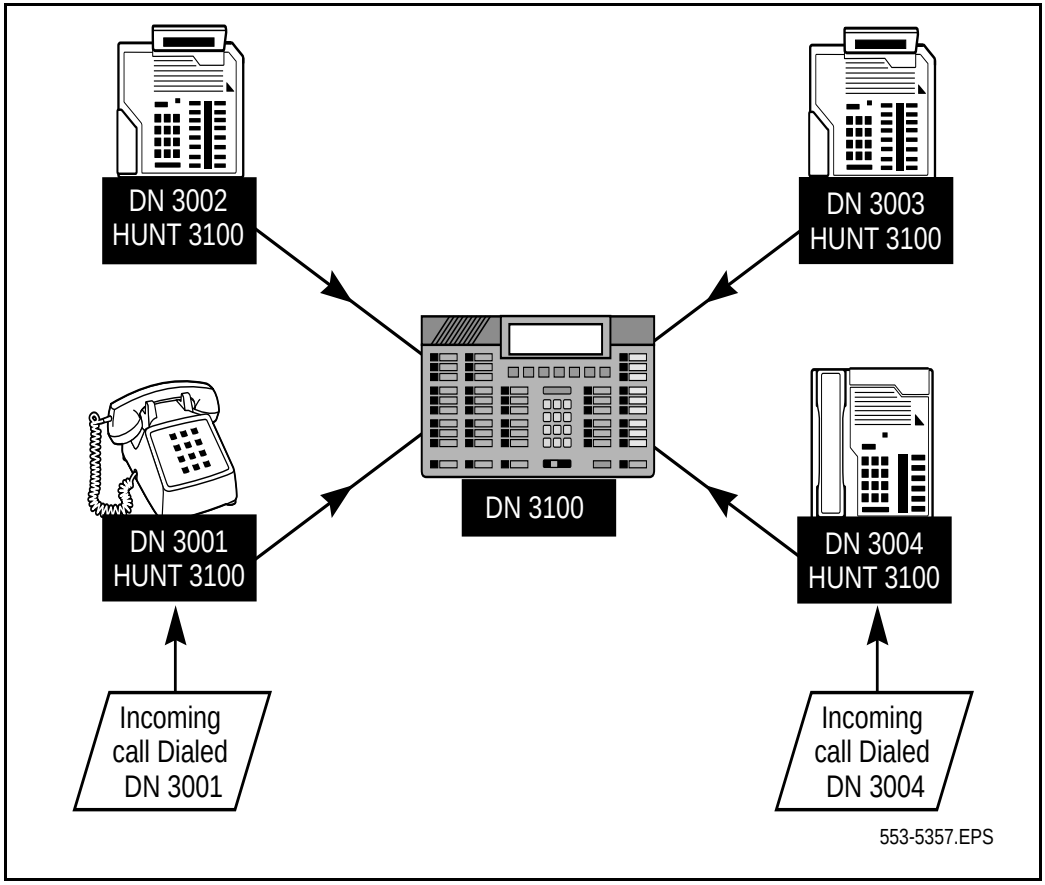
Figure 47
Example of Linear Hunting



Secretarial Hunting

Secretarial Hunting sends calls to a single Hunt DN, typically a secretary or Voice Mail. When a call comes in to a busy DN, it travels to the central location. Figure 48 shows an example of Secretarial Hunting.

Figure 48
Example of Secretarial Hunting



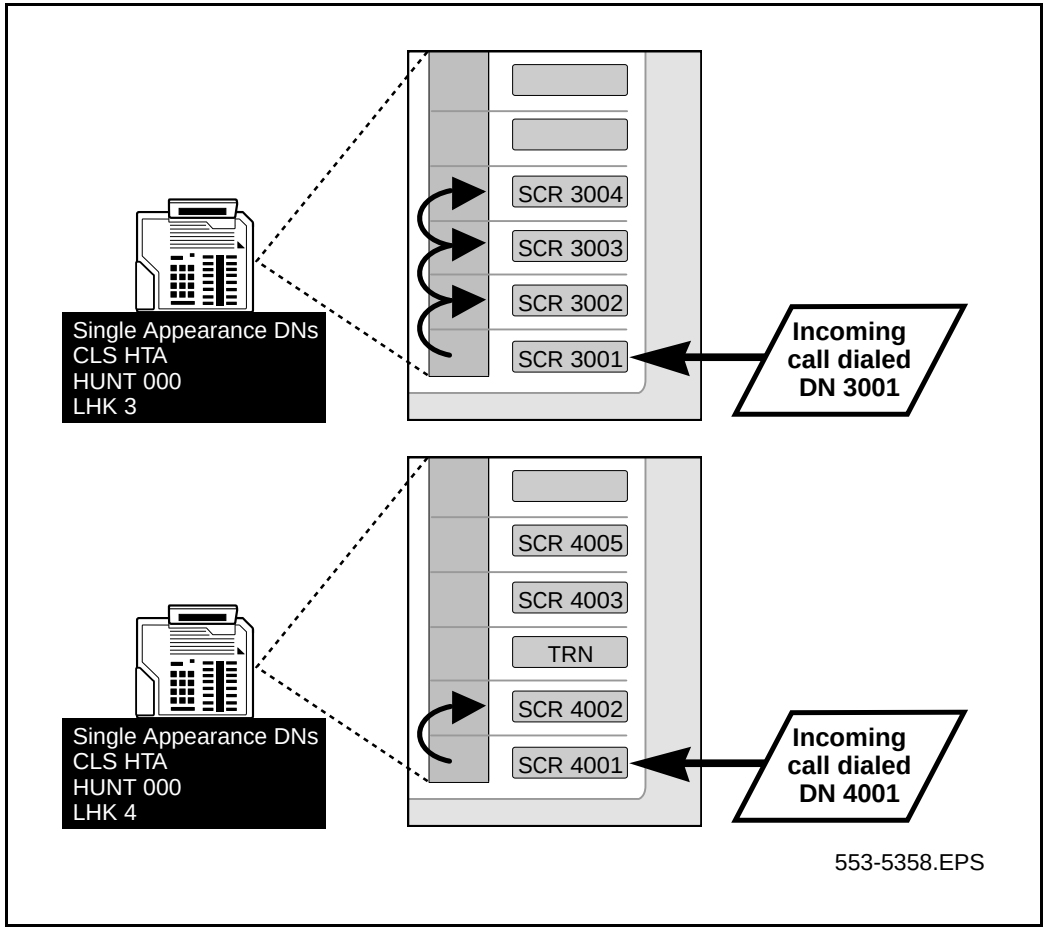
Short Hunting

Short Hunting takes place along the key strip of any Meridian 1 proprietary telephone. The hunt chain begins on a DN on the key strip. The call hunts up the keys until it reaches a feature key, an unassigned key, or the Last Hunt Key (LHK, defined in LD 11). If the call cannot reach an available DN, the caller hears busy tone. When a call hunts to a Multiple Appearance DN, all appearances with ringing are allowed.

For a TN with Hunting Control enabled, Short Hunt takes precedence over normal Hunting (Circular, Linear, or Secretarial). If the Hunting search selects a TN for a digital telephone, Short Hunt redirects the call before attempting to use the Hunt TN. The hunt chain might become Hunt DN A, Hunt DN B, Short Hunt Sequence C, Short Hunt Sequence D, or Hunt DN E.

Figure 49 shows an example of Short Hunting.

Figure 49
Example of Short Hunting



Operating parameters

There are no operating parameters associated with this feature

Feature interactions

Advice of Charge for EuroISDN

Calls charged with Advice of Charge that are either extended, transferred or redirected to another set via Hunting, are charged against the last station that answers the call and the controlling station releases.

Attendant Alternative Answering

Calls directed to a busy Attendant Alternative Answering (AAA) DN with Hunt defined are routed down the Hunt chain as defined for the AAA DN.

A Pilot DN for a hunting group can be defined as an AAA DN. Calls forwarded to a Pilot DN are directed to the next DN in the group.

Attendant Blocking of Directory Number

If Attendant Blocking of DN is attempted on a busy DN having the Hunting feature active, busy tone will be returned (overriding the Hunting feature).

Attendant Break-In

If the destination DN is in a Hunting chain with some idle DNs, the Break-In request goes to the first idle DN in the chain. To prevent this occurrence, the attendant can press the Break-In key prior to dialing the destination DN.

Attendant Busy Verify

Attendant Busy Verify does not affect Hunting.

Automatic Set Relocation

Calls will not hunt to a telephone that is being relocated

Call Detail Recording on Redirected Incoming Calls

The Call Detail Recording on Redirected Incoming Calls feature does not affect how the Hunting feature operates; however, it does provide information about the answering party in the CDR ID field if incoming calls have been redirected by any one of these features.

Call Forward All Calls
Call Forward, Internal Calls

Call Forward All Calls and Internal Call Forward takes precedence over Hunting.

Call Forward Busy

Hunting takes precedence over Call Forward Busy for Direct Inward Dialing (DID) calls. When the station receiving a DID call has both Call Forward Busy and Hunting Allowed (HTA) Class of Service, the call is routed along the hunt chain. If all stations in the hunt chain are busy, the call is forwarded to the attendant.

Call Forward/Hunt Override Via Flexible Feature Code

A hunt can be overridden by the Call Forward/Hunt Override Via Flexible Feature Code feature, through the use of a Flexible Feature Code.

Call Forward No Answer, Second Level

A forwarded call may be modified by Hunting if the Call Forward No Answer DN is busy. This call is eligible for Second Level Call Forward No Answer if the SFA Class of Service is allowed and a Call Forward No Answer DN has been defined for the last rung DN.

If Group Hunting is active, Second Level CFNA is not applied.

Call Page Network Wide

Call Page Network Wide (PAGENET) does not block a station set from being programmed to Hunting to an external Paging trunk. At call termination time, calls that are forwarded to an external PAGENET uncontrolled trunk are not blocked. However, calls forwarded to an external PAGENET controlled trunk are given access denied intercept treatment at the Paging node.

Call Redirection by Time of Day

When Call Redirection by Time of Day (CRTOD) is enabled and an incoming call reaches a busy Directory Number, the time is checked against the Alternate Redirection Time Option range defined on the telephone.

Call Waiting
Station-to-Station Call Waiting

If a call comes into a busy DN, it begins the hunting route defined from the called DN. If there are idle DNs on the hunting route, the call becomes a Call Waiting call on the called DN.

Hunting takes precedence over Call Waiting. If all steps in the hunt chain are busy, Call Waiting is activated.

Call Waiting Redirection

If Call Forward and Hunt by Call Type (CFCT) is enabled with Call Forward No Answer and Call Waiting Redirection, “no answer” internal calls receiving Call Waiting treatment are routed for CFNA treatment to the Flexible CFNA DN (FDN) or Hunt DN, and “no answer” external calls are routed for CFNA treatment to the External Flexible CFNA DN (EFD) or External Hunt DN (EHT).

Calling Party Privacy

When an incoming trunk call with the Privacy Indicator is forwarded, the Privacy Indicator will be tandemed to the far end to inhibit the display of the Calling Party Name or Number, provided that the tandem node also has Calling Party Privacy (CCP) provisioned.

If an incoming ISDN trunk call with the Privacy Indicator is forwarded, the Privacy Indicator will be tandemed to the far end to inhibit the display of the Calling Party Name or Number provided that the outgoing trunk route on the tandem node also has CCP provisioned.

If an incoming non-ISDN trunk call is forwarded to a trunk, the outgoing trunk call from the tandem node will carry the Privacy Indicator if the outgoing trunk route on the tandem node has the TCPP option set.

The CCP code can also be stored on the forwarding DN. If the CPP is requested on the forwarding DN, the Privacy Indicator will be outpulsed to the terminating node to inhibit the number of the forwarding set (i.e., at the tandem node) from being displayed on the terminating set. In this scenario, the forwarding station must include the CPP in the forwarding DN (such as *67 + ACOD + the DN on the terminating node).

The above scenario also applies to Network Hunt.

Camp-On
Camp-On, Station

Hunting takes precedence over Camp-On and Station Camp-On.

Capacity Expansion

If more than 16 appearances of the same Directory Number (DN) are configured, each hunt step is counted as two, to avoid running out of time slots.

China – Toll Call Loss Plan

Toll pad switching is also provided after call hunting has been completed. When the toll call is diverted, the diverted party's pad level is switched back to its original value (unless it is an OPS station using dynamic switching). The Toll Loss Plan is applied again for the new call as if it is a direct call. For Call Transfer, it is provided after the transferring party completes the transfer and drops out. For Call Forward or Hunting, it is provided when the forwarding or hunting call is answered.

Digital Private Signaling System #1 (DPNSS1) Executive Intrusion

If Executive Intrusion is attempted against an extension with a Hunt DN configured, an attempt will be made to reroute the call to the hunt DN provided the Hunt DN is on the same node. If the Hunt DN is busy, this rerouting process is repeated. If all DNs in the Hunt chain are busy, Executive Intrusion is attempted against the wanted extension originally dialed. Otherwise, the call will terminate as a simple call on the first idle extension in the Hunt chain.

Direct Inward Dialing Call Forward No Answer Timer

Hunting takes precedence over the Message Center feature.

Do Not Disturb

If activated, Hunting takes precedence over Do Not Disturb busy indication.

Flexible Feature Code Boss Secretarial Filtering

A boss set with filtering activated is passed over by Hunting; the next hunt sequence is to the secretary set.

Group Call

Dial Access to Group Calls

Hunting cannot be applied to a Group Call.

Group Hunt

Group Hunting has priority over Hunting. If the DN attempted for termination by Group Hunting has HTA COS, and if it is busy, Group Hunting continues with the next DN in the group instead of following the DN's hunting configuration.

Hot Line

Any Hot Line telephone can be assigned Hunting (excluding Short Hunt) Class of Service, but it applies only to the two-way Hot Line capability.

ICP Network Screen Activation, Flexible DN, Meridian Mail Interactions

When a call redirected by Call Forward All Calls, Call Forward No Answer, Call Forward Busy, or Hunt terminates on an Intercept Computer (ICP) position, a redirected message identification "50" is sent to the ICP computer, when the call is answered.

Idle Extension Notification

If the attendant dials a busy extension that has Hunting configured and where all the DNs in the hunt chain are busy, Idle Extension Notification may be requested towards the dialed extension.

ISDN QSIG Name Display

When an incoming QSIG call with name display presentation allowed is hunted locally, the calling party's name information is displayed on the destination set. With presentation restriction, the calling party's name information is not displayed.

Lockout, DID Second Degree Busy, and MFE Signaling Treatments

Multiple Appearance Directory Numbers

Hunting is controlled by the MADN Redirection Prime (MARP) Terminal Number (TN). If the MARP system option is disabled, Hunting proceeds as if MARP did not exist.

If all the telephones in the Multiple Appearance Directory Number (MADN) group are Meridian 1 proprietary telephones, ringing telephones are placed at the top of the DN list, and non-ringing telephones are placed at the bottom.

If a Multiple Appearance Directory Number appears in a group with several telephone types, the telephone type affects the position of the TN in the list. The analog (500/2500 type) telephones are listed at the top, and Meridian 1 proprietary telephones are listed in numerical TN order at the bottom of the list. A service change to an analog (500/2500 type) telephone moves its TN to the top of the list. A service change to a Meridian 1 proprietary telephone moves it to the bottom of the list. Call redirection follows the TN order from top to bottom.

The MARP TN is always checked to determine if and how the call is to be redirected by Hunting, regardless of where the MARP TN resides in the TN list of the DN block. No searching of the TN list of the DN block is needed. Hunting will follow the hunt chain based on the originally dialed DN. The actual functioning and requirements for Hunting are not changed by the MARP feature. The basic change introduced by the MARP feature is to always have a designated TN, the MARP TN, as the TN supplying the call redirection parameters.

If the MARP TN does not have Hunting control enabled, no Hunting is attempted. Other features for redirecting calls to busy DNs may be attempted based on the MARP TN.

A Short Hunting sequence begins when the MARP TN of a busy DN can perform Short Hunting. When a Short Hunt begins, it completes on that telephone before going to the Hunt DN. The precedence of Short Hunting over normal Hunting is maintained. Once a Short Hunting sequence is started on a digital TN, all the DNs in the Short Hunt sequence on that TN are attempted before redirecting the call to the TN’s Hunt DN. Thus, a Hunt Chain connects Short Hunting sequences through Hunt DNs only.

Multiple Appearance Directory Number Redirection Prime

The Multiple Appearance Directory Number Redirection Prime (MARP) TN always controls the call redirection for Hunting. Short Hunting takes precedence over Hunting and MARP. The MARP TN is referred to until Short Hunting is encountered. Short Hunting is in control until it expires. When short hunting expires, the MARP TN for the first DN in the Short Hunt sequence takes control.

Network Individual Do Not Disturb Recovery on Misoperation of Attendant Console

Hunting takes precedence over the Network Individual Do Not Disturb and the Misoperation feature.

On Hold on Loudspeaker

Hunting to a loudspeaker DN can be programmed, but will receive intercept treatment as for direct dial to the loudspeaker DN.

Recorded Announcement for Calls Diverted to External Trunks

Recorded Announcement for Calls Diverted to External Trunks (RANX) is activated if the call is forwarded to an outgoing external CO trunk with the RANX feature active.

Recovery on Misoperation of Attendant Console

Hunting takes precedence over the Misoperation feature.

Ring Again on No Answer

If Ring Again on No Answer has been applied to a station going through a Hunt sequence, Ring Again is applied to that station and not the ringing station.

Total Redirection Count

Hunt redirections is limited to the value defined in the Total Redirection Count limit (if greater than 0). If this limit is exceeded, intercept treatment is given.

User Selectable Call Redirection

User Selectable Call Redirection permits a user to alter the HUNT DNs or EHT from a telephone.

Feature packaging

This feature is included in base X11 System Software.

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

1 LD 10 – Add or change Hunting for analog (500/2500 type) telephones.

2 LD 11 – Add or change Hunting for Meridian 1 proprietary telephones.

LD 10 – Add or change Hunting for analog (500/2500 type) telephones.

Prompt	Response	Description
REQ:	CHG	Change.
TYPE:	500	Telephone type.
TN	l s c u c u	Terminal Number. For Option 11C.
HUNT	xxx...x	Hunt DN. xxx...x removes the DN from the hunt chain.
CLS	(HTD) HTA	(Deny) allow hunting.

LD 11 – Add or change Hunting for Meridian 1 proprietary telephones.

Prompt	Response	Description
REQ:	CHG	Change.
TYPE:	aaaa	Telephone type, where: aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, or 3000.
TN	l s c u c u	Terminal Number. For Option 11C.
HUNT	xxx...x 000	Hunt DN. xxxx...x removes the DN from the hunting chain. Allow Short Hunting only.
LHK	xx	Last Hunt Key (LHK) number (default is 0). LHK 0 deactivates Short Hunt.
CLS	(HTD) HTA	(Deny) allow hunting.

Data Port Hunting

Data Port Hunting improves the Hunting operation for data ports and modem pooling, and improves Ring Again operation for modem pooling.

Up to 255 data ports can be configured as trunks in data port trunk routes. In addition, the route can be programmed to step to another data port route if all members in the route are busy.

A data port serves as the interface between the Meridian 1 and a computer or other data communication device. A data port can be one of the following devices:

- Standalone Add-on Data Module (ADM) in auto-answer mode (no modem)
- Any modem that can recognize ringing and simulate off hook or on hook status
- Standalone ADM in auto-answer mode, connected to a modem

- Data Access Card (DAC), or
- Meridian Communications Adapter (MCA).

The following types of trunk routes are supported for data port hunting:

- ADM Trunk Routes: Add-on Data Module (ADM) data ports that interface through Data Line Cards
- Modem Trunk Routes: Modem data ports that interface through 500/2500 Line Cards
- RS-232 (R232): RS-232 data ports that interface through Data Access Cards (DACs)
- RS-422 (R422): RS-422 data ports that interface through Data Access Cards (DACs), and
- MCA: Meridian Communications Adapter (MCA) data ports that interface through Integrated Services Data Line Cards (ISDLCs) or Data Line Cards (DLCs).

Data ports act only as terminating parties. The user dials the access code of the trunk route to access the data ports.

Operating parameters

All data port trunks within a route must be of a single type. ADM and MDM data ports cannot be mixed in the same data port trunk route.

Only an attendant can extend incoming calls from stations or trunks (CO, FX, WATS, TIE, Direct Inward Dialing [DID], Common Controlled Switching Arrangement [CCSA]) to data port trunk routes. Calls cannot be extended, transferred, or conferenced from a station to a data port group.

In Night Service mode, any station can transfer incoming calls to data port routes.

Trunk access restrictions (TARG, TGAR) should be applied to data port trunk routes to prevent stations with co-located ADMs from directly accessing data ports with modems, and vice versa.

Class of Service restrictions do not apply to data port trunks.

Ring Again, Basic/Network Alternate Route Selection (BARS/NARS), and trunk access restrictions (TARG, TGAR) are the only features that may be applied on calls to data port routes.

Feature interactions

Conference

There are no feature interactions associated with this feature.

Ring Again

When a user activates Ring Again against the data port extension Access Code (ACOI), the Meridian 1 stores the request until a member in the data port route becomes idle. When an idle member is found, the calling party is notified and the member is reserved for eight seconds. If the calling party does not respond to the Ring Again notification within eight seconds, the reservation is dropped.

Feature packaging

This feature is included in base X11 System Software.

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

1 LD 16 – Add or change a data port trunk route.

2 LD 14 – Add or change a data port trunk.

LD 16 – Add or change a data port trunk route.

Prompt	Response	Description
REQ	NEW CHG	New, or change.
TYPE	RDB	Route Data Block.
CUST	0-99 0-31	Customer number, as defined in LD 15. For Option 11C.

ROUT	0-511 0-127	Trunk route number. For Option 11C.
TKTP	ADM MDM R232 R422 MMPM	Trunk route type.
STEP	0-511 0-31	Alternate trunk route number. For Option 11C.
TARG	0-31	Trunk Access Restriction Groups (TARGs).
- TOV		Data port time out.
	0-3	0 = No timeout. 1 = 15 minutes. 2 = 30 minutes. 3 = 60 minutes
- PSEL	(DMDM) TLNK	Protocol selection. T-Link or DM-DM protocol. Prompt offered to MCU (TKTP = MMPM).
- OPE	(NO) YES	(Do not) change data port operating parameters. Prompt offered to MCU (TKTP = MMPM).
- - PSDS	(NO) YES	(Do not) allow PSDS protocol. Prompt offered to MCU (TKTP = MMPM).
- - TRAN	(ASYN) SYN	Port transmission type; if PSDS = YES, then TRAN must be SYN. Prompt offered to MCU (TKTP = MMPM).
- - PAR		Parity type, where:
	(SPAC) EVEN ODD MARK	SPAC = space parity EVEN = even parity ODD = odd parity, and MARK = mark parity.
- - DTR	(OFF) ON	Forced DTR (if ON) or dynamic DTR (if OFF). Prompt offered to R232, and to MCU (TKTP = MMPM).
- - DUP	(FULL) HALF	Full duplex/half duplex. Prompt offered to MCU (TKTP = MMPM).
- - DCD	(ON) OFF	(ON) = dynamic CD. OFF = forced CD. Prompt offered to R232, and to MCU (TKTP = MMPM).

- - MOD	(NO) YES	Modem, (Network): when TRAN = SYN. Prompt offered to MCU (TKTP = MMPM).
- - INT	(OFF) ON	SL-1/100 Interworking. Prompt offered to MCU (TKTP = MMPM).
- - CLK	(OFF) ON	(OFF) = External Clock, ON = Internal, when TRAN = SYN. Prompt offered to MCU (TKTP = MMPM).
- - V25	(NO) YES	V.25 bis offered only when TRAN = SYN. Prompt offered to MCU (TKTP = MMPM).
- - HDLC	(NO) YES	High Level Data Link Control offered only when V25 = YES. Prompt offered to MCU (TKTP = MMPM).
- - DEM	(DCE) DTE	Data Equipment Mode. DCE or DTE mode. Prompt offered to R232.
- - PBDO	(OFF) ON	Port Busy upon DTR off. Presented when DCE, Dynamic DTR. Prompt offered to R232. ON = enabled. (OFF) = disabled.

LD 14 – Add or change a data port trunk.

Prompt	Response	Description
REQ	NEW CHG	New or change.
TYPE	ADM MDM R232 R422 MMPM	Trunk type.
TN	l s c u c u	Terminal number. For Option 11C.

Feature operation

To access a Data Unit (DU), the user dials the Access Code (ACOD) of the route data block. If a DU is available, a connection is made. If a DU is unavailable, the user receives this message on the terminal screen: “ALL PORTS ARE BUSY. ACTIVATE RING AGAIN?” Select Ring Again and wait until a DU port becomes available.

When a user dials a data port, the request is placed in the Ring Again queue until a port becomes idle. When an idle port is located, the calling party is notified and the port is reserved for eight seconds.

Data Port Verification (DVS)

Any applicable telephone with Data Port Verification Allowed (ADV) Class of Service can place a call to a specific Add-on Data Module (ADM) in a route by going off-hook, receiving dial tone, and dialing:

SPRE + 70 + ACOD + mmm

where:

SPRE	=	special prefix
70	=	special access code for the Data Port Verification (DVS) feature
ACOD	=	Access Code for the ADM trunk group, and
mmm	=	three-digit number that is to be seized within the trunk group.

The selected ADM trunk is seized if it is in not busy, maintenance busy, or disabled state. Once the call is established, it is treated as a normal ADM trunk call. If the selected trunk is in busy, maintenance busy, or disabled state, the call originator receives an overflow tone. No tone is returned when keyboard dialing is used.

Trunk Hunting

Trunk Hunting provides either Linear Hunting or Round Robin Trunk Hunting for outgoing trunks in a route.

When Linear Hunting is implemented, the system searches for an available trunk in descending order. A station originating an outgoing call is connected to the last available trunk (highest available trunk route member number) of the trunk route accessed. The last trunk route member is always the first choice for outgoing calls and the first trunk route member is always the last choice.

Round Robin Trunk Hunting

Outgoing calls are evenly distributed among the members of a trunk route. When a station originates an outgoing call, the system searches for an available trunk route member in descending order, starting with the next lower member number from the last trunk seized for an outgoing call on the trunk route. If a trunk with a lower member number is not available, the system searches for a trunk starting with the highest member number of the route.

Note for multiple group machines using Round Robin Trunk Hunting:

To minimize system resource usage, the Meridian 1 will attempt to hunt to an available trunk within the same group as the originating TN. For example, if a call is placed from a telephone whose TN is in group 1, the system will first attempt to locate an available trunk within group 1. If there are no available trunks in group 1, the system selects an available trunk from another group.

Each time hunting occurs, the round robin index value, which points to the next route member to be examined, is updated. Because the proximity of a trunk loop to the originating TN loop takes precedence over the order of the trunk route members, the system may be forced to hunt through many route members to locate an available trunk within a given group. This can cause the round robin index to change dramatically, yielding inconsistent trunk usage patterns.

If uniform trunk usage is a prime concern, configure route members with alternating groups. For example, if a given route contains trunk members from different groups, alternate the groups so that route member 1 is a trunk member from group 1, route member 2 is a trunk member from group 2, and so on. This configuration will produce more uniform trunk usage than would occur if trunks of the same group were bunched together within a route.

Operating parameters

The Public Exchange/Central Office (CO) governs incoming trunk hunting. The Meridian 1 has no control over the order of incoming trunks.

Feature interactions

There are no feature interactions associated with this feature.

Feature packaging

This feature is included in base X11 System Software.

Feature implementation

Task summary list

The following task is required:

LD 16 – Implement Linear or Round Robin Trunk Hunting for a trunk route.

LD 16 – Implement Linear or Round Robin Trunk Hunting for a trunk route.

Prompt	Response	Description
REQ	NEW CHG	New, or change.
TYPE	RDB	Route data block.
CUST	0-99 0-31	Customer number, as defined in LD 15. For Option 11C.
ROUT	0-511 0-127	Trunk route number. For Option 11C.
SRCH	(LIN) RRB	Linear or Round Robin Hunting.

Feature operation

No specific operating procedures are required to use this feature.

Hunting by Call Type

Contents

The following are the topics in this section:

Reference list

The following are the references in this section:

- “Hunting” on page 1665

Feature description

An additional Class of Service is provided for the Meridian 1 which will allow Direct Inward Dialing (DID) calls to hunt via the hunt chain when the dialed extension is busy, and the call's Classes of Service are Hunt by Call Type Deny (HTD) and Hunt by Call Type Allowed (HBTA).

The following rules apply to the call processing:

- If an extension is busy and its Class of Service is HTA, all types of calls to the extension will hunt via the hunt chain, regardless of HBTA/HBTD and FBA/FBD.

- If a busy extension's Class of Service includes HTD and HBTD, internal calls to the extension receive busy tone. Direct Inward Dialing (DID) calls to the extension which have Class of Service FBA are forwarded to the attendant. DID calls to the extension which have a Class of Service of FBD receive busy tone.
- If a busy extension's Class of Service include HTD and HBTA, internal calls to the extension receive busy tone. DID calls to the extension hunt via the hunt chain. If hunting fails, DID calls to the extension which have a Class of Service of FBA are forwarded to the attendant, and DID calls with a Class of Service of FBD receive busy tone.

Operating parameters

There are no operating parameters associated with this feature.

Feature interactions

Call Redirection by Time of Day

If Call Forward by Call Type (CFCT) is enabled with Call Forward No Answer (CFNA) and Call Redirection by Time of Day (CRTOD), unanswered internal calls receiving CFNA are routed to the Flexible CFNA DN, Hunt DN, Alternate Flexible CFNA DN or Alternate Hunt DNs. External calls are routed in the same manner.

If CFNA is enabled with Hunting by Call Type and Call Redirection by Time of Day (CRTOD), unanswered internal calls are redirected to the Hunt DN or Alternate Hunt DN during the alternative time. External calls are routed in the same manner. The alternate time is defined on the called DN’s data block.

Feature packaging

This feature is packaged under International Supplementary Features (SUPP), package 131.

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

1 LD 10 – Create or modify the analog (500/2500 type) telephone data blocks to allow/deny Hunt by Call Type:

2 LD 11 – Create or modify the Meridian 1 proprietary telephone data blocks to allow/deny Hunt by Call Type:

LD 10 – Create or modify the analog (500/2500 type) telephone data blocks to allow/deny Hunt by Call Type:

Prompt	Response	Description
...		
CLS	(HBTD) HBTA	Hunt by Call Type (denied) allowed.

LD 11 – Create or modify the Meridian 1 proprietary telephone data blocks to allow/deny Hunt by Call Type:

Prompt	Response	Description
CLS	(HBTD) HBTA	Hunt by Call Type (denied) allowed.

Feature operation

No specific operating procedures are required to use this feature.

ICP Network Screen Activation, Flexible DN, Meridian Mail Interactions

Contents

The following are the topics in this section:

Feature description

This feature provides the following enhancements to the Intercept Computer (ICP) feature:

- Network Screen Activation (NWSA) allows network-wide application of an ICP screen.
- Flexible DN Length (FXDN) allows the maximum length of DNs sent to the ICP to be seven digits (shorter DNs are still padded with zeros).
- Meridian Mail Interactions (MMIA) allow ICP and Meridian Mail to be configured for the same customer, by removing all interactions between them.

Network Screen Activation (NWSA)

Calls intended to terminate on one node but which are redirected to an ICP position via ICP forward, Call Forward All Calls, Call Forward No Answer, Call Forward Busy, or Hunt, are presented on the ICP terminal (ICT) at that position.

Direct calls from another node to an ICP position are presented on the ICT at that ICP position. Recalls to the ICP attendant are presented on the ICT at that ICP position attendant.

Calls which are made or extended by an ICP position attendant to another node, and which terminate at an ICP position attendant, follow Network Attendant Service (NAS) and Network ACD (NACD) treatment. If a call is rejected, it is presented on the ICT at the originating ICP position attendant. If a call terminates at an ICP position set, the call is established and presented on the ICT at the terminating ICP position set.

NWSA uses the definition of Call Forward by Call Type to perform call forwarding. All calls are forwarded to the Flexible Call Forward No Answer DN (FDN), if one has been defined; external calls are forwarded to the External DN (ECDN); private network calls are treated as internal calls and forwarded to the Internal DN (ICDN). In the case where a call is made or extended from a local or network ICP position attendant, the call is treated as an external call to avoid having it forwarded to the ICP answering machine.

The maximum number of digits for the FDN, ICDN and ECDN is 13.

Flexible DN Length (FXDN)

Since the standard maximum length of DNs in a system is seven digits, the maximum length of DNs sent to the ICP is seven digits. However, since some ICP computers can only handle a maximum DN length of four or five digits, flexibility has been provided by allowing an entry in LD 15 of between three to seven digits. The selected length must be fixed; DNs shorter than the selected length must be padded by a digit between zero to nine, also configured in LD 15.

Meridian Mail Interactions (MMIA)

Meridian Mail and ICP may be configured in LD 15 for the same customer number, by answering "YES" to both the IMS prompt and the ICP prompt. Meridian Mail and ICP can then be used by the same customer, independent of each other. A set may be configured to have its calls forwarded to Meridian Mail or the ICP, or a mixture of both (e.g., all internal calls can be configured to be forwarded to Meridian Mail, by setting the ICDN or FDN to the Meridian Mail Message Center DN, and all external calls to be forwarded to the ICP intercept position by setting the ECDN to the ICP Message Center DN).

Operating parameters

For NWSA functionality:

- the ICP has to be connected to all nodes in the network
- the same requirements and limitations apply as for Network Call Redirection and Network Attendant Service, and
- ICP to network nodes connection, and network node to network node connections must be via Integrated Services Digital Network (ISDN) links.

For FXDN functionality:

- the DN sent to the ICP is the originally called station, or in the case of direct calls, is the calling station, and
- the length of DNs may differ from node to node; however, the node with the ICT must be configured for the maximum length within the network.

For MMIA functionality:

- ICP and Meridian Mail cannot use the same port; however, ICP and Meridian mail may be configured on separate ports for the same customer number

- if a set has been configured to have call forwarding to both ICP and Meridian Mail, retrieving of messages by activating the Message Waiting key (MWK) can only be done for either ICP or Meridian Mail, and
- the Message Waiting lamp indication cannot support both ICP and Meridian Mail simultaneously (i.e., if a set has been configured to have call forwarding to both ICP and Meridian Mail, and a call is waiting from both ICP and MM, the Message Waiting lamp goes dark after one of the messages has been retrieved from either ICP or MM).

Feature interactions

The same interactions apply as for the ICP feature, other than the ones between Meridian Mail and ICP. The interactions described below also apply.

Attendant Recall

When a call from another node is recalled to the ICP position attendant, it is presented on the ICP terminal.

Call Forward All Calls
Call Forward Busy
Call Forward No Answer
Hunting

When a call redirected by Call Forward All Calls, Call Forward No Answer, Call Forward Busy, or Hunt terminates on an Intercept Computer (ICP) position, a redirected message identification “50” is sent to the ICP computer, when the call is answered.

Electronic Switched Network)

The only Electronic Switched Network functionality which is supported is Coordinated Dialing Plan.

Network Call Redirection

For ICP-forwarded calls, the Network Call Redirection reason is Call Forward Unconditional.

Slow Answer Recall

When an attendant extends a call to a set with call forward active, the slow answer recall timer at the originating node will be reset for ICP forward.

Slow Answer Recall for External Transferred Calls

When an ICP position set transfers an external call across an ISDN network, the slow answer recall timer is set at the transferring node to prevent the terminating set to be rung indefinitely. When the slow answer recall timer times out, the transferred call is recalled to the attendant at the transferring node.

Feature packaging

The following packages are required for ICP Network Screen Activation, Flexible DN and Meridian Mail Interactions:

- Intercept Computer Interface (ICP) package 143
- Integrated Message Services (IMS) package 35
- Automatic Call Distribution Package A (ACDA) package 45
- Message Waiting Center (MWC) package 46
- Auxiliary Processor Link (APL) package 109; Flexible Feature Codes (FFC) package 139
- International Supplementary Features (SUPP) package 131

The following packages are also required for the NWSA enhancement:

- Integrated Services Digital Network (ISDN) package 145
- Advanced ISDN Network Services (NTWK) package 148
- 1.5 Mbit Primary Rate Access (PRA) package 146
- Network Attendant Service (NAS) package 159

The following package is also required for the FXDN enhancement:

- DN Expansion (DN) package 150

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

1 LD 15 – For NWSA, enter up to 13 digits for ICDN and ECDN.

2 LD 15 – For FXDN, set the DN length and any padding digits at the ICDL and ICPD prompts.

3 LD 15 – For MMIA, enter "YES" to both the Meridian Mail prompt (IMS) and the Intercept Computer prompt (ICP).

LD 15 – For NWSA, enter up to 13 digits for ICDN and ECDN.

Prompt	Response	Description
...		
TYPE:	ICP–DATA	Intercept computer update.
- ICP	YES	ICP is available.
...		
- ICMM	0-9	Message number.
- ICDN	0-13	Default internal DN.
- ECDN	0-13	Default external DN.

LD 15 – For FXDN, set the DN length and any padding digits at the ICDL and ICPD prompts.

Prompt	Response	Description
...		
TYPE:	ICP–DATA	Intercept computer update.
- ICP	YES	ICP is available.
...		
- ICDL	3-(4)-7	Length of DN sent to and received from the ICP.
- ICPD	(0)-9	Padding digit for DNs shorter than specified in ICDL.

LD 15 – For MMIA, enter "YES" to both the Meridian Mail prompt (IMS) and the Intercept Computer prompt (ICP).

Prompt	Response	Description
...		
TYPE:	IMS–DATA	Integrated Message Service Options.
CUST	0-99	Customer number.
...		
IMS	YES	Meridian Mail is available for customer number.
...	...	...
TYPE	ICP–DATA	Intercept computer update.
- ICP	YES	ICP is available for customer number.

Feature operation

No specific operating procedures are required to use this feature.

In-Band Automatic Number Identification

Contents

The following are the topics in this section:

Reference list

The following are the references in this section:

- *Meridian Link ISDN/AP general guide* (553-2901-110)
- *Call Detail Recording: Description and Formats* (553-2631-100)
- *Automatic Call Distribution: Feature Description* (553-2671-110)

Feature description

The In-Band Automatic Number Identification (IANI) feature provides the ability to display a ten-digit calling party number during setup (signaling) over a non-Integrated Services Digital Network (ISDN) T1 trunk. The Automatic Number Identification (ANI) digits are displayed when they auto-terminate to an Automatic Call Distribution (ACD) Directory Number (DN) agent telephone with digit display. The IANI feature supports ten digits for ANI, or three and four digits for Dialed Number Identification (DNIS). IANI sends these digits to three places: the Call Detail Recording (CDR) records, the host, and the agent telephone.

When a Direct Inward Dialing (DID) or TIE trunk originates a call, the software determines whether the call is on an IANI trunk group. If it is, the ten ANI digits are collected, and the call auto-terminates at the ACD DN specified for that trunk, provided that the ACD telephone has digit display and Standard Delayed Display (DDS) Classes of Service. The call, sent by Dual Tone Multifrequency (DTMF) signaling prior to call termination, is not received until all the digits are received by the software.

When the call is presented to the ACD DN, a PCI message is simultaneously sent across the Application Module Link (AML) carrying the ANI digits. The message contains the ANI number, the ACD DN, and the ACD Agent ID. For a complete description of ISDN/AP, see *Meridian Link ISDN/AP general guide* (553-2901-110).

If an auto-terminating ACD DN is not configured for the trunk, the call intercepts to the attendant, and the ANI number is displayed on the Attendant Console. If the call is extended to an ACD DN, the IANI digits are displayed after it is extended.

Call Detail Recording (CDR) records

Because IANI and Integrated Services Digital Network (ISDN) cannot be configured on the same trunk group, the IANI report is able to appear in place of the Calling Line Identification (CLID) records. The ANI number is shown on the second line of the CDR report in the following format:

N 002 00 T00004 01 03/24 10:15 00:00:38 4155551212******

where:

N	= record type
002	= record sequence number
00	= customer number
T00004	= trunk route and member number
01	= ACD Agent Position ID
03/24	= date (month/day)
10:15	= time (hour:minute)
00:00:38	= duration (hours:minutes:seconds)
4155551212******	= ANI number (ten digits followed by ******)

For a complete description of CDR output, see *Call Detail Recording: Description and Formats* (553-2631-100).

Operating parameters

IANI operates on T1, Direct Inward Dialing (DID), and TIE trunks only.

IANI cannot be configured on the same trunk with Electronic Switched Network (ESN), Integrated Services Digital Network (ISDN), or Dialed Number Identification Service (DNIS).

The auto-terminating Automatic Call Distribution (ACD) Directory Number (DN) is configured in LD 14. Any ACD agent specified to answer IANI calls also receives standard ACD calls. When a standard ACD call is received on a non-ISDN or non-ANI trunk, no ANI numbers are displayed.

If an IANI call terminates on a non-ACD DN, no ANI digits appear on the telephone display. Likewise, no PCI messages are sent across the Application Module Link (AML).

Auxiliary Processor Link (APL) is not supported.

Should the system initialize while an agent is active on an IANI call, there will be no impact on the call. However, if any call modification (such as, Call Transfer or Conference) takes place, the ANI number is lost.

A Dual Tone Multifrequency (DTMF) receiver is required to interpret the DTMF tones with an IANI number.

Feature interactions

The IANI feature interacts heavily with ACD. For a complete description of the ACD features involved, see *Automatic Call Distribution: Feature Description* (553-2671-110).

ACD Answer
Call Supervisor
Emergency

If the agent presses the Supervisor (ASP) key or the Emergency (EMR) key, the digit display is cleared when the supervisor answers the call. The display remains clear while the supervisor is active on the call. If the supervisor releases first, the ANI number reappears on the agent's telephone display.

ACD Interflow

If an IANI call interflows to another predesignated local ACD DN, the ANI number is displayed on the overflow agent's digit display. The source ACD DN is displayed following the ANI number.

ACD Night Call Forward

If an ANI call is forwarded to an ACD DN, the ANI number is displayed on the ACD Agent telephone.

ACD Overflow by Count

If an IANI call overflows to another ACD DN, the ANI number is displayed on the overflow agent's digit display. The source ACD DN is displayed following the ANI number.

Activity code

If the Activity Code (ACNT) key is activated during an IANI call, the display is cleared. Once the activity code has been entered and the ACNT key pressed again, the ANI number reappears on the agent's display.

Attendant Recall

If an ACD Agent is active on an IANI call and activates the Attendant Recall (ARC) key to call the attendant, the agent's display shows the attendant number when the attendant answers the call. The ANI number reappears when the attendant releases.

Call Consultation

If the agent is active on an IANI call and presses the TRN key for call consultation, the display is cleared. When the agent restores the IANI call, the ANI number reappears.

Call Park

If an agent parks an IANI call and it times out and recalls the agent, the ANI number is not displayed.

Call Transfer

If an agent transfers an IANI call to another ACD DN, the ANI number is displayed on the terminating set's display.

Conference

If an agent activates the Conference feature while active on an IANI call, the display is cleared. The display remains clear while the Conference call is active. If the conferenced party releases first, the ANI number appears on the agent's display.

Display key

If the agent is active on an IANI call and presses the Display (DSP) key to display another key feature, the ANI number does not reappear when the DSP function is complete.

Hold

If an ACD Agent places an IANI call on hold, the ANI number reappears when the call is restored.

Network ACD

If an IANI call diverts to a target node as a result of Network ACD (NACD), the ANI number appears at the target node.

R2MFC Calling Number Identification/Call Detail Recording Enhancements

Inband ANI trunks do not support CNI. If a CNI is available in addition to the IANI on an IANI trunk, the IANI would be used for the CLID.

Time and date

If the agent presses the Time and Date (TAD) key while on an IANI call, the time and date remain displayed throughout the call. To display the ANI number again, place the call on hold and retrieve it. The ANI number reappears.

Time overflow

If an ACD Agent receives an IANI call due to time overflow, the ANI number is displayed. The source ACD DN follows the ANI number on the display.

Virtual Agents

Virtual Agents are not supported for IANI calls.

Feature packaging

The In-Band ANI (IANI) feature is not packaged separately. Implementation of IANI requires the following packages:

- Basic ACD (BACD) package 40
- ISDN Signaling (ISDN) package 145
- 1.5 Mbps Primary Rate Access (PRA) package 146
- Inter Exchange Carrier (IEC) package 149, and
- Dialed Number Identification Service (DNIS) package 98.

If Application Module Link (AML) is required, Command Status Link (CSL) package 77, and Integrated Messaging System (IMS) package 35, must be included.

For CDR records, Call Detail Recording (CDR) package 4 is required.

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

1 LD 16 – Identify the route as an In-Band Automatic Number Identification route.

2 LD 23 – Send the IANI messages across the Auxiliary Processor Link (APL).

LD 16 – Identify the route as an In-Band Automatic Number Identification route.

Prompt	Response	Description
REQ	NEW CHG	Add or change an IANI route.
TYPE	DID TIE	Direct Inward Dialing (DID) or TIE route.
ISDN	NO YES	Enable or disable ISDN (cannot be configured on same route as IANI).
AUTO	(NO) YES	(Do not) specify as an auto-terminating route.
IANI	(NO) YES	(Disable) enable the IANI route.

LD 23 – Send the IANI messages across the Auxiliary Processor Link (APL).

Prompt	Response	Description
REQ	NEW CHG	Add or modify an IANI route.
TYPE	ACD	IANI calls terminate at an auto-terminating ACD DN.
ISAP	YES (NO)	Enable IANI messaging across the AP link.

Feature operation

No specific operating procedures are required to use this feature.

Incoming Call Indicator Enhancement

Contents

The following are the topics in this section:

Feature description

This enhancement introduces the Incoming Call Indicator (ICI) – the RDI-intercept ICI on the Attendant Console. This ICI identifies a Direct Inward Dialing (DID) call that has been intercepted to the attendant because the destination station is restricted from receiving DID calls (RDI Class of Service).

Operating parameters

If the attendant is within a Meridian network, a special signal must be sent to the attendant when RDI-intercept to the attendant occurs.

Feature interactions

AC15 Recall: Transfer from Norstar

If the held party recalls the attendant due to intercept or recall treatment, the recall is presented to the corresponding ICI key (INT or RLL).

Attendant Recall

If an RDI-intercepted call that is extended by the attendant to the destination party having RDI Class of Service is either transferred back or recalled to the attendant, then the attendant recall ICI lights up and not the RDI-intercept ICI.

Call Forward All Calls
Call Forward Busy

When a DID call to station that is unrestricted from receiving DID calls (UDI Class of Service) is forwarded to a UDI station due to Call Forward All Calls or Call Forward Busy, the call is RDI-intercepted to the attendant. The attendant display shows the DN of the dialed party.

If the call has been forwarded to the attendant, the Call Forward All Calls/Call Forward Busy ICI lights up, and not the RDI-intercept ICI.

Call Forward No Answer

When a DID call to a station that is unrestricted from receiving DID calls (UDI Class of Service) is forwarded to a UDI station due to Call Forward No Answer, the call is not RDI-intercepted to the attendant. The dialed party continues to ring. If the call has been forwarded to the attendant, the Call Forward No Answer ICI lights up, and not the RDI-intercept ICI.

Slow Answer Recall

If an RDI-intercepted call that is extended by the attendant to the destination party having RDI Class of Service is recalled to the attendant due to Slow Answer Recall, then the Call Forward No Answer ICI lights up and not the RDI-intercept ICI. The attendant display shows the DN of the dialed party.

Feature packaging

This feature is packaged under International Supplementary Features (SUPP), package 131.

Feature implementation

Task summary list

The following task is required:

LD 15 – Respond to the ICI prompt with the ICI number:

LD 15 – Respond to the ICI prompt with the ICI number:

Prompt	Response	Description
...		
ICI	x RDI	ICI number; RDI intercept. x = key number (from 0 to 19).

Feature operation

When the call is intercepted to the attendant, the RDI-intercept ICI becomes lit. The attendant can then answer the call, and extend it to the destination party if desired.

Incoming DID Digit Conversion

Contents

The following are the topics in this section:

Feature description

The Incoming DID Digit Conversion (IDC) feature allows digits received from the Central Office (CO) to be converted to unrelated extension numbers within the system. This conversion is accomplished using a translation table dedicated to a Direct Inward Dialing (DID) route. The digit conversion table is set up to map the received (external) DID digits into the local (internal) Directory Number (DN).

IDC can be selectively applied to DID routes. A unique conversion table is available for each route.

Full Digit Conversion

All the digits received are converted to another string of digits as specified in the conversion table.

Different strings of digits can be converted to the same internal Directory Number (DN).

Partial Digit Conversion

Not all of the digits received from the Central Office (CO) are converted. The remaining digits may remain unchanged, and the whole string of digits is forwarded to the Directory Number (DN) translator.

It is possible to convert a partial string of digits to another partial string of digits of a different length (for example, 23xx to 4xx or 2xx to 49xx). The range of DNs to convert can include a mix of DN lengths.

No Digit Conversion

If the digits received are not defined in the conversion table, they are assumed to represent an internal Directory Number (DN). They are forwarded to the DN translator without any change.

An empty IDC table should not be programmed in a live DID route. If this is done all calls to the DID route intercept to the attendant.

Direct Call Termination

Incoming calls from non-Direct Inward Dialing (DID) trunks are not affected by Incoming DID Digit Conversion (IDC). If a call from a trunk on a route with IDC is received, the digits are translated into a pass (continue) or a converted telephone of local digits. These digits replace the dialed digits. Additional dialed digits are then forwarded directly for call processing. The IDC processor has no further influence on the call. Once the internal digit processor receives the digits, it alone determines the disposition of the call. It may be able to terminate the call, or it may be required to intercept the call due to invalid digits, a busy station, or Call Forward.

When DEXT = NO (LD 16) the Meridian 1 proprietary telephone display looks like this:

AAAA:MMM

where:

AAAA = route access code, and

MMM = Route Member Number.

The display may show the name of the route if Call Party Name Display (CPND) is allowed.

When DEXT = YES (LD 16) the Meridian 1 proprietary telephone display looks like this:

AAAA:MMM Pxxxx

where:

AAAA = route access code

MMM = Route Member Number

P = Special character (identifying the received digits), and

xxxx = Originally dialed digits (preconverted).

When DEXT = NO (LD 16) the Attendant Console display looks like this:

AAAA:MMM iiii xxxx

where:

AAAA = route access code

MMM = Route Member Number

iiii = Internal DN (called party), and

xxxx = route name if Call Party Name Display (CPND) is allowed.

When DEXT = YES (LD 16) the Attendant Console display looks like this:

AAAA:MMM#:xxxx iiii

where:

AAAA = route access code

MMM = Route Member Number

= Special character (identifying the received digits)

xxxx = originally dialed digits, and

iiii = Internal DN (called party).

Incoming Call Redirection

If an incoming call is redirected to a Centralized Attendant Services (CAS) or local attendant, the local DN is used to extend the call. If an incoming call reaches a Night DN, Hunt DN, Call Forward DN, or similar destination, then both the internal DN and the directory of local DNs are used to redirect the call.

Operating parameters

IDC applies to Direct Inward Dialing (DID) routes only. Auto-terminate trunks to Dialed Number Identification Service (DNIS) do not support IDC. All digits received from an incoming call translate to a maximum of four digits. Acceptable received digits for an incoming call are 0 through 9.

New Flexible Code Restriction (NFCR) is required to operate IDC. Since NFCR trees and IDC tables share the same structure, the total combined number of NFCR trees and IDC tables cannot exceed 255 per customer.

Feature interactions

Digital Private Network Signaling System (DPNSS1)/Digital Access Signaling System (DASS2) Uniform Dialing Plan (UDP) Interworking

An IDC table can be used to convert digits received on a DASS2 DID trunk into a digit string having the UDP format. This allows a DASS2 DID call to access the DPNSS1 UDP network.

Digital Trunk Interface (DTI) – Commonwealth of Independent States (CIS)

The construction of an ANI message does not care if Incoming Digit Conversion is used. The DN sent as ANI is the actual DN of the set, not necessarily the Direct Inward Dialing (DID) number to dial to reach the set. Therefore, if an external party uses a DN, delivered in an ANI message, for making a call to the corresponding extension, the call may fail.

EuroISDN Continuation

The Incoming Digit Conversion (IDC) feature converts incoming digits from a DID route. This feature is supported on the incoming EuroISDN DID routes. Digits received as a called party number are converted if the IDC feature is activated on the route. Digit analysis is then performed on the converted digits by the Meridian 1.

EuroISDN Master Mode

IDC is supported on the incoming EuroISDN Master Mode connectivity DID routes. If IDC is equipped, digits received as a called party number are converted, and digit analysis is then performed on the converted digits.

ISDN QSIG Name Display

IDC trunk and name information is passed and displayed to the terminating party when no name information is received from the Direct Inward Dial (DID) trunk. The Incoming DID Digit Conversion (IDC) feature is activated, and name information is associated with the converted digit sequence.

Name information received from a DID trunk takes precedence over an IDC trunk name.

Three Wire Analog Trunk – Commonwealth of Independent States (CIS)

The construction of an ANI message does not care if Incoming Digit Conversion is used. The DN sent as ANI is the actual DN of the set, not necessarily the DID number to dial to reach the set. Therefore, if an external party uses a DN for making a call to the corresponding extension which is delivered in an ANI message, the call may fail.

Feature packaging

Incoming Digit Conversion (IDC) package 113 requires New Flexible Code Restriction (NFCR) package 49.

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

1 LD 15 – Specify maximum number of Incoming Digit Conversion trees allowed.

2 LD 49 – Create IDC tables to convert incoming Direct Inward Dialing digits by specifying the IDC tree and customer numbers.

3 LD 16 – Enable digit conversion for required DID trunk routes.

LD 15 – Specify maximum number of Incoming Digit Conversion trees allowed.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	CDB FCR_DATA	Customer Data Block. New Flexible Code Restrictions Option.
CUST	0-99 0-31	Customer number. For Option 11C.
- NFCR	(NO) YES	(Disable) enable New Flexible Code Restriction (NFCR).
- MAXT	1-255	Maximum number of NFCR trees.
- IDCA	(NO) YES	(Disable) enable IDC.
- DCMX	1-255	Maximum number of IDC tables. ***Note:*** The sum of the values for MAXT and DCMX cannot exceed 255 per customer.

LD 49 – Create IDC tables to convert incoming Direct Inward Dialing digits by specifying the IDC tree and customer numbers.

Prompt	Response	Description
REQ	NEW	Create tables.
TYPE	IDC	IDC tables.
CUST	0-99 0-31	Customer number, as defined in LD 15. For Option 11C.
DCNO	0-254	IDC tree number.
IDGT	0-9999 0-9999	DN or range of DNs to be converted. Examples: To convert the external DN 3440 to 510, enter: *PromptResponse* IDGT3440 3440510 To convert external DNs in the range 3440–3465, enter: *PromptResponse* IDGT3440 3465 3440444 3441445 — — — — — — 3465469

LD 16 – Enable digit conversion for required DID trunk routes.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	RDB	Route Data Block.
CUST	0-99 0-31	Customer number, as defined in LD 15. For Option 11C.
ROUT	0-511 0-127	Route number. For Option 11C.
IDC	YES	Use digit conversion for this route.
- DCNO	0-254	IDC tree number.
- NDNO	0-254	IDC conversion table for Night mode.
- DEXT	(NO) YES	(Do not) allow Digit Display.

Feature operation

No specific operating procedures are required to use this feature.

Incoming Digit Conversion Enhancement

Contents

The following are the topics in this section:

Reference list

The following are the references in this section:

- *Networking Features and Services* (553-2901-301)

Feature description

The Incoming Digit Conversion (IDC) feature allows conversion into a DN of up to eight digits. The feature can operate as standalone or in an ISDN environment. The conversion is applied at the network node on which the call comes and before the digits are processed, so that there are no ISDN signaling requirements.

Operating parameters

IDC applies to Direct Inward Dialing (DID) routes only. Auto-terminate trunks to Dialed Number Identification Service (DNIS) do not support IDC. All digits received from an incoming call translate to a maximum of four digits. Acceptable received digits for an incoming call are 0 through 9.

New Flexible Code Restriction (NFCR) is required to operate IDC. Since NFCR trees and IDC tables share the same structure, the total combined number of NFCR trees and IDC tables cannot exceed 255 per customer.

Feature interactions

Digital Trunk Interface (DTI) – Commonwealth of Independent States (CIS)

The construction of an ANI message does not care if Incoming Digit Conversion is used. The DN sent as ANI is the actual DN of the set, not necessarily the Direct Inward Dialing (DID) number to dial to reach the set. Therefore, if an external party uses a DN, delivered in an ANI message, for making a call to the corresponding extension, the call may fail.

EuroISDN Continuation

The Incoming Digit Conversion Enhancement (IDC) feature converts incoming digits from a DID route. This feature is supported on the incoming EuroISDN DID routes. Digits received as a called party number are converted if the IDC feature is activated on the route. Digit analysis is then performed on the converted digits by the Meridian 1.

EuroISDN Trunk - Network Side

This feature is supported on the incoming EuroISDN Trunk - Network Side connectivity DID routes. If IDC is equipped, digits received as a called party number are converted, and digit analysis is then performed on the converted digits.

Three Wire Analog Trunk – Commonwealth of Independent States (CIS)

The construction of an ANI message does not care if Incoming Digit Conversion is used. The DN sent as ANI is the actual DN of the set, not necessarily the DID number to dial to reach the set. Therefore, if an external party uses a DN for making a call to the corresponding extension which is delivered in an ANI message, the call may fail.

Feature packaging

Incoming Digit Conversion Enhancement is included in Incoming Digit Conversion (IDC) package 113 that requires New Flexible Code Restriction (NFCR) package 49.

Feature implementation

For implementation procedures refer to *Networking Features and Services* (553-2901-301).

Feature operation

No specific operating procedures are required to use this feature.

Incremental Software Management

Contents

The following are the topics in this section:

Reference list

The following are the references in this section:

- *Software Conversion Procedures* (553-2001-320)
- *ISDN Basic Rate Interface: Product Description* (553-3901-100)

Feature description

Incremental Software Management (ISM) is a feature that provides flexibility and control over system configuration and implementation. With ISM, software ordering and pricing is based on the total count of used ISM counters. See Table 52 for a list of ISMs counted.

Table 52
ISMs counted (Part 1 of 3)

A TN configured in Overlays 10, 11, 12, or 14	**ISMs counted** ***Note:*** Every TN configured counts against the TN ISM.
1.5 Mb DTI trunk	Traditional Trunks
1.5 Mb PRI trunk	Traditional Trunks
2.0 Mb DTI trunk	Traditional Trunks
2.0Mb PRI trunk	Traditional Trunks
Analog Data set (FAXA)	Data Ports
Analog set	Analogue Telephones
Analogue Associate (AST) and ACD sets	AST, Analogue Telephones and ACD Agents
Analogue AST set	AST and Analogue Telephones
Analogue trunk	Traditional Trunks
Application Module Link	AML
AST and Meridian Mail ACD	None
ATA set	Data Ports
Attendant Console	Attendant Consoles
BRI trunk	Traditional Trunks
CLASS set	CLASS Telephones
Data port	Data Ports

Table 52 (Continued)
ISMs counted (Part 2 of 3)

A TN configured in Overlays 10, 11, 12, or 14	**ISMs counted** ***Note:*** Every TN configured counts against the TN ISM.
Digital AST and ACD set	AST, Digital Telephones and ACD Agents
Digital AST set	AST and Digital Telephone
Digital Cordless Set (DCS)	Wireless Telephones
Digital data set	Data Ports
Digital voice set	Digital Telephones
IDA trunk	Traditional Trunks
ISA trunk	Traditional Trunks
ISL trunk	Traditional Trunks
ITG 1.0 trunk	Traditional Trunks
ITG 2.0 trunk	ITG ISDN TRUNKS
Line-Side T1/E1	Analogue Telephones
M3900 set	Digital Telephones
MCA set	Data Ports
MCMO (CT2) set	Wireless Telephones
MCU	Data Ports
MDECT set	Wireless Telephones
Meridian Integrated ACD port	ACD Agents and Digital Telephones
Meridian Mail/Call Pilot ACD port	None
PC Console	Attendant Consoles
Phantom analogue set	Phantom Ports

Table 52 (Continued)
ISMs counted (Part 3 of 3)

A TN configured in Overlays 10, 11, 12, or 14	ISMs counted ***Note:*** Every TN configured counts against the TN ISM.
Phantom digital set	Wireless Telephones
R232 DAC	Data Ports
R422 DAC	Data Ports
Real ACD analog set	ACD Agents and Analogue Telephones
Real ACD digital set	ACD Agents and Digital Telephones
VNS trunk	Traditional Trunks
VTN i2004 set	INTERNET TELEPHONES

The customer-requested configuration parameters are communicated to Nortel Networks when a new system or upgrade order is placed. The requests are then defined during software disk preparation and are provided to the customer on a security cartridge.

The number of configurable Terminal Numbers (TNs) is provided in increments of 100, ACD positions in increments of 5, the number of allowable ACD-DNs and AST DNs in increments of 1. RAN and Music Broadcast connections can also be purchased incrementally. System parameters must be defined for an order to be processed.

The system TNs are incremented with the ACD agents.

When allowable limits are exceeded, any additional entry is blocked, and an error message is shown every time a subsequent entry is attempted.

The following features require ISM parameters:

- Electronic Brandlining
- Music Broadcast
- Recorded Announcement (RAN) Broadcast

For information on the above features, please refer to the appropriate feature modules in this guide.

System monitoring

To assist in monitoring system growth, each time an overlay is used, a header appears in the affected overlay, reflecting the system status. The header indicates the total, available, and used quantities of TNs, ACD-DNs, ACD positions, AST DNs, Digital Subscriber Loops (DSLs), Logical Terminal Identifiers (LTIDs), D-channels (DCHs), Application Module Links (AMLs), RAN Broadcast routes, and RAN and Music Broadcast connections that are configured. The counts are updated each time system activity adds or deletes one of the tracked items. When the limits are exceeded, an error message appears.

ACD parameters are preset for each system. The numbers in the header are not necessarily real limits and are subject to system configuration. Contact your Nortel Networks representative for information regarding your system limits.

A header, reflecting ISM parameters, is added to the following overlays:

- Overlay 10: analog (500/2500 type) telephones
- Overlay 11: Meridian 1 proprietary telephones
- Overlay 12: Attendant Consoles
- Overlay 13: Digitone receivers and tone detectors
- Overlay 14: trunks
- Overlay 16: routes
- Overlay 17: D-channels (DCH) and Application Module Links (AMLs)
- Overlay 23: ACD-DNs, and
- Overlay 27: Digital Subscriber Loops (DSLs) and Logical Terminal Identifiers (LTIDs).

Examples of header increments

The following examples show the header changes when TNs, ACD positions, ACD-DNs, RAN Broadcast routes, D-Channels, Application Module Links, Digital Subscriber Loops (DSLs), and Meridian Packet Handlers (MPH) are added or deleted. These overlays have not been modified by the ISM feature, except for the addition of the new headers.

Example 1 – Adding an analog (500/2500 type) set

Table 53 shows the Overlay 10 header **before** an analog (500/2500 type) set is added.

Table 53
Overlay 10 header prior to service change

MEM AVAIL: (U/P): 189162	USED: 154594	TOT: 343756
DISK RECS AVAIL: 94		
TNS AVAIL: 15	USED: 385	TOT: 400
ACD AGENTS AVAIL: 5	USED: 10	TOT: 15
AST SET AVAIL: 10	USED: 3	TOT: 13

The following is the Overlay 10 implementation table for adding an analog (500/2500 type) set.

LD 10 – Add an analog (500/2500 type) set.

Prompt	Response	Description
REQ:	NEW	Add a new telephone.
TYPE:	500	Telephone type.
TN	l s c u c u	Terminal Number. For Option 11C.

Table 54 shows the Overlay 10 header after an analog (500/2500 type) set is added.

Table 54
Overlay 10 header after service change

MEM AVAIL: (U/P): 189139	USED: 154617	TOT: 343756
DISK RECS AVAIL: 94		
TNS AVAIL: 14	USED: 386	TOT: 400
ACD AGENTS AVAIL: 5	USED: 10	TOT: 15
AST SET AVAIL: 10	USED: 3	TOT: 13

Example 2 - Adding an analog (500/2500 type) set as an ACD agent

Table 55 shows the Overlay 10 header before an analog (500/2500 type) set associated with an ACD-DN is added.

Table 55
Overlay 10 header prior to service change

MEM AVAIL: (U/P): 189162	USED: 154594	TOT: 343756
DISK RECS AVAIL: 94		
TNS AVAIL: 14	USED: 386	TOT: 400
ACD AGENTS AVAIL: 5	USED: 10	TOT: 15
AST SET AVAIL: 10	USED: 3	TOT: 13

The following is the Overlay 10 implementation table for adding an analog (500/2500 type) set associated with an ACD-DN.

LD 10 – Add an analog (500/2500 type) set with an ACD-DN.

Prompt	Response	Description
REQ:	NEW	Add a new telephone.
TYPE:	500	Telephone type.

TN	l s c u c u	Terminal Number. For Option 11C.
...		
CLS	AGTA	ACD services for analog (500/2500 type) sets allowed.
...		
FTR	ACD x...x yyyy	Feature name and related data, where: x....x = the ACD DN and yyyy = the ACD position.

Table 56 shows the Overlay 10 header **after** an analog (500/2500 type) set associated with an ACD-DN is added.

Table 56
Overlay 10 header after service change

MEM AVAIL: (U/P): 189139	USED: 154617	TOT: 343756
DISK RECS AVAIL: 94		
TNS AVAIL: 13	USED: 387	TOT: 400
ACD AGENTS AVAIL: 4	USED: 11	TOT: 15
AST SET AVAIL: 10	USED: 3	TOT: 13

Example 3 – Adding a trunk

Table 57 shows the Overlay 14 header **before** a trunk is added.

Table 57
Overlay 14 header prior to service change

MEM AVAIL: (U/P): 188857	USED: 154899	TOT: 343756
DISK RECS AVAIL: 94		
TNS AVAIL: 8	USED: 392	TOT: 400
RAN CON AVAIL: xxxx	USED: xxxxx	TOT: xxxxx
MUS CON AVAIL: xxxxx	USED: xxxxx	TOT: xxxxx
AST SET AVAIL: xxxxx	USED: xxxxx	TOT: xxxxx

The following is the Overlay 14 implementation table for adding a trunk.

LD 14 – Add a TIE/RAN/MUS trunk.

Prompt	Response	Description
REQ	NEW	Add a new trunk.
TYPE	TIE RAN MUS	TIE trunk. Recorded Announcement trunk. Music trunk.
TN	l s c u c u	Terminal Number. For Option 11C.

Table 58 shows the Overlay 14 header **after** a trunk is added.

Table 58
Overlay 14 header after service change

MEM AVAIL: (U/P): 188802	USED: 154954	TOT: 343756
DISK RECS AVAIL: 94		
TNS AVAIL: 7	USED: 393	TOT: 400
RAN CON AVAIL: xxxxx	USED: xxxxx	TOT: xxxxx
MUS CON AVAIL: xxxxx	USED: xxxxx	TOT: xxxxx
AST SET AVAIL: xxxxx	USED: xxxxx	TOT: xxxxx

Example 4 – Adding a route (for large systems)

Table 59 shows the Overlay 16 header **before** a RAN route is added.

Table 59
Overlay 16 header prior to service change

MEM AVAIL: (U/P): 188857	USED: 154899	TOT: 343756
DISK RECS AVAIL: 94		
RAN RTE AVAIL: 510	USED: 1	TOT: 511

The following is the Overlay 16 implementation table for adding a RAN route.

LD 16 – Add a route at the TKTP prompt.

Prompt	Response	Description
REQ	NEW	Add a new trunk.
TYPE	RDB	Route Data Block.
CUST	xx	Customer number.

ROUT	0-511 0-127	Route Number. For Option 11C.
TKTP	RAN	Recorded Announcement trunk.

Table 60 shows the Overlay 16 header **after** a route is added.

Table 60
Overlay 16 header after service change

MEM AVAIL: (U/P): 188802	USED: 154954	TOT: 343756
DISK RECS AVAIL: 94		
RAN RTE AVAIL: 509	USED: 2	TOT: 511

Example 5 – Adding a D-channel (DCH)

Table 61 shows the Overlay 17 header **before** a D-Channel is added.

Table 61
Overlay 17 header prior to service change

MEM AVAIL: (U/P): 188857	USED: 154899	TOT: 343756
DISK RECS AVAIL: 94		
DCH AVAIL: 7	USED: 8	TOT: 15
AML AVAIL: 5	USED: 4	TOT: 9

The following is the Overlay 17 implementation table for adding a D-channel.

L**D 17** – Add a D-channel at the ADAN prompt.

Prompt	Response	Description
REQ	CHG	Add a D-channel.
TYPE	CFN	Configuration Record.
ADAN	NEW DCH x	Add a primary DCH on port x, where x = 0-63.

Table 62 shows the Overlay 17 header **after** a D-channel is added.

Table 62
Overlay 17 header after service change

MEM AVAIL: (U/P): 188857	USED: 154899	TOT: 343756
DISK RECS AVAIL: 94		
DCH AVAIL: 6	USED: 9	TOT: 15
AML AVAIL: 5	USED: 4	TOT: 9

Example 6 – Adding an Automatic Call Distribution Directory Number (ACD-DN)

Table 63 shows the Overlay 23 header **before** an ACD-DN is added.

Table 63
Overlay 23 header prior to service change

MEM AVAIL: (U/P): 188802	USED: 154954	TOT: 343756
DISK RECS AVAIL: 94		
ACD DNS AVAIL: 5	USED: 10	TOT: 15

The following is the Overlay 23 implementation table for adding an ACD-DN.

LD 23 – Add an ACD-DN at the ADAN prompt.

Prompt	Response	Description
REQ	NEW	Add a new ACD-DN.
TYPE	ACD	Automatic Call Distribution data block.
CUST	xx	Customer number.
ACDN	x...x	ACD-DN. The ACD-DN can be up to four digits, or seven digits with DNXP package 150.

Table 64 shows the Overlay 23 header **after** an ACD-DN is added.

Table 64
Overlay 23 header after service change

MEM AVAIL: (U/P): 188513	USED: 155243	TOT: 343756
DISK RECS AVAIL: 94		
ACD DNS AVAIL: 4	USED: 11	TOT: 15

Example 7 – Adding a Digital Subscriber Loop (DSL)

Table 65 shows the Overlay 27 header **before** a Digital Subscriber Loop is added.

Table 65
Overlay 27 header prior to service change

MEM AVAIL: (U/P): 188802	USED: 154954	TOT: 343756
DISK RECS AVAIL: 94		
BRI DSL AVAIL: 100	USED: 0	TOT: 100
LTIDS AVAIL: xxx	USED: xxx	TOT: xxx
TNS AVAIL: 7	USED: 393	TOT: 400
MPH DSL AVAIL: 100	USED: 0	TOT: 100

The following is the Overlay 27 implementation table for adding a Digital Subscriber Loop.

LD 27 – Add a Digital Subscriber Loop by specifying the address at the DSL prompt.

Prompt	Response	Description
REQ	NEW	Add a Digital Subscriber Loop.
TYPE	DSL	Digital Subscriber Loop data block.
DSL	l s c dsl	Digital Subscriber Loop address.

Table 66 shows the Overlay 27 header **after** a Digital Subscriber Loop is added.

Table 66
Overlay 27 header after service change

MEM AVAIL: (U/P): 188802	USED: 154954	TOT: 343756
DISK RECS AVAIL: 94		
BRI DSL AVAIL: 99	USED: 1	TOT: 100
LTIDS AVAIL: xxx	USED: xxx	TOT: xxx
TNS AVAIL: 5	USED: 395	TOT: 400
MPH DSL AVAIL: 100	USED: 0	TOT: 100

Printing ISM System Limits

When REQ is set to SLT in Overlay 22, ISM system limits are printed. The limits established for the system, the used parameters, the remaining parameters, and other system information is printed when REQ = SLT.

You can update the value of ISM limits either through sysload or the Instant ISM feature. You can print the new ISM limits through Overlay 22 after the update is complete.

In Overlays 10, 11, 22, and for the KSHO command in LD 143, if the limit of an ISM is set to the maximum value of 32767 (Options 51C, 61C, and 81C), it will not print. However, the TNs ISM is an exception, and the information prints regardless of the value set.

For the KDIF command in LD 143, if the limit of an ISM is set to the maximum value of 32767 (for Options 51C, 61C, and 81C) in both the compared keycodes, the ISM information will not print. As previously noted, the TNs ISM is an exception, and the information prints regardless of the value set.

The following shows the Overlay 22 implementation table for printing system limits.

LD 22 – Print system limits

Prompt	Response	Description
REQ	SLT	Print System Limits: Incremental Software Management.

Table 67 is an example of an Overlay 22 printout when REQ is set to SLT.

Table 67
Example of an Overlay 22 print out when REQ = SLT

REQ slt					
TNs	400	LEFT	3	USED	397
AGNT	15	LEFT	3	USED	12
ACDN	15	LEFT	4	USED	11
AST	13	LEFT	3	USED	10

BRI DSL	100	LEFT	98	USED	2
LTID	100	LEFT	100	USED	0
DCH	15	LEFT	5	USED	10
AML	9	LEFT	4	USED	5
MPH DSL	100	LEFT	99	USED	1
RAN CON	32767	LEFT	32767	USED	0
RAN RTE	511	LEFT	509	USED	2
MUS CON	10000	LEFT	10000	USED	0
IDLE_SET_DISPLAY		XXXXX			

System administration

When the predefined ISM limits are reached, an error message indicates that further database additions are blocked. New software must be ordered to increase system limits. In order to minimize delays in system administration, it is critical that the configuration limits be monitored and that new disks be ordered before the current parameters are exceeded.

Software Upgrade

When performing a system upgrade, if the new TN, ACD-DN, ACD agent, AST DN/TN, RAN Broadcast route, and RAN Broadcast connection limits do not equal or exceed present limits, then do not attempt to sysload. Excess information will be lost. Obtain new disks with expanded limits.

For example, if a system has 150 TNs configured and the new software only has an ISM limit of 100 TNs, then the system will eliminate the additional 50 TNs. A SYS message appears if this situation occurs.

CAUTION
System information will be lost.
Upon software upgrade, if SYS message 4327, 4328, 4329, or 4330 appears at SYSLOAD, then SYSLOAD previous system disks. Order ISM disks with sufficient system parameters configured. DO NOT DATADUMP; system information will be lost. Call your technical support department for assistance.

Keycodes

Option 11C and Input-Output Disk Unit with CD-ROM (IODU/C) customers can modify ISM limits using a keycode.

A Keycode is a machine generated digitally signed list of customer capabilities and authorized software release. A security keycode scheme protects ISM parameters.

In order for Option 11C and IODU/C customers to expand ISM limits, they must order and install a new keycode. This installation is performed using the Keycode Management feature. All Keycode Management commands are executed in Overlay 143. To make the expansion effective, the customer must sysload. For further information on keycode installation, please refer to *Software Conversion Procedures* (553-2001-320)

Operating parameters

When the total number of Terminal Numbers (TNs) configured in the system is calculated, all TNs associated with analog (500/2500 type) telephones, Meridian 1 proprietary telephones, AST DNs, Attendant Consoles, Digitone receivers, tone detectors, and trunks are included in the total count.

The total number of TNs refers to Terminal Numbers (TNs) configured in Overlays 10, 11, 12, 13, and 14. There is no differentiation among signaling, data, or voice channels.

The ACD Agent counter excludes Meridian Mail and Call Pilot ports. All ACD Agents configured in Overlay 10 and 11 count against the ACD Agents and Analogue Telephones or Digital Telephones counters. The port configured in Overlay 11 for Meridian Integrated Products such as MICB is an ACD Agent. It will count against ACD Agents and Digital Telephones counters.

When the total number of ACD Agents configured in the system is calculated, any telephone configured as Key 0 ACD is included in the total count. This includes ACD agents and ACD supervisors.

ACD parameters are allowed only if ACD is equipped.

Each agent is defined individually using Overlays 10 and 11.

The total ACD Agents refers to virtual and active (live) ACD agents and ACD supervisors.

AST telephones count against AST, and Analogue Telephones or Digital Telephones counters.

AST DNs are not included in the total count of ACD Agents.

AST DNs are defined individually in Overlays 10 or 11.

AST DN designation is not maintained following a software conversion; therefore, all AST DNs must be reconfigured after the conversion is complete.

The ATTENDANT CONSOLES ISM counter counts every Attendant Console configured in Overlay 12. An Attendant Console can use two or more terminal numbers (TNs). However, the number of TNs used by Attendant Consoles does not count against the ATTENDANT CONSOLES ISM. TNs used for power supply do not count against ATTENDANT CONSOLES ISM. Each TN used by an Attendant Console counts against the existing TNs ISM.

The Digital Telephones ISM counter will count every digital telephone configured in Overlay 11, except wireless sets. This includes AST sets, ACD agents, and AST sets configured as ACD agents. It does not include Meridian Mail/Call Pilot or Phantom sets, which count against System TNs ISM.

The Analogue Telephones ISM counter will count every analog telephone configured in Overlay 10, except wireless sets and phantom sets. This includes AST sets, ACD agents, and AST sets configured as ACD agents.

The Wireless Telephones counter includes CT2 and (M)DECT sets configured in Overlay 10.

The TMDI ISM counter will count every TMDI configuration on a small system.

The software tracks Application Module Links (AMLs), D-channels (DCHs), Logical Terminal Identifiers (LTIDs), and Digital Subscriber Loops (DSLs) are tracked by software.

LTIDs and DSLs apply to Integrated Services Digital Network (ISDN) Basic Rate Interface (BRI) only. Refer to *ISDN Basic Rate Interface description* for more information regarding BRI.

In Overlay 10, Service Change (SCH) messages appear only after the Feature (FTR) prompt has been answered.

In Overlay 11, SCH messages appear only after the KEY prompt has been answered.

Feature interactions

There are no feature interactions associated with this feature.

Feature packaging

Incremental Software Management requires the following packages for:

- ACD-DNs and ACD AGENT
  - — Basic ACD (BACD) package 40
- AML
  - — Digit Display (DDSP) package 19
  - — ACD Package B (ACD-B) package 41
  - — ACD Package A (ACD-A) package 45
  - — Command Status Link package 77

— ISDN Application Module Link for Third Party Vendors (IAP3P) package 153

- AST
  - — Command Status Link package 77
  - — Application Module Link (AML) package 209
- ATTENDANT CONSOLES
  - — Attendant Consoles is included in base X11 system software.
- CLASS TELEPHONES
  - — Calling Number Delivery (CNUMB) package 332; or
  - — Calling Name Delivery (CNAME) package 333.
- DATA PORTS
  - — Package requirements for data ports vary depending on the type of data port configured. Refer to the *Software Input/Output Guide X11 Administration*, 553-3001-311 and the *Software Input/Output Guide X11 Maintenance*, 553-3001-511 for information on specific data port package requirements.
- INTERNET TELEPHONES
  - — M2000 Digital Set (DSET) package 88
  - — Aries Digital Set (ARIE) package 170
- ITG ISDN TRUNKS
  - — Basic Alternate Route Selection (BARS) package 57, or Network Alternate Route Selection (NARS) package 58
  - — Integrated Services Digital Network (ISDN) package 145
  - — ISDN Signaling Link (ISL) package 147
  - — Multi-purpose Serial Data Link (MSDL) package 222 (for large systems only)
- PHANTOM PORTS
  - — Phantom TN (PHTN) package 254
- TRADITIONAL TRUNKS

— Package requirements for traditional trunks vary depending on the type of trunk configured. Refer to Refer to *Administration* (553-3001-311) and *Maintenance (*553-3001-511) for information on specific trunk package requirements.

- WIRELESS

— Meridian 1 Companion Option (MCMO) package 240

Feature implementation

There are no specific implementation procedures for this feature.

Feature operation

No specific operating procedures are required to use this feature.

Information Notification Service for Japan

Contents

The following are the topics in this section:

Feature description

The Information Notification Service for Japan (INS-J) feature allows a Japan local exchange to extract the calling line identification information received on Japan analog trunks (JCO/JDID) and to deliver it to subscribers' terminals/ trunks with display capability and customer oriented applications. In Japan, this service has already been available on ISDN. However, analog trunks are still seen as efficient alternatives to ISDN.

The INS-J feature has its own circuit card, the NT5D39 DXUT-J card. The DXUT-J is a Digital Signaling Processor-based Extended Universal Trunk card for the Japan market. The DXUT-J collects the FSK-format INS-J information sent by the CO and sends it to the Meridian 1 software. The DXUT-J also supports the Busy Tone Detection for Japan that is available on the EXUT-J card.

On an incoming call with INS-J, the Meridian 1 extracts information such as: Calling Party Number, Calling Party Name, Called Party Number, Date and Time, and, if applicable, Reason for absence of Calling Party Number/Calling Party Name. This information is passed on to the terminating party, which can be:

- a trunk
- a terminal or
- an application.

The INS-J information is sent by the CO in Frequency Shifted Key (FSK) format. The NT5D39 DXUT-J card decodes this information and sends it to the Meridian 1 software via SSD messages.

The Meridian 1 software extracts the Calling Party Number, Called Party Number, Calling Party Name, and Date and Time information, and the call termination follows the existing procedure. For example, if the call is from an incoming CO trunk, it terminates at the attendant or where designated by the system's database; if the call is a DID call, the Meridian 1 software extracts the information from the INS-J and terminates the call accordingly.

The INS-J information is passed on to the terminating party, which can be:

Trunks

- ISDN
  - PRI/BRI
- R2MFC
  - DTI/DTI2
  - Analog

Terminals

- Digital sets
  - SL-1
  - Meridian Digital telephones
  - BRIL sets

- Attendant Console

Applications

- Meridian Mail
- Meridian Link
- Meridian IVR
- Customer Controlled Routing
- Symposium Call Center Server

Call Detail Recording (CDR)

The INS-J feature is enabled and disabled on a per unit basis using a class of service in LD 14.

Figure 50 shows the operation of the INS-J feature.

Figure 50
Meridian 1 with INS-J feature operating

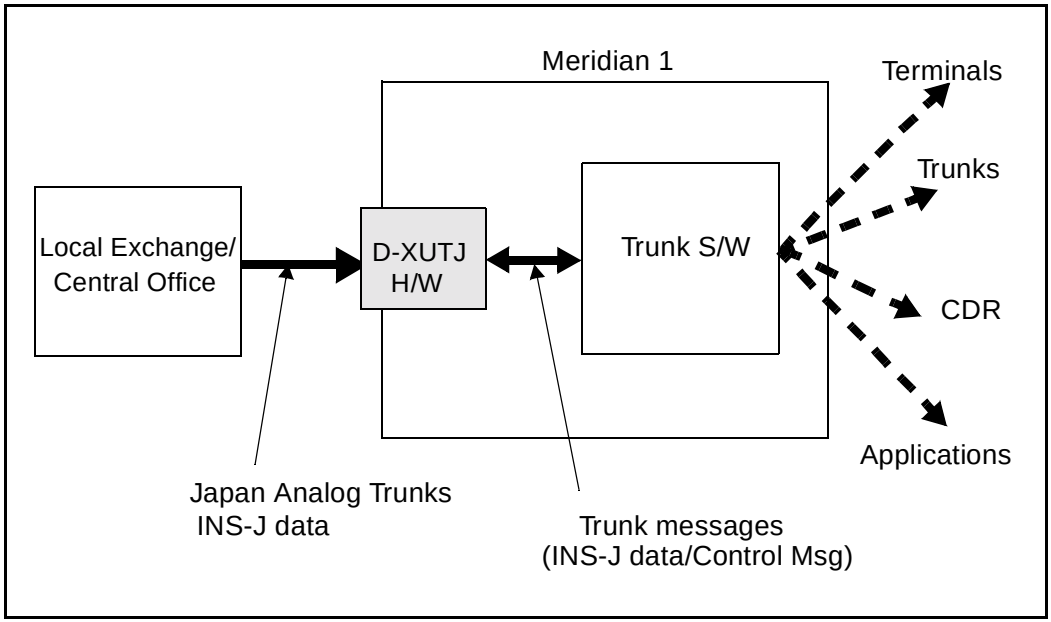
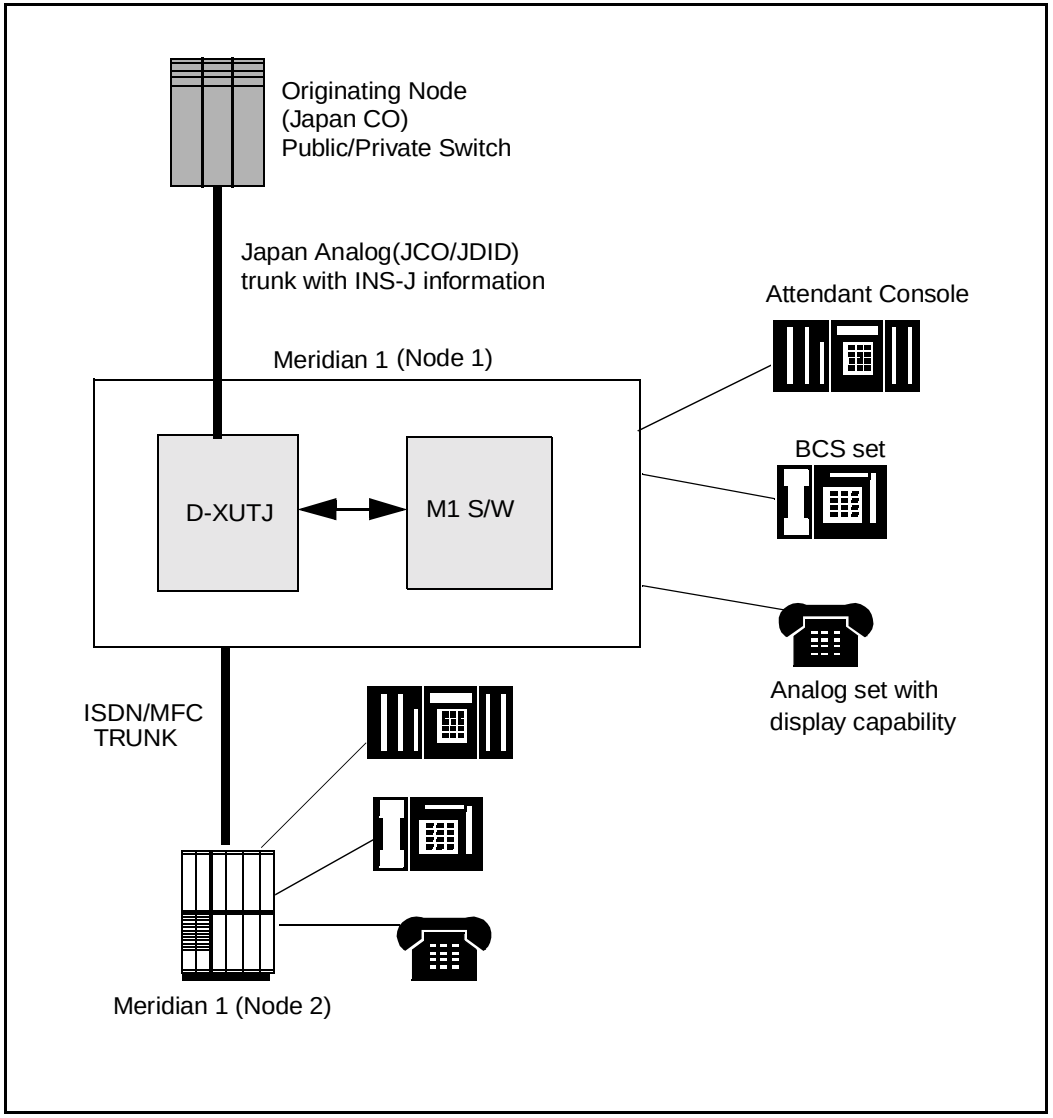


Figure 51 shows the system composition required for the INS-J CLID delivery:

Figure 51
System composition for INS-J CLID delivery



Operating parameters

This feature is only applicable for incoming analog trunks. If the terminating set/trunk cannot receive the information, then the Analog CLI information will not be displayed nor transmitted.

As per existing M1 functionality, only the first 16 digits of the Calling Party/ Called Party number will be processed.

Display of Katakana characters is not supported. Any Katakana characters received will be ignored.

If system initialization occurs while the INS-J information is being sent from the NT5D39 DXUT-J card to the Meridian 1 software, then any INS-J information that has not been sent is lost and the call is lost as well, since it is not an established call. In the case of an established call, the call will be rebuilt and the display may or may not be maintained.

The system administrator must ensure that the INS-J function is activated for those trunk ports that are actually connected to a CO with INS-J.

Feature interactions

Attendant Call Extension

When an attendant extends a call from an incoming INS-J trunk, the Analog CLI information is delivered to the terminating set.

Call Transfer/Blind Transfer

When a set completes a Transfer/Blind Transfer of an incoming INS-J call, the Analog CLI information is delivered to the terminating set.

Call Forward All Calls/Call Forward No Answer/Internal Call Forward/Hunt

When a call is redirected via Call Forward All Calls/Call Forward No Answer/Internal Call Forward/Hunt, the Analog CLI information is delivered to the terminating set.

CLASS

If the call terminates on a CLASS set then the Analog CLI information is passed to the CLASS feature.

Conference/No Hold Conference

When a set receives an incoming call and then initiates a conference call, the information of the initiating set will be delivered to the terminating set, and not the Analog CLI information.

Direct Inward System Access

If a user enters the Meridian 1 through DISA dialing, the information passed on is that of the incoming trunk and not of the DISA DN.

Private Line Service

Private Line Service will not affect the CLI information on the set.

Basic Rate Interface (BRI)

If an incoming call from an INS-J trunk is redirected to BRI, the Analog CLI information is mapped onto the setup message and sent, as per existing M1 operation.

Feature Group D (FGD)

If an incoming call from an INS-J trunk is redirected to a Feature Group D trunk, the Analog CLI information is passed on as per existing M1 operation.

Integrated Services Digital Network (ISDN)

If an incoming call from an INS-J trunk is redirected to an ISDN trunk, the Analog CLI information is passed on as per existing M1 operation.

Multifrequency Compelled Signaling (MFC)

If an incoming call from an INS-J trunk is redirected to an MFC trunk, the Calling Party Number information is mapped to the CNI digits of MFC. Since MFC does not support Calling Party Name and Date/Time, that information is not sent.

Feature packaging

This feature introduces a new package: Analog CLI (ACLI), package number 349.

The ACLI package requires Japan package 97.

The UK package (package 190) is incompatible with ACLI, and should not be packaged if ACLI is turned on.

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

1 LD 14 – Configure the Analog CLI Class of Service on a port-by-port basis.

2 LD 16 – Configure the new ring validation timer.

LD 14 – Configure the Analog CLI Class of Service on a port-by-port basis.

Prompt	Response	Description
REQ	NEW CHG	Add new data. Change existing data.
TYPE	COT DID	Central Office or Direct Inward Dialing.
XTRK	EXUT	Type of trunk card.
CUST	0-99 0-31	Customer Number, as defined in LD 15. For Option 11C.
...	...	
SUPN	YES	Supervision required.
STYP	JCO JDID	Japan CO or Japan DID.
	BTS	Busy Tone Supervision (Optional)
CLS	(CLID) CLIA	Calling Line Identification denied or allowed.
...	...	

LD 16 – Configure the new ring validation timer.

Prompt	Response	Description
REQ	NEW CHG	Add new data. Change existing data.
TYPE	RDB	Route Data Block.
...	...	
TKTP	TIE COT	TIE or Central Office trunk.
...	...	
CNTL	YES	Changes to controls of timers.
TIMR	RGV 256	Ring validation timer to be changed to 256.
...	...	

Feature operation

No specific operating procedures are required to use this feature.

Instant ISM

Contents

The following are the topics in this section:

Feature description

The Incremental Software Management limits determine the maximum number of TNs, ACD positions, and other parameters on the Meridian 1.

The Instant Incremental Software Management (IISM) feature allows ISM limits to be upgraded on the Meridian 1 by delivering the keycode to the Meridian 1, without the need for a Sysload.

During keycode activation via the existing prompts in overlay 143, if the keycode is eligible for instant activation (i.e., ISM parameters are the only parameters that have changed relative to the current system keycode, and no ISM limits are decreasing), the ISM limits will be upgraded "instantly." Following successful activation, a system message introduced by the Instant ISM feature will be displayed. This message indicates that the keycode was accepted, ISM limits were increased, and that a Sysload is *not* required.

A keycode that is eligible for instant activation has ISM limits that are either unchanged or increased, has no addition or removal of feature packages, and has no changes to software release and issue, software generic, or AUX-ID.

If a keycode is not eligible for instant activation (i.e., ISM parameters are lowered, or software packages are changed), system message CCBR009 ("New keycode accepted. It will be activated during the next restart.") is displayed and a Sysload *will* be required.

Operating parameters

Option 51C, 61C, and 81C systems must be equipped with the NT5D61 IODU/C card to support this feature. The reason for this requirement is that keycode enabling of software (which implements the activation of ISM limits and packages) on these systems requires IODU/C.

ISM limits can only be unchanged or increased if limits are decreased, a Sysload is still required to enable them. This feature does not support adding or removing packages, or changing software release and issue, software generic, or AUX-ID, without the need for a Sysload.

The Meridian 1 does not treat the option 11C MOPT parameter as an ISM limit, but rather as a package. The Instant ISM feature does not support instant MOPT changes. If the MOPT parameter is changed, a Sysload will be required.

System initialization

If system initialization occurs while a new keycode is being instantly activated, the Meridian 1 software will attempt to complete the keycode activation if at all possible. However, depending on when the initialization occurred, the software may not be able to complete keycode activation.

After the system has completed initialization, the craftsperson should print the active ISM parameters via overlay 22. If the printed ISM parameters match the new keycode parameters, then the Meridian 1 software completed the keycode activation successfully. If the ISM parameters printed are the pre-upgrade parameters:

- For options 51C, 61C, and 81C systems, the craftsperson should load overlay 143 to verify whether the new keycode is still on the hard drive by using the “KSHO HD” command. If the new keycode is still on the hard drive, then the craftsperson needs to remove the keycode from the hard drive using the “KOUT” command, and then perform the new keycode installation process again. If the new keycode is not on the hard drive, the craftsperson should perform the new keycode installation process in overlay 143.
- For option 11C systems, the craftsperson should load overlay 143 and reprogram the system upgrade process.

Feature interactions

Incremental Software Management

Instant ISM does not change the operation of the various ISM limits. Instant ISM simply allows the user to upgrade ISM limits without having to Sysload.

IS-41 Networking

Instant ISM supports the MOB ISM parameter in the IS-41 Networking feature.

RAN and Music Broadcast

Certain traffic reports peg the number of times the RAN and Music ISM limits had been reached. Due to the fact that ISM limits may change instantly (without a Sysload), a traffic report that is counting the ISM hits over a period may be checking against two different values consecutively. Therefore, for one single calculation period the report will have an aberration.

Electronic Brand Line (EBLN/BRAND)

Unlike other ISM parameters which define the maximum configuration limits for various resources, the BRAND ISM parameter defines which Electronic Brand Line feature option the system is allowed to use.

The same limitation applies to the BRAND parameter as applies to other ISM limits, that is, the BRAND parameter must be unchanged or increased if the ISM limits are to be updated instantly without the need for a Sysload.

Once the BRAND ISM parameter has been increased, the user still has to load overlay 17, in order to configure the actual string that is to be displayed, as per existing operation.

Telephone displays that display brandline information (when in an idle state) will not have the brandline updated immediately. The update will occur on a set the next time LAMPAUDIT audits the set.

Feature packaging

This feature is included in base X11 System Software.

Feature implementation

There are no specific implementation procedures for this feature.

Feature operation

Feature operation is further broken down into three options:

1 Instant ISM parameter upgrade using a keycode diskette

2 Instant ISM parameter upgrade using HyperTerminal

3 Instant ISM parameter upgrade for Option 11C

Instant ISM parameter upgrade using a keycode diskette

Perform the following to instantly activate a keycode without a Sysload:

Note: For a dual-CPU (redundant) system, leave the system in full redundant mode (hard-disk and CPU redundancy).

1 Log in on a system terminal and load overlay 143.

```
>LD 143
CCBR000
.
```

2 Insert the new keycode diskette into the floppy drive on the active IODU/C.

3 Enter the KDIF command and select keycode comparison options.

Note: Ensure that the new keycode does not lower ISM limits or reduce features compared with the existing keycode. If you have determined that the keycode lowers ISM limits or reduces features, do not continue with the KNEW command, but contact your Nortel Networks order management representative.

```
. KDIF
Please use: KDIF <param1> <param2>
with the following parameters:
```

NEW	accepted new keycode
REC	currently used keycode
OLD	previously used keycode
F0	candidate keycode on diskette in /f0 floppy drive
F1	candidate keycode on diskette in /f1 floppy drive
HD	candidate keycode which was uploaded to hard disk

Enter the keycode comparison option. The new keycode option is shown in **bold**.

Note: In the following example, the (REC) currently used keycode will be compared with the new keycode disk in floppy drive F0. The limits shown are for example purposes only.

.KDIF REC F0
Validating Keycode File /p/install/keycode.rec ... OK
Validating Keycode File /f0/keycode.kcd ... OK

System parameters	1st keycode:	2nd keycode:
System Serial Number	: 46XX	46XX
Software Version	: 2311	2311
System Type	: Option 61C	Option 61C
Call Processor	: CP68040	CP68040
Release	: 24	24
Issue	: XX	XX
NTI Order Number	:	
NT SDID - 1	:	
NT SDID - 2	:	
Date and Time of Manufacture	:	

Note: ( ) indicates that information is not available

ISM Limits	1st keycode:	2nd keycode:
Loop Limit	: 32	32
Sys TNs Limit	: 10	11
ACD Agt Limit	: 10	10
ACD DNs Limit	: 10	10
AST Limit	: 10	10

.....

Common packages for both keycodes:
0-2 4-5 7-25 28-29 32-55 58-65

.....

Additional packages in the 2nd keycode:
< **30-31**

.

4 Select the new keycode for activation using the KNEW command.

. KNEW F0

If the new keycode is eligible for instant activation, it will be activated without further user action, and the following system message is given:

CCBR020 New Keycode accepted and activated successfully. Sysload is NOT needed!

Otherwise, if the keycode is not eligible for instant activation, a Sysload is needed to activate the new keycode and the following system message is given:

CCBR009 New Keycode accepted. It will be activated during the next restart.

5 Load Overlay 22 and confirm that the new ISM parameters have been updated.

```
>LD 22
REQ SLT
....
```

6 See“Reverting to the previous keycode with the KRVR command” on page 1768 if ISM limits are not increased or problems exist.

Instant ISM parameter upgrade using HyperTerminal®

For Options 51C, 61C, and 81C systems, perform the following to instantly activate a keycode without a Sysload:

For a dual-CPU (redundant) system, leave the system in full redundant mode (hard-disk and CPU redundancy).

1 On a PC, access the Meridian 1 system (via a modem) with HyperTerminal® (provided with Windows 95):

- Click the **Start button | Programs | Accessories | HyperTerminal.**

2 Double-click the HyperTerminal client to the Meridian 1 system.

3 Log into the Meridian 1 system.

4 Load the Keycode Management Program (LD 143).

LD 143	to load program
KUPL	to upload keycodes to the hard disk on the target system

5 Click the **Transfer** menu in HyperTerminal and select **Send Text File**.

6 From the **Files of type** pull-down menu, select **All Files (*.*)**.

7 Locate and select the keycode file on the PC. Use the **Look in** pull-down menu to select the drive on which the keycode is located.

8 Click **Open**.

The keycode will be displayed after the KUPL prompt.

Example:

KUPL 0001PBX 0101
9FPAMSRHNN17KRUQAFFSPREQEVMTHIDHRKDJHRKEJR56

9 Press the Enter key.

The Keycode is checked for CRC errors and is uploaded to the hard disk.

Enter the following command:

KDIF REC HD to compare the existing keycode with the new keycode on the hard disk

Ensure that the new keycode does not lower ISM limits or reduce features compared with the existing keycode. If you have determined that the keycode lowers ISM limits or reduces features, do not continue with the KNEW command, but contact your Nortel Networks order management representative.

10 Select the new keycode for activation using the KNEW command.

KNEW XX to select the new keycode for activation, where

XX = HD for a keycode on the hard drive, or
XX = F1 or F0 for a keycode on the floppy drive on Core 1 or Core 0.

If the new keycode is eligible for instant activation, it will be activated without further user action, and the following system message is given:

CCBR020 New Keycode accepted and activated successfully. Sysload is NOT needed!

Otherwise, if the keycode is not eligible for instant activation, a Sysload is needed to activate the new keycode and the following system message is given:

CCBR009 New Keycode accepted. It will be activated during the next restart.

If KUPL fails, the file is saved to the file "\u\keycode.err."

11 See "Reverting to the previous keycode with the KRVR command" on page 1768 if ISM limits are not increased or problems exist.

Instant ISM parameter upgrade for Option 11C

Option 11C systems

For Option 11C systems, perform the following to instantly activate a keycode without a Sysload:

1 Log in and load overlay 143

```
>LD 143
CCBR000
.
```

2 Enter the **UPGRADE** command.

```
. UPGRADE
```

The “Software Installation Main Menu” is displayed:

```
SOFTWARE INSTALLATION PROGRAM
**************************************
Verify Security ID: XXXXXXXX
**************************************
Software Installation Main Menu:
1. New Install or Option 11/11E Upgrade - from Software
Daughterboard
2. System Upgrade
3. Utilities
4. New System Installation - From Software Delivery Card
[q]uit, [p]revious, [m]ain, [h]elp or [?], <cr> - redisplay

Enter Selection:
```

3 Enter **2** for the “System Upgrade” option.

The “Select type of upgrade to be performed” menu is displayed.

```
Select type of upgrade to be performed:
1. Option 11/11E to Option 11C
2. Option 11C New Software Upgrade
3. Option 11C Feature/Parameter Upgrade
[q]uit, [p]revious, [m]ain, [h]elp or [?], <cr> - redisplay
```

4 Enter **3** for the “Option 11C Feature/Parameter Upgrade” option.

Note: The following questions require information from the Keycode data sheet. Please have it available.

5 Indicate that the current Feature Sets and/or Packages will remain the same by selecting “n” to the following requests.

- Do you wish to change feature sets? (y/n/[a]bort) : N
  Keeping Current Feature Set.
- Do you wish to add packages? (y/n/[a]bort) : N

The current ISM Parameters are printed to the TTY.

6 The ISM parameters shown below are a sample configuration only.

Current ISM Parameters :
TNS (10)
AGNT (10)
ACDN (10)
AST (10)
DSL (10)
...

7 Do you wish to change any ISM parameters? (y/n/[a]bort) :

8 In response to the prompt “Do you wish to change any ISM parameters? (y/n/[a]bort) :” enter **y**.

9 The ISM parameters are prompted in sequence. Change the ISM parameters appropriately, according to the new keycode:

The ISM parameters shown below are a sample configuration only.

Enter new ISM parameters, <cr> to leave unchanged:
TNS (10) -
AGNT (10) - 11
ACDN (10) -
AST (10) -
DSL (10) -
...

10 After all ISM parameters have been prompted, the new ISM parameters are displayed and the prompt “Is this correct?” appears. Enter **y** to continue.

11 New ISM Parameters :
TNS (10) -
AGNT (11)
ACDN (10) -
AST (10) -
DSL (10) -
...

12 Is this correct? (y/n/[a]bort) :

13 Enter **y** if the new ISM parameters are correct. If the ISM parameters are not correct select **n** and reconfigure the ISM parameters.

The system will display the Security ID and Current AUX ID.

14 Security ID: XXXXXXXX
Current AUX ID : XXXXXXXX
Do you wish to change the AUX ID? (y/n/[a]bort) :

15 In response to the prompt “Do you wish to change the AUX ID?,” enter **n**.

16 An upgrade summary is displayed. In response to the prompt “Is this correct?,” enter **y** to continue.

17 Ensure that the new ISM limit is shown. In this example the AGNT ISM limit was changed from 10 -11. The system will display:
AGNT : 10 11
...
Is this correct? (y/n/[a]bort) :

18 Select **y** and the system will prompt to enter the keycode.

19 Enter new keycodes:
Key 1 :
Key 2 :
Key 3 :

20 Enter the new keycode. The keycode consists of three keycode strings: Key 1, Key 2, and Key 3. Enter each string and press return. If the keycodes are entered properly, the system will display:

21 Keycode validation successful.
Are you sure you wish to perform the upgrade? (y/n/[a]bort) :

22 In response to the prompt "Are you sure you wish to perform the upgrade?," enter **y**.

If the new keycodes correct for instant activation, it will be activated without further user action, and the following message is given:

Upgrade was completed and activated successfully.
Sysload is NOT needed!

If the keycode is not eligible for instant activation, a Sysload is needed to activate the new keycode and the following message is given:

Upgrade was completed successfully.
Initiate a Sysload to activate the upgrade.

Reverting to the previous keycode with the KRVR command

On options 51C, 61C, and 81C systems, the KRVR command can be used to revert to the old keycode "instantly."

> ***Note:*** The terms "old" and "new" keycode as discussed here refer to the most recent previous KNEW command. The "old" keycode is the former keycode, prior to the KNEW command. The "new" keycode is the keycode that was activated by the KNEW command.

The old keycode is eligible for instant activation with the KRVR command if the only difference between the old keycode and the new keycode is that some or all of the ISM parameters in the old keycode are *higher*.

To revert to the old keycode:

- In overlay 143, enter the **KRVR** command.

If the keycode is eligible for instant activation, it will be activated without further user action, and the following system message is given:

CCBR020 New Keycode accepted and activated successfully. Sysload is NOT needed!

Otherwise, if the keycode is not eligible for instant activation, a Sysload is needed to activate the new keycode and the following system message is given:

CCBR009 New Keycode accepted. It will be activated during the next restart.

Integrated Messaging System Link

Contents

The following are the topics in this section:

Feature description

The primary objectives of Integrated Messaging System (IMS) Link are to replace written telephone messages, to minimize the need for attendant intervention in the leaving and the retrieving of messages, and to support user-to-user automatic voice messaging. These functions are integrated in Integrated Messaging System (IMS) Link capability.

Integrated Messaging System (IMS) Link provides the support required for third-party messaging systems to interface with the Meridian 1. The calling party can leave voice messages to be retrieved by the called party at any time. Users calling from inside or outside the Meridian 1 system can leave and retrieve messages. The messaging system answers the call, delivers a personal greeting (recorded in the user's voice), digitizes the message, stores the message, and notifies the called party of a waiting message. The called party can retrieve and manipulate these messages from any Digitone telephone in the world. The user can issue a variety of commands to save or transfer messages, reply to messages, or broadcast group messages to multiple users.

To retrieve messages, each user must enter an ID code and a password. If the user calls the messaging system from his or her own Directory Number (DN), the ID code need not be entered. Any telephone with Dual Tone Multifrequency (DTMF) or Meridian 1 proprietary telephone signaling can connect to the attendant or to some other predefined DN by pressing 0. Callers with analog (500/2500 type) telephones must wait for a time-out before connecting automatically to the attendant.

The maximum length of a message will vary, depending on the messaging system equipped. User profiles are established to limit the number of messages each user is entitled to store.

Operating parameters

Users within the Meridian 1 system must have either Dual Tone Multifrequency (DTMF), or Meridian 1 proprietary telephone signaling capabilities. Users outside the Meridian 1 must have DTMF signaling.

Feature interactions

There are no feature interactions associated with this feature.

Feature packaging

Integrated Messaging System (IMS) package 35, requires the following packages:

- Basic ACD (BACD) package 40
- ACD Package A (ACDA) package 45, and
- Message Center (MWC) package 46.
- Auxiliary Processor Link (APL) package 109.

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

1 LD 17 – Add or change the link to a messaging system. Before adding, changing, or removing a link, the device must be disabled.

2 LD 17 – Add or change the link to a messaging system. Before adding, changing, or removing a link, the device must be disabled.

3 LD 15 – Add or change the IMS feature for a customer.

4 LD 23 – Add or change ACD data for Integrated Messaging System Link feature.

5 LD 11 – Add or change IMS attendant capability for each Meridian 1 proprietary telephone.

LD 17 – Add or change the link to a messaging system. Before adding, changing, or removing a link, the device must be disabled.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	CFN ADAN	Configuration Record. Gate opener.
IOTB	(NO) YES	(Do not) allow changes to input/output devices.
ADAN	NEW CHG TTY 0-15	Add or change a messaging system link to the Meridian 1.
- USER	APL	This link is an Auxiliary Processor Link (APL).
TYPE	PARM	Gate opener.
- AXQI	(20)-255	Number of call registers to be used for receipt of messages from the messaging system.
- AXQO	(20)-255	Number of call registers to be used for output of messages to the messaging system. ***Note:*** If the number of call registers defined for the Meridian 1 system (prompt NCR) is within the range 80-1020, AXQI and AXQO cannot exceed 25 percent of the system call registers.

LD 17 – Add or change the link to a messaging system. Before adding, changing, or removing a link, the device must be disabled.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	CFN ADAN	Configuration Record. Gate opener.
IOTB	(NO) YES	(Do not) allow changes to input/output devices.
ADAN	NEW CHG TTY 0-15	Add or change a messaging system link to the Meridian 1.

- CTYP	aaaa	Card type, where: aaaa = DCHI, MSDL, MSPS, SDI, SDI2, SDI4, or XSDI.
- DNUM	0-15	Device number to be printed automatically (same as ADAN number).
- USER	APL	This link is an Auxiliary Processor Link (APL).
TYPE	PARM	System parameters.
- AXQI	(20)-255	Number of call registers to be used for receipt of messages from the messaging system.
- AXQO	(20)-255	Number of call registers to be used for output of messages to the messaging system. ***Note:*** If the number of call registers defined for the Meridian 1 system (prompt NCR) is within the range 80-1020, AXQI and AXQO cannot exceed 25 percent of the system call registers.

LD 15 – Add or change the IMS feature for a customer.

Prompt	**Response**	**Description**
REQ:	CHG	Change.
TYPE:	FTR	CDR Gate Opener
CUST	0-99	Customer number.
OPT	(MCX) MCI	Message Center (excluded) included.
...		
TYPE	IMS	Integrated message service options.
- IMS	(NO) YES	(Do not) allow changes to the IMS feature.
- IMA	(NO) YES	IMS feature (is not) or is enabled.
- - APL	0-15	Port number of the link to the messaging system.
- UST	(NO) YES	User Status Update (UST) feature (is not) or is enabled.

- - APL	0-15	Port number of the link from UST to the messaging system.
- UMG	(NO) YES	User-to-User Messaging (UMG) feature (is not) enabled.
- - APL	0-15	Port number of the link from UMG to the messaging system.

LD 23 – Add or change ACD data for Integrated Messaging System Link feature.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	ACD	ACD Data Block.
CUST	0-99	Customer number.
ACDN	xxxx	ACD DN (can have up to seven digits if DN Expansion package is equipped).
MWC	(NO) YES	ACD (is not) is an IMS.
- IMS	(NO) YES	(Do not) allow changes to the IMS feature.
- - IMA	(NO) YES	ACD DN (is not) is used as an IMS DN.
- - APL	0-15	Port number of the link to the messaging system.
- - UST	(NO) YES	User Status Update (UST) feature (is not) is enabled.
- - APL	0-15	Port number of the link from UST to the messaging system.
- - UMG	(NO), YES	User-to-User Messaging (UMG) feature (is not) is enabled.
- - APL	0-15	Port number of the link from UMG to the messaging system.
- - RAN	0-30 32-xxx	Route number to the Recorded Announcement (RAN) for UMG (default is no RAN).
- - UMT	0-(6)-15	Time, in seconds, of silent interval after alert tone on RAN.

LD 11 – Add or change IMS attendant capability for each Meridian 1 proprietary telephone.

Prompt	Response	Description
REQ:	CHG	Change.
TYPE:		Telephone type, where:
	aaaa	aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, 3000.
TN	l s c u	Terminal Number.
CLS	(IMD) IMA	This telephone (is not) is an IMS attendant.
LTN	1-253 0-15	Logical Terminal Number assigned to this attendant, port number of the link to messaging system used by this attendant.
KEY	0 ACD xxxx yyyy	Add an INCALLS key, where: xxxx = IMS Directory Number (DN), and yyyy = Agent ID. ***Note:*** IMS DN and Agent ID can have up to seven digits if DN Expansion package is equipped
	xx MIK xx MCK xx NRD xx MSB	Add a Message Indication (MI) key. Add a Message Cancellation (MC) key. Add a Not Ready (NR) key. Add a Make Set Busy (MSB) key.

Feature operation

No specific operating procedures are required to use this feature.

Integrated Services Digital Network

Integrated Services Digital Network (ISDN) provides standard digital interfaces between telephones, terminals, and telecommunication networks.

ISDN uses a common signaling protocol transmitted over a dedicated data channel called the D-channel. The D-channel carries call setup and feature activation information to the call destination. This allows users network-wide access to features.

ISDN services are categorized into two types of interfaces: Primary Rate Interface (PRI) and Basic Rate Interface (BRI).

Primary Rate Interface (PRI)

ISDN PRI provides 30B+D 23B+D channels, offering digital connectivity between the Meridian 1 and supported interfaces.

For more information on ISDN PRI, please refer to the Meridian 1 Primary Rate Interface NTPs.

Basic Rate Interface (BRI)

ISDN BRI is a digital connection that provides three digital channels. These channels consist of two 64 kbps bearer channels (B-channels) and one 16 kbps signaling channel (D-channel). This 2B+D connection is known as a Digital Subscriber Link (DSL). The DSL can be configured to provide line access, trunk access, or packet data transmission.

For more information on ISDN BRI, please refer to the Meridian 1 Basic Rate Interface NTPs.

Integrated Voice and Data

Contents

The following are the topics in this section:

Reference list

The following are the references in this section:

- *Meridian Data Services: Description* (553-2731-100)
- *Meridian Data Features: Operations and Tests* (553-2731-300)

Feature description

The Integrated Voice and Data feature provides integrated voice and data switching through a host Meridian 1.

Hardware consists of the Add-on Data Module (ADM), Data Line Card (DLC), and Modem Pool Line Card (MPLC), if modem pooling is used.

The Meridian 1 software recognizes the ADM as an SL-1 telephone, the DLC as an SL-1 Line Card, and the MPLC as a 500 telephone Line Card. LD 10 and LD 11 are used to enter the hardware into the office data.

For more information on Integrated Voice and Data refer to the Nortel Networks technical publication *Meridian Data Services: Description* (553-2731-100).

Operating parameters

Hunting is not allowed with the Modem Pool Line Card (MPLC) pack.

No analog (500/2500 type) telephone can be assigned to the MPLC pack.

Collocated SL-1 telephones can only have three key/lamp strips, due to physical constraints.

Feature interactions

For more information on Integrated Voice and Data refer to the Nortel Networks technical publication *Meridian Data Services: Description* (553-2731-100) and *Meridian Data Features: Operations and Tests* (553-2731-300).

Feature packaging

This feature is included in base X11 System Software.

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

1 LD 11 – Add or change SL-1 telephone (of an SL-1 telephone/Add-on Data Module pair) associated with a Data Line Card (DLC) data port pair.

2 LD 11 – Add or change ADM (of an SL-1 telephone/ADM pair) associated with a Data Line Card (DLC) data port pair.

3 LD 11 – Add or change DLC data port associated with a standalone ADM.

4 LD 11 – Add or change Integrated Data Interface Card (IDLC) port associated with an Asynchronous Interface Module (AIM).

5 LD 16 – Define trunk route for each data port group (modem pool).

6 LD 14 – Define a DLC as a trunk for each data port within the data port group.

7 LD 10 – Define a Modem Pool Line Card (MPLC) for each modem in the data port group.

8 LD 16 – Define a route data block for each Central Office (CO), FEX, TIE, or WATS trunk route to a remote system.

9 LD 14 – Define each trunk within the route.

LD 11 – Add or change SL-1 telephone (of an SL-1 telephone/Add-on Data Module pair) associated with a Data Line Card (DLC) data port pair.

Prompt	Response	Description
REQ:	CHG	Change.
TYPE:	SL1	Telephone type.
TN	l s c u	Terminal Number; SL-1 telephones are restricted to unit 0 or 2 when collocated with an ADM.
CDEN	SD DD	Density of this card is single or double.
KLS	1-7	Number of key/lamp strips.
KEY	0 DN xxx...x 2 TRN 9 RLS	Key 0; Voice Frequency Directory Number. Key 2; Call Transfer key. Key 9; Release key. ***Note:*** Other feature keys may be associated as required, subject to the limitations imposed by the companion ADM.

LD 11 – Add or change ADM (of an SL-1 telephone/ADM pair) associated with a Data Line Card (DLC) data port pair.

Prompt	Response	Description
REQ:	CHG	Change.
TYPE:	SL1	Telephone type.
TN	l s c u	Terminal Number – loop (0–159), shelf (0–1), card (1–10), unit (1, 3, 5, 7); the loop, shelf, and card must be the same as those specified for the companion SL-1 telephone; the unit must be the next subsequent unit to the companion SL-1 telephone (e.g., if the unit for SL-1 telephone is 2, the unit for ADM must be 3).
CDEN	SD DD	Single or double density card.
CLS	WTD	Warning Tone Denied.
KEY	0 DN xxxx	Key 0, data Directory Number; can have up to seven digits if DN Expansion (DNXP) package is equipped.
	1 DN xxx...x	Key 1, optional secondary data DN.
	2 TRN	Key 2, Call Transfer key (optional).
	3 ADL x...x	Key 3, Autodial DN (optional).
	4 RGA	Key 4, Ring Again key (optional).
	6 SCC 0-8190 *or* 6 SCU 0-8190	Speed Call Controller, Speed Call List number (optional; must be on key 6 if equipped). Speed Call User, Speed Call List number (optional; must be on key 6 if equipped).
	9 RLS	Release key: must be key 9. ***Note:*** Only the feature keys listed above can be assigned to the Add-on Data Module (ADM). If they are assigned to the ADM, they must also be assigned to the companion SL-1 telephone on the same keys(i.e, if the ADM has ADL on key 3, the companion SL-1 telephone must also have ADL on key 3, with the same Autodial DN).

LD 11 – Add or change DLC data port associated with a standalone ADM.

Prompt	Response	Description
REQ:	CHG	Change.
TYPE:	SL1	Telephone type.
TN	l s c u	Terminal Number.
CDEN	SD	Single density card.
CLS	WTD	Warning Tone Denied.
KEY	0 DN xxx...x 9 RLS	Key 0, data Directory Number. Key 9, Release key. ***Note:*** Other features/functions must not be assigned to keys 1-8.

LD 11 – Add or change Integrated Data Interface Card (IDLC) port associated with an Asynchronous Interface Module (AIM).

Prompt	Response	Description
REQ:	CHG	Change.
TYPE:	SL1	Telephone type.
TN	l s c u	Terminal Number; for AIM, unit 1 or 3 should be used.
CDEN	SD	Single density card.
CLS	WTD	Warning Tone Denied.

KEY	0 DN xxx...x 1 DN xxx...x 2 TRN 3 ADL x...x 4 RGA 6 SCC 0-8190 *or* 6 SCU 0-8190 9 RLS	Key 0, data Directory Number. Key 1, optional secondary data DN. Key 2, Call Transfer key (optional). Key 3, Autodial DN (optional). Key 4, Ring Again key (optional). Speed Call Controller, Speed Call List number (optional; must be on key 6 if equipped). Speed Call User, Speed Call List number (optional; must be on key 6 if equipped). Release key, must be key 9.

LD 16 – Define trunk route for each data port group (modem pool).

Prompt	Response	Description
REQ	NEW CHG	Create a new route, or modify an existing one.
TYPE	RDB	Route Data Block.
CUST	0-99	Customer number.
ROUT	0-511	Route number.
TKTP	ADM	ADM route.
ACOD	xxx...x	Access code for this route.
CDPC	(NO) YES	SL-1 (is not) is the only controlling party on incoming calls.

LD 14 – Define a DLC as a trunk for each data port within the data port group.

Prompt	Response	Description
REQ	NEW CHG	Create a new trunk or modify an existing one.
TYPE	ADM	ADM trunk.
TN	l s c u	Terminal Number.

LD 10 – Define a Modem Pool Line Card (MPLC) for each modem in the data port group.

Prompt	Response	Description
REQ:	CHG	Change.
TYPE:	500	Telephone type.
TN	l s c u	Terminal Number.
CDEN	SD DD 4D	Single, double, or quad density card.
DN	xxx...x	Voice Frequency Directory Number; must be the same as that telephone by switches in the ADM. ***Note:*** The trunk route defined for the data port group in LD 16 cannot be used.

LD 16 – Define a route data block for each Central Office (CO), FEX, TIE, or WATS trunk route to a remote system.

Prompt	Response	Description
REQ	NEW, CHG	Create a new route, or modify an existing one.
TYPE	RDB	Route Data Block.
CUST	0-99	Customer number.
ROUT	0-511	Route number.
TKTP	COT FEX TIE WAT	Route type.
ACOD	xxx...x	Access code for the route.

LD 14 – Define each trunk within the route.

Prompt	Response	Description
REQ	NEW CHG	Create a new trunk or modify an existing one.
TYPE	COT FEX TIE WAT	Trunk type.
TN	l s c u	Terminal Number.
CDEN	SD DD	Single or double density card.

Feature operation

No specific operating procedures are required to use this feature.

Intelligent Peripheral Equipment Completion

Contents

The following are the topics in this section:

Feature description

RON/TRON Signaling on XFEM

RON/TRON signaling is required for the Italian Extended Flexible E&M card (XFEM). RON/TRON is similar in operation to the current E&M signaling, the difference being that instead of an Answer Acknowledge, a Seize Acknowledge is sent by the far end and it remains for the duration of the call.

L1 Signaling on XFEM

L1 is a signaling protocol for inter-PBX connections defined by the International Telegraph and Telephone Consultative Committee (CCITT) Q8 recommendation. This signaling is similar to AC15, but introduces two new signals: Seize Acknowledge; and Proceed to Send.

LDR Signaling on Italian DID card (XIDID)

It will be possible to configure Loop Dial Repeat (LDR) signaling on a TIE trunk on an XDID card. LDR signaling on a TIE trunk with an XIDID card operation is similar to LDR signaling on a TIE trunk with Existing Peripheral Equipment (EPE).

Operating parameters

The following hardware cards are required:

- XFEM – NT5K83GA (for RON/TRON), NT5K83HB (for L1 in Belgium), or NT5K83DB (for L1 in Holland)
- XIDID – NTCK22AA.

Feature interactions

B34 Codec Static Loss Download and B34 Dynamic Loss Switching

Whenever a TIE/LDR trunk is configured on an XIDID card, for Static Loss Plan Download (SLPD)/Dynamic Loss Switching (DLS), loss/level is downloaded/switched to an XDID card with the type 12 message. Depending on the Class of Service configured, Non-Transmission Compensated (NTC), Transmission Compensated (TRC), or Via Net Loss (VNL), the TIE unit will be mapped to the following B34 port types: B34 T2WN, B34 T2WT, or B34 T2WV.

Multifrequency Compelled Signaling (MFC)

Multifrequency Compelled Signaling for Socotel (MFE)

MFC, MFE, L1 signaling and RON/TRON signaling are mutually exclusive.

Tone to Last Party

This feature provides a special tone (default value is busy tone) to both analog (500/2500 type) telephones and trunks in half disconnect state. The operation of this feature is unchanged for trunks working with L1 or RON/TRON.

Trunk-to-Trunk Connection

The existing restrictions for trunk-to-trunk connections based on trunk type will be applicable to XFEM cards using L1 or RON/TRON signaling.

Partial Dial Timer

This feature limits the interdigit delay to the value of the End-of-dial (EOD) timer, and its functionality is extended to TIE trunks with L1 or RON/TRON signaling.

Feature packaging

There are no new packages introduced with this feature; however, RON/TRON, L1, and LDR on XDID will be packaged with the Meridian 1 Extended Peripheral Equipment (XPE) package 203.

Feature implementation

RON/TRON Signaling on XFEM

Task summary list

The following is a summary of the tasks in this section:

1 LD 16 – Configure a RON/TRON signaling trunk route.

2 LD 14 – Configure RON/TRON Signaling trunk.

LD 16 – Configure a RON/TRON signaling trunk route.

Prompt	Response	Description
REQ	NEW, CHG	New, or change.
TYPE	RDB	Route data block.
...		
TKTP	TIE	TIE trunk.
CNTL	YES	Change control or timers.
- TIMR		Timer.
	DDL 0-(70)-1023	Dial Delay timer. The DDL timer is set at 512 ms. for the RT (RON/TRON) start arrangement.
	DSI 128-(34944)-499200	Disconnect Supervision timer.
	EOD 128-(13952)-32640	End-of-dial timer.
	ICF 0-(512)-32640	Incoming Flash timer.
	OGF 0-(512)-32640	Outgoing Flash timer. The OGF timer is to be set to 384 ms. for validation of the seize acknowledge message.
	SST xx	Seizure Supervision timer for trunks with delay dial (DDL), wink (WNK), and ground (GRD) start arrangements. xx = a minimum value of 1-(3)-15 seconds for GRD, and five seconds for DDL, WNK, RT (RON/TRON) start arrangement, and L1 signaling.
DTD	YES	Dial tone detection.
MDTD	1-(5)-31	Minimum dial tone detection delay for the route in seconds.
DLTN	(NO) YES	Provide dial tone to the far end.

LD 14 – Configure RON/TRON Signaling trunk.

Prompt	Response	Description
REQ	NEW CHG	Add new data or change existing data.
TYPE	TIE	Trunk type.
TN	l s c u c u	Terminal Number. 51C, 61C, and 81C Option 11C
XTRK	XFEM	Extended Flexible E&M trunk card.
SIGL	EAM	E&M two-wire.
...		
STRI	RT	RON/TRON incoming signaling start arrangement.
STRO	RT	RON/TRON outgoing signaling start arrangement.
CLS	DTN	Digitone.

L1 Signaling on XFEM

Task summary list

The following is a summary of the tasks in this section:

1. LD 16 – Configure L1 signaling on a XFEM TIE trunk route with Proceed to Send expected after an outgoing seize and answer supervision.
2. LD 14 – Configure a L1 Signaling trunk.

LD 16 – Configure L1 signaling on a XFEM TIE trunk route with Proceed to Send expected after an outgoing seize and answer supervision.

Prompt	Response	Description
REQ	NEW CHG	Add new data or change existing data.
TYPE	RDB	Route data block.
...		
TKTP	TIE	Trunk type.
CNTL	YES	Change control or timers.
- TIMR		
	DDL 0-(70)-1023	Dial Delay timer.
	DSI 128-(34944)-499200	Disconnect Supervision timer.
	EOD 128-(13952)-32640	End-of-dial timer.
	ICF 0	Incoming Flash timer.
	OFC 0	Outgoing Flash timer.

SST	xx	Seizure Supervision timer for trunks with delay dial (DDL), wink (WNK), and ground (GRD) start arrangements. xx = a minimum value of 1-(3)-15 seconds for GRD, and five seconds for DDL, WNK, RT (RON/TRON) start arrangement, and L1 signaling.
DTD	NO	Dial Tone Detection.
MDTD	1-(5)-31	Minimum Dial Tone Detection Delay for route in seconds.
DLTN	NO	Provide Dial Tone to the far end.

LD 14 – Configure a L1 Signaling trunk.

Prompt	**Response**	**Description**
REQ	NEW CHG	Add new data or change existing data.
TYPE	TIE	Trunk type.
TN	 l s c u c u	Terminal Number. 51C, 61C, 81C Option 11C
XTRK	XFEM	Extended Flexible E&M Trunk Card.
SIGL	WR4	AC15 Four-wire signaling; CEPTL1 Signaling.
...		
STRI	PTSD	Proceed-to-send to be sent upon receipt of an incoming seize.
STRO	PTSD	Proceed-to-send expected after generation of an outgoing seize.
SUPN	YES	Answer Supervision.
CLS	DTN	Digitone.

LDR signaling on XIDID

Task summary list

The following is a summary of the tasks in this section:

1 LD 16 – Configure LDR signaling on XIDID trunk route.

2 LD 14 – Configure LDR signaling on XIDID trunk.

LD 16 – Configure LDR signaling on XIDID trunk route.

Prompt	Response	Description
REQ	NEW CHG	Add new data or change existing data.
TYPE	RDB	Route data block.
...		
TKTP	TIE	Trunk type.
...		

LD 14 – Configure LDR signaling on XIDID trunk.

Prompt	Response	Description
REQ	NEW	New.
TYPE	TIE	TIE trunk data block.
TN	l s c u c u	Terminal Number 51C, 61C, and 81C. Option 11C
XTRK	XDID	Extended DID trunk card.
SIGL	LDR	Loop Dial repeating.
LDOP	LOOP	Loop outpulsing for LDR signaling.
BIMP	600	Balance impedance 600 ohms.

STRI	IMM	Immediate incoming start arrangement.
STRO	IMM	Immediate outgoing start arrangement.
...		
SUPN	YES	Answer and disconnect supervision required.
CLS	NTC	Non-transmission compensated.

Feature operation

No specific operating procedures are required to use this feature.

Intelligent Peripheral Equipment Software Support Enhancements

Contents

The following are the topics in this section:

Feature description

This feature provides software enhancements to the XFEM, XFALC, XFCOT, XDID, and XTD cards. The new functionalities are as follows:

- XFEM – An E&M signaling type is introduced for EAM or EM4/WR4 configurations. The BPO signaling type can be selected as an answer to the EMTY prompt. BPO is sometimes referred to as Type V signaling.
- XFALC – Some previously hard-coded timers can now be configured on a per-system basis, including off-hook validation, minimum time for dial pulse, interdigit timer, maximum time for dial pulse, and the existing post-flash timer.

- XFCOT – The Autoguard function is enhanced with an Autoguard Repeat Prevention (ATP) timer. This timer denies outgoing calls on a trunk after seize failure during the time configured for ATP. Fastguard functionality is added to prevent call collision between incoming and outgoing calls. If a Fastguard message is received from a Central Office Trunk (COT), the trunk unit is made busy immediately, thus avoiding any outgoing call to seize this unit which would drive it back to a glare state.
- XDID – This allows the Balance Impedance Adjustment to be configurable and downloadable.
- XTD – Auto configuration of the XTD card with the XTD Table 0 parameters can now be enabled. If different parameters are required for a specific XTD card, a new XTD table must be configured in LD 97. This specific card has to be manually reconfigured with the newly defined XTD table.

Operating parameters

The BPO signaling type is downloaded to the XFEM card using two hardware IDs: EAM_BPO and EM4_BPO. These IDs are supported on the Dutch XFEM card NT5K83DA, and the Italian XFEM card NT5K83GA.

The flexible XFALC Timer Download is supported on the country-specific XFALC cards NT5K20XX, where XX is the country-specific suffix.

Fast guard is supported on the New Zealand NT5K18BA, and Australia NT5K82BA/CA XFCOT cards.

The ARP timer for enhanced Autoguard applies only to Intelligent Peripheral Equipment (IPE) analog loop-start CO trunks.

XTD auto configuration is supported on the global XTD card NT5K48AA.

The Fastguard functionality only applies for incoming Loop Start CO trunks.

Auto configuration of an XTD card takes place:

- If an XTD card is inserted in a slot of an IPE shelf for which nothing is configured in the software. In such a case, XTD Table 0 parameters are used, and all units have DTD and DTR capability.
- If an XTD card is inserted in a slot of an IPE shelf for which at least one XTD unit is already configured in software. In that case, all non-defined units are automatically configured with the same XTD Table number as the unit(s) that are already defined. The newly configured units have DTD and DTR capability.

Feature interactions

The XFCOT has the following interactions with Loop Start Public Exchange/ Central Office trunks:

- Fastguard – seizure of an incoming trunk can be done by sending either a Ring Burst or Fastguard message from the firmware to the software.
- ARP – the ARP timer replaces the hard coded 3s timer.
- The Office Data Administration System (ODAS) provides a method of retrieving administrative information stored in Meridian 1 memory, such as the date that a feature package was last modified by a service change. Pertaining to XTD, whenever an XTD unit is created with Auto configuration, the system date when Auto configuration took place is stored at the end of the terminal number (TN) list.

Feature packaging

Intelligent Peripheral Equipment Software Support Enhancements require Meridian 1 XPE (XPE) package 203. The following packages are also required:

- Multi-party Operations (MPO) package 141
- International Supplementary Features (SUPP) package 131
- Automatic Card Installation (AINS) package 200
- Dial Tone Detector (DTD) package 138

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

1 LD 14 – Configure XFEM BPO trunk type signaling, and the Balance Impedance Adjustment on XDID trunk.

2 LD 16 – Configure the Autoguard Repeat Prevention timer for the route.

3 LD 97 – Configure the five XFALC timers to support downloading.

LD 14 – Configure XFEM BPO trunk type signaling, and the Balance Impedance Adjustment on XDID trunk.

Prompt	Response	Description
REQ		
XTRK	XFEM	Extended E&M trunk card.
...		
SIGL	EAM EM4 WR4	E&M 2, 4 wire and AC15 4 wire.
...		
EMTY	(ty2) ty1 BPO XBPO	4 wire E&M (type 2) or type 1 or BPO. XBPO is used to suppress the BPO trunk type and signaling option in case of EM or WR4 type signaling.
XTRK	XDID	Extended DID trunk card.
...		
BIMP	(3COM) 600	Balance impedance.

LD 16 – Configure the Autoguard Repeat Prevention timer for the route.

Prompt	Response	Description
REQ		
TYPE	RDB	Route Data Block.
...		
CNTL	YES	Responding YES to this prompt will display the TIMR prompt below.
TIMR	ARP 1-(3)-255	Autoguard Repeat Prevention timer. For Australia, the recommended value of ARP is 200 seconds.

LD 97 – Configure the five XFALC timers to support downloading.

Prompt	Response	Description
REQ		
FLSH		
TOHV	0-(250)-1275	Off-hook validation timer, in milliseconds.
TDP	(15)-1275	Minimum time for dial pulse, in milliseconds.
TID	0-(150)-1275	Interdigit timer, in milliseconds.
TDPO	15-(150)-1275	Maximum time for dial pulse, in milliseconds.
TPF	0-(200)-1275	Post-flash timer, in milliseconds. Prompted only if MPO is equipped.

Note: For Timer Settings, the value set for the TDP timer must be less than or equal to the setting for the switchhook flash timer. The TDPO timer must be greater than the TDP timer. All timer values must be entered in five milliseconds increments. Otherwise, the value is rounded to the closest inferior multiple of five.

Feature operation

No specific operating procedures are required to use this feature.

Intercept Computer Dial from Directory

Contents

The following are the topics in this section:

Feature description

An Intercept Computer (ICP) is an external information system that can be added to enhance attendant operation. Whenever an attendant answers an internal direct call, or any redirected call due to ICP Call Forwarding (CFW), the Intercept Computer Terminal (ICT) screen is lit up with information regarding either the caller (for internal calls), or the “called” party (for redirected calls). This information is presented to the attendant who can then give the appropriate information to the caller. For an external call, no information is displayed on the ICT screen.

With the Intercept Computer Dial from Directory feature (ICPD), the attendant does not need to dial the DN from the Attendant Console; pressing a single key on the ICT keyboard connects the call to the DN, thereby saving the attendant time.

An ICP can be programmed with a directory of the internal Directory Numbers (DNs) in the system. From the ICT, the attendant can search the ICP database for a specific person by name, in order to find that person's DN, according to a coordinated dialing plan (CDP). Again, pressing a single key on the ICT keyboard connects the call to the corresponding DN.

This feature is implemented using LD 15.

Operating parameters

The ICP feature must be configured for all related customers, and the ICP computer must be configured with the DNs that exist for these customers.

This feature is not available for either of the following intercept positions: ACD Agents; or the ICP Answering Machine.

It is only possible to dial from the ICT if the active loop is idle, or has only one part established in a call with the attendant (on Source (SRC) or Destination (DEST) side).

This feature does not support any dialing plan, other than CDP (since this is an already existing limitation of the networking part of the ICP feature).

A maximum of seven digits per incoming message can be received by the PBX.

Feature interactions

Pre-dial Operations

Attendant Barge-in

It is possible for an attendant to Barge-in, in the following manner:

- Press an idle loop key, and press the Barge-in key from the Attendant Console.
- Dial a Route Access Code and Route Member from the ICT.

Attendant Busy Verify

It is possible for an attendant to Busy Verify in the following manner:

- Press an idle loop key, and press the Busy Verify key on the Attendant Console, and
- Dial an extension DN from the ICT.

Pre-dial Break-in

It is possible for an attendant to override call forward on a set in the following manner:

- Press an idle loop key, and press the Break-in key on the Attendant Console.
- Dial an extension DN from the ICT.

Call Forward/Hunt Override via Flexible Feature Code

Call Forward Hunt Override via Flexible Feature Code can be dialed prior to dialing the DN from the ICP.

Call Park

An attendant can park a call in the following manner:

- Press the Call Park key on the Attendant Console.
- Dial a DN from the ICT.
- Terminate Call Park operation by pressing the Release key.

Radio Paging Pre-dial Selection

It is possible to start automatic paging in the following manner:

- Dial the pre-dial selection RPA FFC on the Attendant Console.
- Dial a DN from the ICT.

Manual radio paging is started as follows:

- Dial the pre-dial selection RPA FCC on the Attendant Console.
- Dial a DN from the ICT.
- Dial a mode digit, digit information and octothorpe “#” sign.

Post-dial Operation

Attendant Break-in

An attendant can break-in to a call by:

- Dialing an extension DN from the ICT.
- Pressing the Break-in key on the Attendant Console.

Automatic Wake-up

This feature can be requested as follows:

- Press the Wake-up key on the Attendant Console.
- Dial a DN from the ICT.
- Dial an octothorpe sign "#", and terminate by dialing the requested wake-up time from the Attendant Console.

The same approach is used to cancel Automatic Wake-up.

Radio Paging Post-dial Selection

To start radio paging an extension DN:

- Dial a DN from the ICT.
- Press the RPA Post-dialing Paging (RPAG) key on the Attendant Console.

Stored Number Redial

An attendant can dial an extension from the ICT, and then press the Stored Number Redial key to store the called number (following the rules of the Stored Number Redial feature).

Other Feature Interactions

Attendant Recall with Splitting

If a set transfers a call to the attendant, or a Meridian 1 proprietary telephone presses the Attendant Recall (ARC) key and the transferring party has not yet completed the transfer before the attendant answers, it is not possible to dial from the ICP (since the transferred party is connected to SRC, and the transferring party is connected to DEST).

Autodial

It is possible to press the Autodial (ADL) key (in which some digits are stored such as an Electronic Switched Network (ESN) code or Flexible Feature Code (FCC)), and then dial a DN from the ICP. The DN will then be stored on the ADL key.

Digital Private Signaling System #1 (DPNSS1) Executive Intrusion

Executive Intrusion can be activated by dialing an extension DN from the Intercept Computer Terminal, and then pressing the BKI key on the Attendant Console.

Do Not Disturb

This feature can be activated for an extension DN as follows:

- Press an idle Loop key, and press the Do Not Disturb Individual (DND IND) key on the Attendant Console.
- Dial a DN from the ICT.
- Press the DND IND key once more, and terminate the procedure by pressing the Release key on the Attendant Console.

The same approach applies when cancelling Do Not Disturb for a set.

To override Do Not Disturb for an extension DN:

- Press an idle Loop key on the Attendant Console.
- Dial a DN from the ICT.
- Press the DND IND key on the Attendant Console.

Message Waiting Indication

To activate the message waiting lamp:

- Press the Loop key and the Message Indication (MSG INDIC) key on the Attendant Console.
- Dial the set's DN from the ICT.
- Press the Message Indication key and the Release key on the Attendant Console.

The same approach can be used to turn off a Message Waiting lamp by using the Message Cancel key instead of the MSG INDIC key.

Multi-Tenant Service

The ICP Dial from Directory feature only works at the customer level. If several tenants are configured for a customer, they will all be affected by the ICTD prompt in LD 15.

Network Tenant Service

The ICP Dial from Directory feature only works at the customer level and for a single node. If several tenants are configured in a network situation, they will all be affected by how the ICTD prompt in LD 15 has been configured for the customers on different nodes.

Night Key Position Busy

If the Attendant Console has the Night key activated (for instance, it is busy or in Night Service), it is still possible to dial from the ICT.

Slow Answer Recall Enhancement

If the attendant extends an SRC party to a DEST party on the local node, but slow answer recall occurs since the DEST does not answer, it is possible to dial a new DN from the ICP (the DEST is disconnected when the attendant answers).

Transfer to Attendant

If a set transfers a call to the attendant, and the transferring party has not yet completed the transfer before the attendant has answered, dialing from the ICP is ignored (the transferred party is connected to SRC, and the transferring party is connected to DEST due to the Attendant Recall with Splitting feature).

Feature packaging

This feature is packaged under the Intercept Computer Interface (ICP) package 143.

The following packages are also required:

- Automatic Call Distribution Package A (ACDA) package 45
- Message Center (MWC) package 46
- Auxiliary Processor Link (APL) package 109
- International Supplementary Features (SUPP) package 131
- Flexible Feature Codes (FCC) package 139
- Flexible Tones and Cadences (FTC) package 125

To use the ICP Flexible DN length, DN Expansion (DNXP) package 150 is required.

To be able to use ICP in a network environment the following packages are needed: Integrated Services Digital Network (ISDN) package 145; 1.5 Mbit Primary Rate Access (PRA) package 146; and Network Attendant Service (NAS) package 159.

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

1 LD 15 – Allow or deny an intercept attendant to dial an extension DN from the Intercept Computer Terminal.

2 LD 15 – Set the minimum and maximum switchhook flash time required when using package 131.

3 LD 21 – Print Intercept Computer Dial from directory system information.

LD 15 – Allow or deny an intercept attendant to dial an extension DN from the Intercept Computer Terminal.

Prompt	Response	Description
REQ:	NEW CHG	New, or change.
TYPE:	ICP	Intercept Computer data block.
...		
- ICP	(NO) YES	Intercept Computer.
...		
- ICPD	(0)-9	ICP Padding digit.
- ICTD	(NO) YES	Intercept Computer Treatment Dial from directory. This prompt allows an intercept attendant position to dial an extension DN from the Intercept Computer Terminal. It is only prompted if ICP is set to “YES”.

LD 15 – Set the minimum and maximum switchhook flash time required when using package 131.

Prompt	Response	Description
REQ:	NEW CHG	New, or change.
TYPE:	TIM	Timers data block.
...		
- FLSH	xxx yyy	Switch Hook Flash timer.

LD 21 – Print Intercept Computer Dial from directory system information.

Prompt	Response	Description
REQ	PRT	Print.
TYPE	CDB	Customer data block.
...		
ICPD	(0)-9	ICP Padding digit.
ICTD	(NO) YES	Intercept Computer Treatment Dial from directory. It is only prompted if ICP is set to “YES”.
FLSH	xxx yyy	Switch Hook Flash timer.

Feature operation

ICTD = NO

When this feature is not activated, there is no change in attendant operations.

ICTD = YES

When this feature is activated, instead of dialing from the console, it is possible for an attendant to press a single key on the Intercept Computer Keyboard.

ICTD = YES operation examples

Attendant Console is Idle

The Attendant Console is idle, all lamps are dark, the display is blank, and the Release key is lit. On the ICT the attendant types the name of the called party. The ICP database is scanned to get information about this person. The information, including extension DN 4004, is then displayed on the screen.

After the attendant presses the Dial from Directory key on the ICT keyboard, the Release lamp is dark, the Loop lamp for loop “0’ is lit, and the SRC lamp on loop “0” is slowly winking. The Attendant Console display shows DN 4004. Set 4004 is ringing.

The Attendant Console was idle when dialing was performed from the ICP computer (the call was handled as if it was initiated from the Attendant Console).

Attendant Console has Established a Call on SRC

The attendant is talking with the SRC party (DN = 4002 and ATDN is displayed), loop key “0” is lit, the SRC lamp is lit, and the DEST lamp is dark. The SRC party desires to be extended to party A. On the ICT the attendant types the name of party A. The ICP database is scanned to get information about this person. The information, including extension DN 4004, is then displayed on the screen.

After the attendant presses the Dial from Directory key on the ICT keyboard, the DEST lamp is slowly winking, the Loop lamp for loop “0” is still lit, the SRC lamp on loop “0” is still lit. The Attendant Console display shows DN 4004. Set 4004 is ringing.

The attendant was connected to the SRC party (DN 4002) when dialing from the ICP computer (the call was handled as if it was initiated from the Attendant Console).

Attendant has Call on Hold

The attendant is talking to SRC (DN 4002) and DEST (DN 4004) on loop “0”, and then puts the call on hold by pressing another Loop key, or by pressing the hold key and an idle Loop key. Loop lamp “0” is now winking; the new loop key is lit. The display is cleared.

From the ICT the attendant has typed the name of the party to be called. The ICP database is scanned to get information about this party. The information, including extension DN 4009, is then displayed on the screen.

After the attendant presses the Dial from Directory key on the ICT keyboard, the SRC lamp for this loop is winking. The Attendant Console shows DN 4009. Set 4009 is ringing.

A new loop key was selected before dialing from the ICP; the held call was not affected by this operation (the call was handled as if it was initiated from an idle loop key).

Idle Attendant Dials from Both the Attendant Console and ICT

The attendant is idle, all lamps are dark, the display is empty, and the Release key is lit. On the ICT the attendant types the name of the called party. The ICP database is scanned to get information about this person. The information, including extension DN 4009, is then displayed on the screen (information that this person could be radio paged using “*81*” is also displayed).

The attendant desires to page this person, and dials an RPAX FFC code from the Attendant Console. The Release lamp gets dark, the Loop “0” lamp gets lit, and the SRC lamp on loop “0” is slowly winking. The Attendant Console display shows RPA FFC “*81*”.

After the attendant presses the Dial from Directory key on the ICT keyboard, the DN sent from the ICP is now displayed after the RPA FFC. The paging has started and ringback tone is provided. Two dialing phases have been handled: dialing the FFC code from the console; and adding the DN from the ICT (the call was handled as if it was initiated entirely from the Attendant Console).

Attendant is Connected to DID/CO on SRC

DID/CO Releases before Dialing from ICT

The attendant is talking with the SRC party (a DID/CO trunk); Route access code, Route member, and ATDN are displayed, Loop key "0" is lit, SRC lamp is lit, and DEST lamp is dark. The SRC wants to be extended to party A. On the ICT the attendant types the name of party A. The ICP database is scanned to get information about this person. The information, including extension DN 4004, is then displayed on the screen.

The SRC goes on-hook, then the attendant presses the Dial From Directory key on the ICT keyboard. The DEST lamp is dark, Loop lamp "0" is still lit, and the SRC lamp on loop "0" is now winking. The Attendant Console display only shows DN 4004 (as SRC). Set 4004 is ringing. The DID/CO trunk is disconnected.

When the DID/CO trunk disconnects, the call dialed from the ICP will appear as a new call started from an idle Attendant Console (the call was handled as if it was initiated from an idle Attendant Console).

DID Releases after Dialing from ICT

The attendant is talking with the SRC party (a DID trunk); Route access code, Route member, and ATDN are displayed, Loop key "0" is lit, SRC lamp is lit, and DEST lamp is dark. The SRC wants to be extended to party A. On the ICT the attendant types the name of party A. The ICP database is scanned to get information about this person. The information, including extension DN 4004, is then displayed on the screen.

The Attendant presses the Dial From Directory key on the ICT keyboard. Then the SRC goes on-hook. The SRC lamp is dark, Loop lamp "0" is still lit. The Attendant Console display shows the Route access code, Route member, and ATDN on the source line, and DN 4004 on the destination line. Set 4004 is ringing. The DID trunk is disconnected.

When the DID trunk disconnects, the call dialed from the ICP will remain on the DEST side (the call was handled as if it was initiated from an idle Attendant Console).

Intercept Computer Enhancements

Contents

The following are the topics in this section:

Feature description

When an intercept transfer is activated from a customer or tenant extension, it can be configured so that only external calls are forwarded to the external intercept DN (ECDN). The internal calls are forwarded to an answering machine, or the internal intercept DN (ICDN). This applies only if the extension's flexible call forward no answer DN (FDN) is not configured as an intercept position.

The answering machine must be a multi-channel machine, connected to both the Meridian 1 switch and Intercept Computer. The channels are 2500-type sets, defined in a group hunt list for the answering machine. The group hunt list contains 2500-type sets with a Class of Service of Intercept Computer Answering Machine Allowed (IAMA). The Pilot DN for the Group Hunt List is defined as the ICDN, allowing calls intercepted at the Intercept Computer to terminate on the answering machine.

Operating parameters

Analog (500/2500 type) telephones can be used as Automatic Call Distribution (ACD) agent sets.

The answering machine must have a 2500-type set interface to the Meridian 1.

Feature interactions

There are no feature interactions associated with this feature.

Feature packaging

This feature is included in base X11 System Software.

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

1 LD 10 – Configure Intercept Computer Answering Machine Class of Service.

2 LD 15 – Configure internal and external call DNs for Intercept Transfer.

3 LD 93 – Configure internal and external call DNs for Attendant console groups.

LD 10 – Configure Intercept Computer Answering Machine Class of Service.

Prompt	Response	Description
REQ:	CHG	Change.
TYPE:	500	500/2500 telephone data block.
...		
CLS	(IAMD) IAMA	ICP Answering Machine (denied) allowed. Allow a 2500 set to be a channel in the ICP Answering Machine.

LD 15 – Configure internal and external call DNs for Intercept Transfer.

Prompt	Response	Description
REQ	NEW CHG	Add, or change.
TYPE	CDB ICP	Customer Data Block. Gate opener.
...		
- ICDN	xxxx	Internal Call DN. DN used for intercept transfer when the FDN and multi-tenant are not on intercept position. The DN is used or intercept treatment for internal calls. Up to a four-digit DN prior to Phase 8. Up to 13 digits in Phase 8 and later.
- ECDN	xxxx	External Call DN. DN used for intercept transfer when the FDN and multi-tenant are not on intercept position. The DN is used for intercept treatment for external calls. Up to a four-digit DN prior to Phase 8. Up to 13 digits in Phase 8 and later.

LD 93 – Configure internal and external call DNs for Attendant console groups.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	a...a	Type of data block (a...a = ACG, CPG, CPGP, RACC, RACG, RCPG, TACC, TACG, TCPG, TENS, or TGEN).
...		
- ECDN	xxxx	External Call DN. DN used for intercept transfer when the FDN and multi-tenant are not on intercept position. The DN is used for intercept treatment for external calls. Up to a four-digit DN prior to Phase 8. Up to 13 digits in Phase 8 and later. Prompted with Intercept Computer Interface (ICP) package 143.
- ICDN	xxxx	Internal Call DN. DN used for intercept transfer when the FDN and multi-tenant are not on intercept position. The DN is used or intercept treatment for internal calls. Up to a four-digit DN prior to Phase 8. Up to 13 digits in Phase 8 and later.

Feature operation

No specific operating procedures are required to use this feature.

Intercept Computer Interface

Contents

The following are the topics in this section:

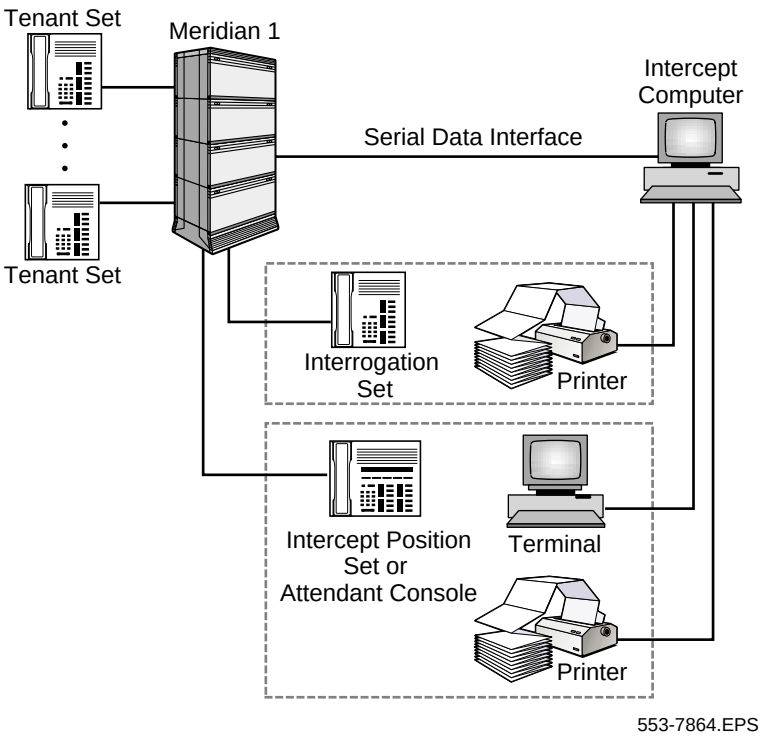
Feature description

This feature allows the Meridian 1 to use an intercept (attendant assistance service) computer for storing and retrieving call messages. Calls to an absent tenant's directory number (DN) using this feature are routed to a designated Intercept Position (ICP) DN.

The feature can be activated or deactivated by the following:

- A Flexible Feature Code (FFC) dialed from the tenant's telephone. This code specifies the reason for the tenant's absence and can be extended with a date and time as extra information. The FFC decodes into a text message.
- Pressing the Call Forward All Calls (CFW AC) key on an SL-1 telephone (deactivation).

Figure 52
Intercept Computer Interface components



- From the ICP terminal.
- Automatically when a terminal number (TN) is disabled or enabled by a maintenance overlay program.

The feature is available to all analog (500/2500 type) telephones and Meridian 1 proprietary telephones. Any analog (500/2500 type) telephone can be designated to be an interrogation set. This is given a special FFC to allow the printing of messages for any or all DNs. The attendant (ATT), and Meridian 1 proprietary telephones can be used as an ICP.

A multiple channel answering machine can be connected to both the Meridian 1 and Intercept Computer. The machine is defined in the Meridian 1 as a Group Hunt list, and the Pilot Directory Number (PLDN) is used to terminate on the Answering Machine after a call has been diverted by the ICP feature. A 2500-type set may be designated as a channel in the ICP answering machine in LD 10. The set must have a Digitone (DTN) Class of Service.

Operating parameters

An analog (500/2500 type) telephone can only be used as an interrogation set, not as an ICP.

The number of ports available to the intercept computer is typically less than 12 (the number of TTY ports less those used for maintenance, service change, and traffic).

The CFW AC LED on the tenant's telephone is used to indicate both the CFW AC and this feature.

It is not possible to change or remove an ICP station by way of the LD 71 and 72.

Each SL-1 telephone must have one CFW AC key and possibly one message-waiting key on the LED key lamp strip (if the tenant requires this type of indication). These two LEDs are turned off automatically when the Intercept Computer Interface feature is deactivated (by dialing a FFC).

This feature makes use of the Message Center (MC) and Automatic Call Distribution (ACD) features. The ICP must be configured as an MC ACD DN or MC attendant DN.

This feature and CFW AC feature are not to be activated at the same time.

ICP and Integrated Messaging Services (IMS) cannot be used at the same time for the same customer.

Feature interactions

Attendant Blocking of Directory Number

The Attendant Blocking of DN feature will override the ICP Call Forward feature. If the dialed DN of the set that has the ICP Call Forward feature active is idle, the DN will be blocked and if the DN is busy, busy tone will be heard.

Digital Private Network Signaling System (DPNSS1)/Digital Access Signaling System (DASS2) Uniform Dialing Plan (UDP) Interworking

The Intercept Computer Interface feature is not supported in a DPNSS1 UDP network.

Feature packaging

Intercept Computer Interface (ICP) package 143.

Dependencies:

- Automatic Call Distribution Package A (ACDA) package 45
- Auxiliary Processor Link (APL) package 109
- Flexible Feature Codes (FFC) package 139
- Flexible Tone and Cadences (FTC) package 125
- Message Waiting Center (MWC) package 46, and
- International Supplementary Features (SUPP) package 131.

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

1 LD 17 – Configure the configuration record for Intercept Computer Interface.

2 LD 15 – Configure the customer data block for Intercept Computer Interface.

3 LD 10 – Create or modify the analog (500/2500 type) telephone data block for Intercept Computer Interface.

4 LD 11 – Create or modify the Meridian 1 proprietary telephone data block for Intercept Computer Interface.

5 LD 12 – Create or modify the Attendant Console data block for Intercept Computer Interface.

6 LD 23 – Modify the ACD/Message Center parameters for Incoming Call Indicators (ICIs).

7 LD 93 – Enable or modify the Multi-tenant Service feature.

LD 17 – Configure the configuration record for Intercept Computer Interface.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	CFN	Configuration data block.
IOTB	(NO) YES	Change to logical units.
ADAN	NEW TTY x	Add TTY number x.

LD 15 – Configure the customer data block for Intercept Computer Interface.

Prompt	Response	Description
REQ:	NEW CHG	Add, or change.
TYPE:	CDB	Customer Data Block.
...		
- OPT	MCI	Message center included.
TYPE	IMS	Gate opener.
...		
- IMS	YES	Integrated messaging services excluded.
TYPE	ICP	Gate opener.
...		
- ICP	(NO) YES	Intercept Computer is (is not) available.
- NIPN	0-99	Number of intercept positions.

LD 10 – Create or modify the analog (500/2500 type) telephone data block for Intercept Computer Interface.

Prompt	Response	Description
REQ:	NEW, CHG	Add, or change.
TYPE:	500	500/2500Telephone data block.
...		
CLS	(IRGD) IRGA	Interrogation set for Intercept Computer allowed (denied).
	(IAMD) IAMA	Allow a 2500-type set to be a channel in the ICP Answering Machine (CLS DTN is required).
ICT	0-NIPN	Terminal/printer number (NIPN configured in LD 15).

LD 11 – Create or modify the Meridian 1 proprietary telephone data block for Intercept Computer Interface.

Prompt	Response	Description
REQ:	NEW, CHG	Add, or change.
TYPE:	a...a	Type of data block.
...		
CLS	(IPND) IPNA	Terminal/printer number (NIPN configured in LD 15).
ICT	0-NIPN	Terminal/printer number (NIPN configured in LD 15).

LD 12 – Create or modify the Attendant Console data block for Intercept Computer Interface.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	a...a	Attendant data block.
...		

ICP	(NO) YES	Intercept Computer (is not) is available.
ICT	0-NIPN	Terminal/printer number (NIPN configured in LD 15).

LD 23 – Modify the ACD/Message Center parameters for Incoming Call Indicators (ICIs).

Prompt	Response	Description
REQ	CHG	Change.
TYPE	ACD	ACD data block.
...		
ICP	(NO) YES	ACD MC (is not) is an intercept position.
ICPS		Intercept Computer printer search.
	COM	Common printer for ACD group.
	(CIR)	Circular hunt.

LD 93 – Enable or modify the Multi-tenant Service feature.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	a...a	Type of data block.
...		
ICP	(NO) YES	ACD MC (is not) is an intercept position.
ICPS		Intercept Computer printer search (when more than one console is used).
	(CIR)	Circular search.
	COM	One common printer for all consoles.

Feature operation

A terminal at the ICP displays a message stating why the tenant at the DN is absent. The person at the ICP can then store the caller's message for the tenant's DN and activate the message waiting LED at the tenant's telephone. The tenant at the DN retrieves the stored caller messages by calling the ICP, where the messages are displayed on the terminal (or optionally printed).

Intercept Treatment

Contents

The following are the topics in this section:

Feature description

Calls that cannot be completed because of call restrictions or dialing irregularities can be routed to a Recorded Announcement (RAN), to the attendant, or to hear overflow, or busy tone. Separate treatments can be specified for calls from the following categories of originating party:

- Telephones
- Attendants
- attendant originated
- attendant extended
- TIE trunk, or remote attendant or telephone, and
- Controlled Class of Service Allowed (CCSA) or Direct Inward Dialing (DID) trunk.

Operating parameters

When Intercept to RAN is desired, a recording device is required. A Recorded Announcement (RAN) route and at least one trunk must be defined (see the RAN feature module).

Intercept Treatment (INTR) for these types of calls can be specified in the Customer Data Block (LD 15) for the situations listed in Table 68.

Table 68
Intercept Treatment for various types of calls.

Intercept situation	Telephone	Attendant extended calls	Calling Party TIE trunk (including attendant)	CCSA/DID trunk
Access denied (ACCD)	C(O)	C(O)	C(O)	C(A)
Call to vacant number (CTVN)	C(O)	C(O)	C(O)	C(A)
Maintenance busy number, RPE failure (MBNR)	C(O)	C(O)	C(O)	C(A)
Code or toll restricted call by Toll Denied (TLD) station or TIE trunk (CTRC)	C(O)	NA	C(O)	NA
Calls to LDNs (CLDN)	C(O)	C(O)	C(O)	NA

O = overflow tone

A = intercept to the attendant

C = choice of overflow tone, attendant, or Recorded Announcement (RAN)

NA = not applicable

Note: Items in parenthesis are the default Intercept Treatments. Where an item is preceded with “C”, a choice can be made between overflow, attendant busy, or a RAN. Four entries are required for each intercept situation.

Feature interactions

Basic/Network Alternate Route Selection (BARS/NARS)

Table 69 specifies the type of Intercept Treatments (INTR) available for BARS/NARS calls, and lists the intercept situations that are possible.

Table 69
Intercept Treatment for BARS/NARS calls

Intercept situation	Originating party			
	Station or DISA	Attendant extended calls	TIE trunk (including attendant)	CCSA/DID trunk
BARS/NARS invalid (NINV)	C(O)	C(O)	C(O)	C(A)
BARS/NARS invalid translation (NITR)	C(O)	C(O)	C(O)	C(A)
BARS/NARS restricted (NRES)	C(O)	C(O)	C(O)	C(A)
BARS/NARS blocked (NBLK)	C(O)	C(O)	C(O)	C(A)

O = overflow tone

A = intercept to the attendant

C = choice of overflow tone, attendant, or Recorded Announcement (RAN)

Note: Items in parenthesis are the default Intercept Treatments. Where an item is preceded with “C”, a choice can be made between overflow, attendant busy, or a RAN. Four entries are required for each intercept situation.

Digital Private Network Signaling System (DPNSS1)/Digital Access Signaling System (DASS2) Uniform Dialing Plan (UDP) Interworking

The NARS blocking treatments that can be defined through the Intercept Treatment feature are applicable to a DPNSS1 UDP network.

Flexible Feature Codes

If Intercept Treatment has been specified for a call to a vacant number (CTVN), the Digit Display (DDs) on the Attendant Console is affected by Flexible Feature Codes (FFCs). If no FFC has been defined, the dialed digits are displayed up to and including the first digit that fails to match any Directory Number (DN). If one or more FFCs have been defined, the dialed digits are displayed, up to and including the first digit that fails to match any FFC.

Ring Again on No Answer

A telephone that is intercepted to the attendant cannot apply Ring Again on No Answer.

Source Included when Attendant Dials

If the attendant dials a destination which is intercepted, the source remains included in the call.

Teletype Terminal Access Control in Multi-customer Environment

The Intercept Computer (ICP) feature uses maintenance LD 51 to update the Meridian 1 with the intercept service interface information that it stored. This overlay logs off after five minutes if no messages have been received from the Intercept Computer. This five-minute period takes precedence over the value entered in response to the LOUT prompt in LD 17. If this value is less than five minutes, the system will wait for five minutes before logging off.

Total Redirection Count

Intercept treatment is not given if a call is a Network Automatic Call Distribution (NACD) ACD call, if a call is a Central Office trunk in Night Service (specific treatment is given rather than customer-defined intercept treatment), or if the call is a data call (overflow tone is automatically given).

Trunk Barring

A telephone that is intercepted to the attendant cannot apply Ring Again on No Answer.

When an Originating Trunk Connection (OTC) attempts a trunk connection to a route that is restricted by its Access Restricted Table, the connection is not allowed. The intercept treatment specified in the Customer Data Block is applied.

Virtual Network Services

Intercept treatment applied to Virtual Network Service calls is configured as for TIE trunks.

Feature packaging

This feature requires Intercept Treatment (INTR) package 11.

Feature implementation

Task summary list

The following task is required:

LD 15 – Change customer's Intercept Treatment for various call types.

LD 15 – Change customer's Intercept Treatment for various call types.

Prompt	Response	Description
REQ:	CHG	Change.
TYPE:	CDB INT	Customer Data Block. Intercept treatment options.
CUST	0-99	Customer number.
INTR	(NO) YES	Allow changes to intercept treatments.
- ACCD	(OVF OVF OVF ATN)	Default Intercept Treatment for calls to access-denied numbers.
- CTVN	(OVF OVF OVF ATN)	Default Intercept Treatment for calls to vacant numbers.
- MBNR	(OVF OVF OVF ATN)	Default Intercept Treatment for calls to maintenance busy numbers.
- CTRC	(OVF NAP OVF NAP)	Default Intercept Treatment for a code or toll restricted call by a toll restricted station or TIE trunk.
- CLDN	(NAP OVF NAP NAP)	Default Intercept Treatment for calls to a Listed DN.

- NINV	(OVF OVF OVF ATN)	Default Intercept Treatment for BARS/NARS invalid calls.
- NITR	(OVF OVF OVF ATN)	Default Intercept Treatment for BARS/NARS invalid translation calls.
- NRES	(OVF OVF OVF ATN)	Default Intercept Treatment for BARS/NARS restricted calls.
- NBLK	(OVF OVF OVF ATN)	Default Intercept Treatment for BARS/NARS blocked calls.
- - RANR	0-511	RAN route number for intercepted calls.

Feature operation

No specific operating procedures are required to use this feature.

Intercept Treatment Enhancements

Contents

The following are the topics in this section:

Reference list

The following are the references in this section:

- “Flexible Tone and Digit Switch Control” on page 1533

Feature description

The following three intercept treatments are added for Multifrequency Compelled (MFC) Signaling:

MFC Call to Vacant Office Code

This treatment is used when a VACO level 1 signal is received from the far end.

MFC Call to Vacant Number Code

This treatment is used when a VACC level 2 signal is received from the far end.

MFC Congestion

This treatment is used when a CONG level 1 or 2 signal is received from the far end.

Operating parameters

There are no operating parameters associated with this feature.

Feature interactions

There are no feature interactions associated with this feature.

Feature packaging

International Supplementary Features (SUPP) package 131.

Dependency:

- Multifrequency Compelled Signaling (MFC) package 128.

Feature implementation

Task summary list

The following task is required:

LD 15 – Modify the Customer Data Block.

LD 15 – Modify the Customer Data Block.

Prompt	Response	Description
REQ:	NEW CHG	Add, or change.
TYPE:	INT	Intercept Treatments data block.
...		
- MFVO	OVF ATN RAN NAP BSY SRC1...SRC8	MFC Call to Vacant Office. Four entries are required; Default = OVF, OVF, OVF, ATN.

Feature operation

No specific operating procedures are required to use this feature.

International Meridian 1

Contents

The following are the topics in this section:

Feature description

International Meridian 1 is a feature that implements a number of significant changes to system architecture, packaging, power and performance. It consists of:

- the reformatting of terminal numbers (TNs)
- changes to call processing (to support Superloop)
- system performance improvements, and
- the support of future telephones for the Meridian 1.

With Meridian 1, 32 TNs (for instance, 16 integrated voice and data sets) will be supported by each Extended Line Card (XDLC) card. Each shelf can support a maximum of 16 cards.

Superloop provides an increase in traffic capacity by implementing 120 time slots for each Extended Network (XNET) Card, combining loops into groups of four, and sharing resources across the four loops. Each Extended Peripheral Equipment Controller can support between one half and four Superloops, regardless of combination, in XNET Card to DS-30X loop configurations.

The Extended Peripheral Equipment Controller packs allow monitoring of power and control functions for individual line cards. These packs also control the ringing cadences for analog (500/2500 type) telephones (set in firmware). The packs communicate with the Meridian 1 by way of the XNET card, which in turn communicates directly with the Meridian 1 using the time slot-1 address.

The Extended Analog Line Card (XALC) collects dial pulses (during dial-pulse dialing) and, upon digit recognition, sends the digit as a message to the Meridian 1.

An Extended Digital Line Card (XDLC) provides voice TNs on units 0-15, and data TNs on units 16-31.

These extended packs provide enhanced maintenance and diagnostic functions. Accompanying enhancements to the Meridian 1 diagnostic routines allow for the handling of this Meridian 1 equipment.

Operating parameters

The Extended Conference and TDS (XCT) card is not supported with Supplementary features (XCT loops cannot be configured in LD 97 if the International Supplementary Features (SUPP) package 131 is equipped).

Meridian 1 peripherals will only be available on network-enhanced machine types.

No extended or enhanced SL-1 telephone line card is available. SL-1 telephones and the data products associated with the SL-1 line card must be configured on Existing Peripheral Equipment (EPE) shelves (for instance, SL-1 line cards must be configured on non-Meridian 1 shelves).

The following features are not supported on Meridian 1 equipment:

- Alternative Loss Plan
- Automatic Guard Detection
- Active Feature Dial Tone
- Audible Alarm
- Malicious Call Trace Enhancement
- Off-hook Tone
- Operator Call Back
- Dial Tone Detection
- Direct Inward Dialing (DID) or Direct Outward Dialing (DOD) Interface
- Enhanced Night Service
- Loop-start Supervisory Trunks
- LOGIVOX Telephones
- Malicious Call Trace Idle
- MFE
- Reverse Dial
- Ring or Hold LED Status
- R2 MFC Signaling, and
- Variable Guard Timing.

These features are still supported on non-Meridian 1 equipment, as they were prior to the introduction of International Meridian 1.

Feature interactions

The Extended Digitone Receiver (DTR) card is supported by Meridian 1 and provides the same functions as a non-Meridian 1 DTR card, but with a density of eight units per card (rather than four).

An Extended Network, Peripheral Control and DTR card (XNPD card) is available, providing all the functions of the XNET, XPEC and XDTR cards on one, extended card.

Meridian 1 supports the configuration of the minimum/maximum flash timing on a system basis only (non-Meridian 1 configuration could be done on a customer basis).

Feature packaging

This feature is included in base X11 System Software.

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

1. LD 17 – Configure the configuration record for 16-Button Dual-tone Multifrequency (DTMF) detection.
2. LD 13 – Configure DTR, TDET, and DTD cards for this feature.
3. LD 97 – Configure system parameters for peripheral equipment in configuration record 2.

LD 17 – Configure the configuration record for 16-Button Dual-tone Multifrequency (DTMF) detection.

Prompt	Response	Description
REQ	CHG	Request.
TYPE	PARM	Change system parameters.
...		
-ABCD	(NO) YES	16-tone DTMF operation enabled.

LD 13 – Configure DTR, TDET, and DTD cards for this feature.

Prompt	Response	Description
REQ	aaa	Request (aaa = CHG, END, MOV, NEW, or OUT)
TYPE	a...a	Type of data block (a...a = DTD, DTR, MFC, MFE, MFK5, MFK6, MFR, TDET, CMOD or XTD)

TN	l s c u c u	Terminal Number Option 11C
POLR	a...a	Polarity of LED messages for DTD (a...a = (NORM) or REV)
XTDT	(0)-7	Extended Tone Detector Table number.
-DTO	(NO) YES	Dial Tone Detection Only.
CDEN	a...a	Card Density (aa = SD, DD, or 4D)
TOTN	l s c u c u	To Terminal Number Option 11C

LD 97 – Configure system parameters for peripheral equipment in configuration record 2.

Prompt	**Response**	**Description**
REQ	CHG	Change.
TYPE	SYSP	System parameters.
...		
INTN	(NO) YES	µ-Law. A-law.
CODE	(0)-3	Used by Network Card firmware. 0 is the only valid entry (1-3 are reserved for future use).
CONT	1-(4)-15	Respond to the CONT prompt with the continuity error threshold value between 1 and 15 (the default is 4).
CRCF	1-(4)-15	Respond to the CRCF prompt with the CRC failure threshold value between 1 and 15 (the default is 4).
FLSH	xxx yyyy	Switch hook flash timing when International Supplementary Features (SUPP) package 131 is equipped. Minimum and maximum switch hook flash timer in milliseconds for analog (500/2500 type) telephones, where: xxx = 21-(45)-768, and yyyy = xxx value-(896)-1275.

Feature operation

No specific operating procedures are required to use this feature.

Inventory Reporting

Contents

The following are the topics in this section:

Reference list

The following are the references in this section:

- *Meridian Administration Tools Maintenance Windows User Guide (June, 1999)*.

Feature description

The Inventory Reporting feature provides an automated tool for customers and support personnel to produce a hardware inventory report on the Meridian 1 system. This report lists cards and telephones installed on the system, or configured in software.

You can use any TTY device that provides access to Overlay 117 to use this feature.

The Meridian Administration Tool (MAT), has a graphical user interface that supports the Inventory Reporting feature. For information related to the Inventory Reporting feature and MAT, please refer to the *Meridian Administration Tools Maintenance Windows User Guide (June, 1999)*.

Generate Inventory files

The system can generate two separate Inventory files. The first file contains the Inventory Reporting information for all cards that are inventoried in the Card Inventory file. The second file contains the Inventory Reporting information for all telephones.

You can generate an Inventory file in Overlay 117. See Table 70 for a list of commands and their descriptions.

Table 70
Inventory Reporting generate commands

Command	Description
INV GENERATE ABORT	Abort all Inventory generations.
INV GENERATE ALL	Begin generating both Card and telephone Inventory files.
INV GENERATE CARDS	Begin generating Card Inventory file.
INV GENERATE SETS	Begin generating telephone Inventory file.

The two Inventory files vary slightly in their format. The first record in both types of Inventory files is the file header. The file header contains a time stamp that indicates when the Inventory process started, and when it finished. Following the time stamp, the number of records collected during Inventory appears. See Table 72 on page 1848, or Table 73 on page 1849, for an example of a file header.

Both Inventory files contain up to 32 bytes of Identification Programmable Read-Only Memory (ID PROM) information for each inventoried card or telephone that is physically present. The 32 bytes are actually 32 ASCII characters representing different data elements. See Table 71 for more information.

Table 71
ID PROM information

Data Element Name	Maximum Number of Characters
Product Engineering Code (PEC)	08
Color (numeric representation)	02
Release	02
Blank	01
Product Serial ID	12
Blank	01
Other (Free Field)	06

Card Inventory files

Following the file header, each record of the Card Inventory file contains:

- the card type
- the card TN, which contains:
- loop, shelf, and card numbers for IPE modules
- loop number for Network modules
- Core and slot numbers for Core cards
- 32 bytes of ID PROM information

Note: The Option 11C system's card TN only includes the card number.

See Table 72 for an example.

Table 72
Card inventory example for Option 61C

Card inventory:
17 8 1999 11 5 27, 17 8 1999 11 5 40, 15
CP , 0 14, NT9D19CA 03 NNTM1830TVFK
CNI , 0 12, NT6D65AA 08 NNTM18304UY9
CMDU, 0 0, NT6D64AB 01 NNTM183227YT
CONF , 17, <Unavailable>
DTR , 004 0 00, NT8S16AB 03 NNTM18310C7D0000000
....

Note:
<Unavailable> indicates the ID PROM information is not available because the card is not physically present.

Set Inventory files

Following the file header, each record of the Telephone Inventory file contains:

- the telephone type
- the telephone's TN (loop, shelf, card, and unit numbers)
- 32 bytes of ID PROM information
- the device's descriptor information (DES field in Overlays 10 and 11)
- the primary DN

Note: The Option 11C telephone's TN only includes a card number and a unit number.

See Table 73 for an example.

Table 73
Telephone inventory example for Option 11C

Set inventory:
17 8 1999 10 42 44, 17 8 1999 10 42 45, 4
2616, 08 01, M2616 NT2K16XC 35 01 69409A, RODNEY, 1000
2006, 08 01, M2006 NT2K05XH 93 10 C10C19, CHRIS , 1100
2008, 08 02, M2008 NT9K08AD 03 03 945272, DEBBIE, 1200
2616, 08 03, M2616 NT2K16XD 35 01 CC9C98, DANNY , 1300
2616, 02 10, <Unavailable>, TROY , 5902
....

Note:
<Unavailable> indicates the ID PROM information is not available because the telephone is not physically present, or is disabled (“DSBL” in Overlay 32).

Backup files

The system keeps a current file and a backup file for each Inventory file. Each request to generate an Inventory file causes the previous current file of the same type to become a backup file. The system can use the backup file in the event that the generation of a new file is not successful.

Files in use

If you request to generate an Inventory file while the system is generating that file, you will receive a "Card (or Set) file is Generating, try again later" message.

Abort generation

You can abort the generation of Inventory files. If there is any generation of a Card or Set Inventory file when you execute the **INV GENERATE ABORT** command, the system stops gathering data for the Inventory generation.

If the system receives an abort request and there is no activity on a file, the request is rejected, and you will receive a "No generation to abort" message.

Midnight Routine

To schedule Inventory Reporting for the virtual midnight routine, use the commands in Overlay 117. See Table 74 for a list of commands and their descriptions.

Table 74
Inventory Reporting midnight routine commands

Command	Description
INV MIDNIGHT ALL	Schedule Card and Telephone Inventory file generation.
INV MIDNIGHT CARDS	Schedule Card Inventory file generation.
INV MIDNIGHT OFF	Unschedule Card and Telephone Inventory file generation.
INV MIDNIGHT SETS	Schedule Telephone Inventory file generation.
INV MIDNIGHT STATUS	Print state of virtual midnight routine schedule of Inventory Reporting.

Printing Inventory files

The process of generating an Inventory file is separate from the process of printing an Inventory file on the TTY. You can print an Inventory file on the TTY from the CLI in Overlay 117. See Table 75 on page 1851 for a list of commands and their descriptions.

When you execute the print command, the selected Inventory file is scrolled onto the TTY. When you print an Inventory file, the system automatically selects the current file (rather than the backup file). Printing an Inventory file cannot be scheduled by the system.

Once the printing process has started, you can abort it by exiting out of Overlay 117 using four asterisks (********).

There is no notification of completion for printing out an Inventory file onto the TTY.

Table 75
Inventory Reporting print commands

Command	Description
INV PRT	Print out the status of the Inventory feature
INV PRT ALL	Print out both the card and the Telephone Inventory files
INV PRT CARDS	Print out the Card Inventory file
INV PRT SETS	Print out the Telephone Inventory file
INV PRT STATUS	Print out the status of the Inventory feature

Inventory Reporting status

There are two commands that can be used to query the Inventory Reporting feature:

- INV PRT
- INV PRT STATUS

The response to a status query contains two responses, one for the Card Inventory file and another for the Set Inventory file. You only need to make a single request for both files.

The response indicates whether each file is:

- OK (Idle)
- DOWNLOADING
- BUSY
- GENERATING

Note: Only the status of the current file(s) is provided. The status of the backup file cannot be obtained using the status command.

See Table 76 for a list of status responses and their descriptions.

Table 76
Inventory Reporting status responses

Response	Description
BUSY	When the Inventory file is in use.
DOWNLOADING	When the Inventory file is being downloaded.
GENERATING	When the system is generating the Inventory file.
OK	When there is no activity using the Inventory file(s).

Operating parameters

This feature is compatible with all Meridian 1 systems.

When a telephone is installed, but not configured in software, the system has no record of the telephone, and therefore, will not be inventoried. A telephone that is installed, but configured in software as a different type of telephone, may not be included in the inventory file.

The Inventory Reporting feature can only report ID PROM information from cards and telephones that are physically present. If a card or telephone is configured in software, but is not present in the system, then the ID PROM information will not be inventoried.

Any new cards, or existing cards, that emulate another type of card in the system, when inventoried is noted to have the card type of that emulated card, and not its correct card type. The correct engineering code and vintage of the actual card is listed in the Card ID PROM information, if available.

When there is a dual processor (redundant) system, the Inventory Reporting feature will not incorporate the standby processor and associated cards (Central Processor and Core Network Interface cards) in the card report.

Inventoried cards

Table 77
Card types are included in the Card Inventory file

Card Mnemonic	Card Description	Product Engineering Code	Vintage	Market
BRSC	Basic Rate Signaling Concentrator	NT6D72	AA	North America
CMDU	Core MultiDrive Unit	NT6D64	AA	North America
CNI	Core to Network Interface	NT6D65	AA	North America
COT	CO Trunk	NT5K93	AA, AB, BA, BB	Global
CP	CP68030/24MB, Call Processor	NT6D66	AA	Global
CP	CP68030/48MB, Call Processor	NT9D66	DA	Global
CP-2	CP68040/48MB, Call Processor	NT9D19	AA, AB	Global

CP-2	CP68040/64M/32M, Call Processor	NT9D19	HA	Global
CP-2	CP68040/64MB, Call Processor	NT9D19	CB	Global
CP-2	CP68040/96MB, Call Processor	NT9D19	HB	Global
CP-3	CP68060/112MB, Call Processor	NT9D10	JA	Global
CP-3	CP68060/48MB, Call Processor	NT9D10	AA	Global
CP-3	CP68060/64MB, Call Processor	NT9D10	CA	Global
CP-3	CP68060/80MB, Call Processor	NT9D10	EA	Global
CP-3	CP68060/96MB, Call Processor	NT9D10	HA	Global
CP-4	CP4 Call processor	NT5D03	AA-UA	Global
CPP	System Utility Card	NT4N67	AA	Global
CPP	System Utility Transition Card	NT4N68	AA	Global
CPP	LED/LCD Display Panel	NT4N71	AA	Global
CPP	cCNI Card	NT4N65	AA	Global
CPP	CPU Card	A0810496	N/A	Global
CPU	68K Processor Card - Card Option CPU	NTAK14	AA, BA	North America
CT2	Line Card, Mobility	NTCK93	AA	International
DDP	Digital Trunk, DTI/PRI, Double	NT5D12	AF	North America
DDP2	Digital Trunk, DTI/PRI, Double E1	NT5D97	AB	International
DID	DID Trunk	NT5K84	AA, AB, BA	International
DID	DID Trunk, on board PPM, extended three wire	NT5K60	AA, AB	International
DID	DID Trunk, on board PPM, on board detection	NT5K36	AB, BA	International
DID	Trunk Card	NT5D28	AA	India
DPRI	Digital Trunk, PRI2, Double E-1	NTCK43	AC	International
DTI/PRI	1.5 MB DTI/PRI	NTAK09	DA	North America
DTI2	CIS Trunk for Option 11C	NTCG02	BA, BB	CIS
DTI2	CIS Trunk for Meridian 1	NTCG01	BA, BB	CIS
DTI2	2.0 MB DTI	NTAK10	DC	International
DXUT	Universal Trunk	NT5D31	AA	International
DXUT	Universal Trunk, Extended	NTAD14	EA, DA	International

EIMC	Embedded Intelligent Mobility Controller	NT7R01	CA	North America
EXALCC	Analog Line Card	NTRA08	AA, AB, BA	China
EXUTAP-1	Universal Trunk, Busy Tone detect Trunk, 400Hz	NTRA26	AA	Global
EXUTAP-2	Universal Trunk, Busy tone detect Trunk, 425Hz	NTRA26	BA	Global
EXUTC	Universal Trunk, Extended	NTRA10	AA, AB	China
EXUTJ	Universal Trunk	NT8D14	DA	Japan
EXUTJ	Universal Trunk, Extended	NT5D15	AA	Japan
FXNET	Fiber Extended Network	NTIP61	BA	Global
FXPEC	Fiber Extended Peripheral Equipment	NTIP62	CA	Global
IODU	I/O Disk Unit	NT5D20	BA	Global
IODUC	I/O Disk Unit w/ CD-ROM	NT5D61	AA, AB, BA	Global
IOP	I/O Processor	NT6D63	BA	Global
ITG	24 Ports ISDN	NTZC44	AA, BA	Global
LCI	Local Carrier Interface	NT7R51	AC, AD	North America
LE1	Line Side E1	NT5D33	AA, AB	International
LT1	Line Side T1	NT5D11	AB, AC	North America
MGATE	Meridian Mail Gateway - IPE version of MCE	NTRH14	AA	North America
MGATE	Meridian Mail Gateway - MM	NTRB18	AA	North America
MGATE	Meridian Mail Gateway - Tower version of MCE & MM	NTRB18	AA	North America
MICA	Integrated Call Assistant	NT5G11	AA	Global
MICB	Integrated Conference Bridge Base	NT5D51	AA, AB, AC	North America
MIRAN	Meridian Recorded Announcement	NTAG88	AA	North America
MISP	Multi-Purpose ISDN Signaling Processor	NT6D73	AA	North America
MXC	MicroSystem Transcoder	NTEX80	AA	North America
NCE	Fiber in Junctor Interface Motherboard	NTRB3301	N/A	Global
NCE	Fiber in Junctor Interface Jumper Daughterboard	NTRB3303	N/A	Global

NCE	3 Ports CNI	NTRB34	AA	Global
PRI2	2.0 MB PRI	NTAK79	BC	International
PRI2	2.0 MB PRI	NTBK50	AA	International
RCI	Remote Carrier Interface	NT7R52	AC, AD	North America
SILC	S/T Interface Line Card	NT6D70	AA, BA	North America
TMDI	T1 Multi-purpose digital interface for Option 11C	NTRB21	AA	North America
UILC	U Interface Line Card	NT6D71	AA, AB	Global
VPS	Voice Processing Application Server	NTAG36	AA	North America
XALC	Analog Line Card	NT8D03	AA-Ak	North America
XALCC	Analog Line Card	NTRA05	AA	Global
XCOT	CO Trunk	NT5K82	AA, AB	Global
XCOT	CO Trunk	NT5K90	AA, AB, BA, BB,	Global
XCOT	CO Trunk	NT5K99	AA, BA	Global
XCOT	Trunk Card	NT5D29	AA	India
XCOTI	CO Trunk	NTRA29	AA	Global
XDAC	X-Calibur Data Access	NT7D16	AA	North America
XDID	DID Trunk, Extended	NT5K36	AA	International
XDID	DID Trunk, Extended	NT5K84	HA	International
XDID	DID Trunk, Extended	NTAG04	AA	International
XDID	DID Trunk, Extended	NTRA28	AA	International
XDID	DID Trunk, Extended Flexible	NT5K17	AB, BA, BB	International
XDID	DID/LDR Trunk, Extended	NTCK22	AA, AB	International
XDLC	Digital Line Card	NT8D02	GA	Global
XDTMF	Extended DTMF Receiver	NTRA11	AA	International
XDTR	Extended DTMF Receiver	NT8D16	AB	North America
XDTRC	Extended DTMF Receiver	NTRA11	AA	China
XEM	E & M Trunk Leads PCBA, Extended	NT8D15	AF, AH, AA	North America
XEMC	E & M Trunk, Extended	NTRA03	AA	China
XFALC	Analog Line Card, Flexible High Voltage	NT5K96	EA, HA, JA, JB, KA, NB	Global

XFALC	Analog Line Card, Flexible High Voltage	NT5K02	AA, AB, AC, DA, DB, EA, EB, JA, JB, JC, KA, KB, LB, LC, LD, MA, MB, MC, NB, NC, PA, PB, PC, QA, QB, QC, SA, SB, TA, TB	Global
XFALC	Analog Line Card, Flexible High Voltage, Message‘	NT5K96	MA, MB, NB, PB, SA, TA	Global
XFALCC	Analog Line Card, Message Waiting	NTRA04	AA	Global
XFCOT	CO Trunk, Extended Flexible PPM	NT5K18	AA, AB, BA, BB	Global
XFCOT	CO Trunk, Extended Flexible PPM	NT5K61	AA	Global
XFCOT	CO Trunk, Extended Flexible PPM	NT5K82	BA, BB, CA, HA	Global
XFCOT	CO Trunk, Extended Flexible PPM	NTAG03	AA, AB	Global
XFCOT	CO Trunk, Extended Flexible PPM, 4 unit	NT5K71	AA, AB	Global
XFCOT	CO Trunk, Extended Flexible PPM, 8 unit	NT5K70	AA, AB	Global
XFCOT	CO Trunk, Extended Flexible	NTCK16	AA, BA, BC, BD, BE	Global
XFCOT	CO Trunk, Extended Flexible PPM	NTCK18	AA	Global
XFCOT	CO Trunk, Extended Flexible PPM	NTCK24	AA	Global
XFCOT	CO/FX/WATs Trunk	NT9C14	AA, BA	Global
XFEM	E & M Tie Trunk, Wire with recorded ann, & Paging	NT5K83	BA, BB, CA, CB	International
XFEM	E & M Tie Trunk, 4 Wire with recorded ann. & Paging	NT5K19	BA, BB,	International
XFEM	E & M Tie Trunk, Extended Flexible	NT5K50	AA	International

XFEM	E & M Tie Trunk, Extended Flexible	NT5K83	AA, AB, DA, DB, FA, GA, HA, KA, LA	International
XFEM	E & M Tie Trunk, Extended Flexible, 4 unit	NT5K72	AA	International
XFEM	E & M Trunk, Extended Flexible	NT5K19	AA, AB, AC	International
XMFC	Extended Multi-Frequency Compelled Sender Receiver	NT5K21	AA	International
XMFR	Extended MF Receiver	NTAG26	AA	International
XMLC	Message Waiting Line Card	NT5D49	AA	International
XMLC	Message Waiting Line Card	NT5D09	AA, BA, LA, PA	International
XMWLC	Analog Line Card, Message Waiting	NT8D09	BA, AL	North America
XNET	Extended Network	NT8D04	BA	Global
XOPS	Analog Line Card	NT1R20	AA	North America
XOPSC	Analog Line Card	NTRA06	AA, AB	Global
XPEC	Ext Peripheral Equipment Controller 2 Superloop	NT8D01	BD	Global
XPEC	Ext Peripheral Equipment Controller 2/4 MB	NT8D01	DA	Global
XPEC	Ext Peripheral Equipment Controller 2MB	NT8D01	EA	Global
XPEC	Ext Peripheral Equipment Controller 4 MB	NT8D01	CA	Global
XPEC	Ext Peripheral Equipment Controller 4 Superloop	NT8D01	BC	Global
XSM	Extended System Monitor	NT8D22	AC	Global
XTD	Extended Tone Detector	NT5K48	AA-HA	International
XUT	Universal Trunk	NT8D14	BB, BC	North America
XUTC	Universal Trunk	NTRA02	AA	China

The following card types are not included in the Card Inventory file:

- TTY or PC cards
- Power Supply
- Any non-Nortel Networks (third-party) cards including those designed to simulate included cards.

Note: Inventory Reporting features are supported by MAT, version 6.6.

Inventoried telephones

The Telephone Inventory file includes the following telephones:

Table 78
Set Inventory File

• M2006	• M2216	• M3110	• M3901	• M3904
• M2008	• M2616	• M3310	• M3902	• M3905
• M2016		• M3820	• M3905	

The Telephone Inventory file does not include ID PROM information for the following telephones:

- Sl-1 telephones
- 500/2500 telephones
- Other digital telephones or any non-Nortel Networks (third-party) telephones, including those designed to simulate included telephones.

Data units

A data unit's TYPE is listed in the Telephone Inventory file as the TYPE of the telephone that it is attached to, not as a data unit. Data units can be identified in the Telephone Inventory file by determining which TN is assigned to the data unit, or by its descriptor information (DES field in Overlays 10 and 11).

The Telephone Inventory file does not include ID PROM information for the following data units:

- Data units on:

Table 79
Data Units ID PROM information excluded from Set Inventory File

• M2006	• M2616	• M3110
• M2008	• M2216	• M3310
• M2016	• M390X	• M3820

- Sl-1 data units.
- 500/2500 data units.
- Other digital data units.

Feature interactions

There are no feature interactions associated with this feature.

Feature packaging

This feature is included in base X11 System Software.

Feature implementation

There are no specific implementation procedures for this feature.

Feature operation

No specific operating procedures are required to use this feature.

Italian Central Office Special Services

Contents

The following are the topics in this section:

Feature description

This feature allows callers to access “1xx” special services of the Italian Central Office (CO). The special services are accessed by dialing a Flexible Feature Code (FFC) of up to four digits in length. This FFC is configured in LD 57.

This feature is available on Meridian 1 proprietary telephones, analog (500/2500 type) telephones, as well as Attendant Consoles.

Operating parameters

This feature can only be activated by callers on the same node as the Central Office trunk; it is not supported on Integrated Services Digital Network (ISDN), Digital Private Network Signaling System 1 (DPNSS1), or other trunks.

This feature is only allowed for a simple call, and cannot be accessed in consultation state.

As a result, if the attendant makes a “1xx” service call on the source side, a call cannot be made on the destination side; therefore, the special service call cannot be extended or transferred.

Outgoing digits are outpulsed according to the trunk Class of Service, dial pulse (DIP) or digitone (DTN).

An attendant or a set accessing a special “1xx” service cannot establish a conference by pressing the Conference key or Loop key.

Analog trunks on the Option 11C are not supported.

Feature interactions

The following features are not allowed if a special “1xx” service is being accessed:

- Multi-Party Operations
- Conference
- Transfer
- Call Join, and
- Consultation Hold (on 500 and 2500 sets).

The following features are not allowed from an attendant to a set making a special “1xx” service call:

- Priority Override
- Attendant Break-in
- Attendant Barge-in, and
- Busy Verify.

Call Detail Recording

The start timing on the Call Detail Recording record corresponds to the seizure of the Central Office trunk or to the answer signal, when received.

Periodic Pulse Metering

Periodic Pulse Metering pulses are received from the Central Office according to the charge of the accessed service, and are collected and stored as per normal procedures.

Switchhook flash

A switchhook flash is ignored while a special "1xx" service is being accessed.

16-Button Digitone/Multifrequency Operation

The special service FFC is not supported on the ABCD keys of 16-button DTMF sets.

Feature packaging

The following packages are required:

- End-to-end Signaling (EES) package 10
- 2 Mbit Digital Trunk Interface (DTI2) package 129 to support digital trunks
- International Supplementary Features (SUPP) package 131
- Trunk Hook Flash 157; and Flexible Feature Codes (FFC) package 139

Feature implementation

Task summary list

The following task is required:

LD 57 – Configure the Flexible Feature Code required to access "1xx" special services.

LD 57 – Configure the Flexible Feature Code required to access “1xx” special services.

Prompt	Response	Description
REQ	CHG	Change
TYPE	FFC	Flexible Feature Code data block
...		
CODE	a...a	FFC to be changed
...		
ITXX	1-4	FFC to access "1xx" special services.
RTXX	 0-512 0-127	The CO route number for the “1xx” special service, prompted only if ITXX has been configured. For NT, RT, XN, and XT SL-1 machines, and Meridian 1 system Options 51, 61, and 71. For all other machine types.

Feature operation

Dial the Flexible Feature Code (up to four digits in length) that was configured in LD 57 to access “1xx” special services.

Only the **Rls** and **Hold** keys may be activated during a call to a special “1xx” service.

Italian Periodic Pulse Metering

Contents

The following are the topics in this section:

Feature description

A new vintage 2 Mbps Digital Trunk Interface (DTI2) card is introduced with this feature. The Italian Periodic Pulse Metering (PPM) feature enables this new DTI2 card to count PPM pulses on Italian DTI2 trunks.

In Italy, a pulse on the A bit while the B bit is zero (P0UU) is considered a valid PPM pulse. However, a pulse on the A bit while the B bit is one (P1UU) should not be considered a valid PPM pulse.

When the DTI2 card detects that a pulse on the PPM bit (A in Italy) has met all PPM timing requirements, the DTI2 card checks to see if the Italian PPM feature is enabled. If so, the state of the B bit is also checked. At this point, the PPM count will be incremented (in the card) only if the B bit is zero. Using the Italian PPM option, the new card no longer reports the P1UU case as a PPM pulse. With this feature enabled all state changes with B bit set to one (for example, P1UU) are reported immediately by the DTI2 card. This allows the main Central Processing Unit (CPU) to recognize Italian Release Control pulses.

Operating parameters

This feature is not supported on the Option 11C, since there is no XDTI2 card supporting the hardware requirements).

The feature does not work on the following DTI2 cards: QPC915A, QPC915B, QPC536A, QPC536B, QPC536C, and QPC 536D. All of these DTI2 cards, do not have the required firmware modifications.

The firmware checks whether the B bit is zero. This is hard coded in the new DTI2 cards. Other combinations are not possible (for example, it is not possible to report PPM pulses on the A bit only when the C bit is zero, and it is not possible to report PPM pulses on the A bit only when the B bit is 1).

The Italian PPM option is stored for each loop. Hence, the Italian PPM option is set the same for all channels on the loop.

Feature interactions

Call Detail Recording

This feature now allows Call Detail Recording on Italian DTI2 trunks to show the cost of the call calculated from the PPM pulses.

Periodic Pulse Metering

This feature now allows PPM pulses to be counted on Italian DTI2 trunks. The Italian DTI2 option default is set to NA (i.e., not active when software prior to the introduction of this feature is upgraded). The existing operation thus continues unaffected by the new feature.

Feature packaging

This feature is packaged under the existing 2 Mbps Digital Trunk Interface (DTI2) package 129. Periodic Pulse Metering/Message Registration (MR) package 101 is required for its operation.

Feature implementation

Task summary list

The following task is required:

LD 73 – Configure the Italian PPM option.

LD 73 – Configure the Italian PPM option.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	DTI2	2 Mbit digital trunk.
FEAT	LPTI	Loop timers.
LOOP	nnn	Loop number.
...		
ITPP	(NA) YES NO	Italian PPM option. If this is set, PPM pulses are only counted when the B bit is zero. NA = The DTI2 card is not capable of Italian PPM (the default). YES = Turn on Italian PPM in DTI2 card. NO = Turn off Italian PPM in DTI2 card.

Feature operation

No specific operating procedures are required to use this feature.

KD3 Direct Inward Dialing/Direct Outward Dialing for Spain

The KD3 Direct Inward Dialing (DID)/Direct Outward Dialing (DOD) for Spain feature is introduced to enable the Meridian 1 to meet the specifications of the Spanish signaling protocol. Prior to the introduction of the KD3 interface, the only Central Office trunk support available in Spain from a Meridian 1 perspective was an analog Central Office Trunk (COT) type of interface (i.e., non Digital Trunk Interface (DTI) or DID/DOD).

Only KD3 to Meridian Customer Defined Network (MCDN) tandeming will be supported (no other networking protocols will be supported at this time).

The KD3 interface utilizes the following:

Digital Interface

A 2.048 Mbit digital link physical interface conforming to International Telegraph and Telephone Consultative Committee (CCITT) G700 series specifications, and whose frame and multiframe structure conform to CCITT recommendations G732 and G734, is specified.

Multifrequency Interregister Signaling

A Multifrequency Interregister Signaling protocol is used for passing certain information such as addressing and Call Class. It is similar to Multifrequency Extended (MFE), but must support both 2/5 or 2/6 frequency encoding on a system basis. It also uses different signals, and adds several new timing parameters. The new signals are mainly used to provide Class of Call information, broken down as Regular Subscriber, Special Services, National and International calls.

For more information on KD3 Signaling, please see the KD3 Signaling document contained in the IPE supplement for Spain.

Last Number Redial

Contents

The following are the topics in this section:

Feature description

Last Number Redial (LNR), which is defined on a customer and a telephone basis, allows the last number dialed by a user to be automatically stored. The stored number can be redialed by pressing a key on Meridian 1 proprietary telephones, or by dialing SPRE + 89 on analog (500/2500 type) telephones. The number is stored whether the call rings, is busy or answered, or a valid access code is dialed with the number. Only one number, composed of up to 32 digits (including access codes), can be stored at any one time. The new number overwrites the previously stored number.

If the telephone has a Digit Display (DDS), the called number is displayed.

Operating parameters

When making a call using Last Number Redial (LNR), no digits can be dialed before the stored number except Authorization, Charge Account, or Forced Charge Account codes. However, additional digits can follow the outpulsed LNR number.

The M3000 and the M2317 telephones have LNR as a local telephone (firmware) feature instead of as a system feature.

Feature interactions

AC15 Recall: Transfer from Meridian 1

Autodial and Last Number Redial are supported with the AC15 Recall: Transfer from Meridian 1 on the first transfer, provided that the digits are outpulsed on the trunk after the End-to-End Signaling Delay timer expires. If the far end is not ready, the call will fail because no dial tone detection is performed by the Meridian 1.

Additional transfers are supported if the stored digits are outpulsed without any treatment. For example, a route is seized and the route access code is outpulsed to the far end and interpreted as a Directory Number. No dial tone detector or timer is started, so the digits are outpulsed immediately without checking the state at the far end.

Authorization Code Security Enhancement
Charge Account
Charge Account, Forced

These codes are not stored in Last Number Redial (LNR). To use these features when calling the number stored in LNR, the code must first be dialed manually. When dial tone is returned, LNR can be used to complete the dialing.

Autodial

A number dialed using Autodial will become the LNR number on all telephones, except the M2317 telephone and M3000.

Autodial Tandem Transfer

Normally, when the ADL key is pressed during the dialing stage, the ADL number will replace the Last Number Redial number. In the ATX feature, however, when the ADL key is used during the established stage, the ADL digits will not substitute the Last Number Redial number.

Automatic Redial

An Automatic Redial (ARDL) call can be activated on a number dialed using the Last Number Redial (LNK) key or by pressing the DN key twice. The ARDL number is saved as the last number redialed.

Call Forward/Hunt Override Via Flexible Feature Code

The Call Forward/Hunt Override via Flexible Feature Code and the dialed DN are stored under Last Number Redial.

Call Modification

When a Call Modification takes place at the called Directory Number, the originally dialed number and not the number reached through Call Modification is stored as the LNR. This applies to the following features:

- All Call Forward features
- Call Pickup
- Conference
- Hunting
- Integrated Messaging System (IMS) when using Operator Revert, and
- Transfer.

The stored LNR number will not be affected when making calls using the following features:

- Numbers dialed on Call Transfer or Conference
- Attendant Recall from Meridian 1 proprietary telephones (using key)
- Call Park
- Dial Intercom
- Group Call, and
- Special Services Access Codes.

Calling Party Privacy

The Last Number Redial (LNR) feature will set a Calling Party Privacy (CPP) flag in the LNR data space if the CPP was included in the last number dialed by the user. Any subsequent outgoing redialed call will send the Privacy Indicator to the far end.

Enhanced Flexible Feature Codes - Outgoing Call Barring

Barred DNs will be stored by Last Number Redial (LNR). DNs redialed using LNR are checked against the active OCB level.

OCB Flexible Feature Codes are not stored as the last number dialed.

China Number 1 Signaling Enhancements

Delay Digit Outpulsing will be denied when dialing is done by way of Last Number Redial.

Conference

When a M2317 telephone conferences in another call, goes on-hook and activates the Last Number Redial (LNR), the LNR feature redials the last number dialed during conference. However, on sets other than the M2317, LNR dials the DN dialed prior to conference.

Group Hunt

A Pilot DN will be stored as a Last Number Redial (LNR) number when it is dialed directly.

Multiple Appearance Directory Number

A last number dialed on a Directory Number (DN) with multiple appearances is stored only against the telephone from which the number was originally dialed.

Multi-Party Operations

For analog (500/2500 type) telephones, the Last Number Redial/Stored Number Redial feature can be used when normal or special dial tone is received. The last number redialed that can be stored is the first call of a consultation connection, and can be stored only after the connection is completely released.

Network Intercom

A Hot Line key cannot be redialed using the Last Number Redial feature.

Off-Hook Alarm Security

Off-Hook Alarm Security treatment may apply to these features if the ASTM expires.

Speed Call

A number dialed using Speed Call will become the LNR number on all telephones, except the M2317 and M3000.

Speed Call, System

A number dialed using a System Speed Call key becomes the Last Number Redial number on all telephones, except the M2317 and M3000. A number dialed using SPRE-activated System Speed Call becomes the Last Number Redial number on all telephones. The original Class of Service and NCOS restrictions of the telephone apply when using Last Number Redial.

Three Wire Analog Trunk – Commonwealth of Independent States (CIS)

Last Number Redial on an E3W trunk will fail for toll calls. The reason is that E3W trunks do not wait for the ANI request from the Public Exchange, that is expected to appear after the toll access code is dialed. The Public Exchange will not accept the call due to the failure to receive ANI information.

Transfer

When a M2317 telephone transfers a call, goes on-hook and activates Last Number Redial (LNR), the LNR feature redials the last number dialed during the transfer. However, on sets other than the M2317, LNR dials the DN dialed prior to transfer.

Feature packaging

Last Number Redial (LNR) package 90 has no feature package dependencies.

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

1 LD 15 – Enable or disable LNR for a customer.

2 LD 10 – Add or change LNR for analog (500/2500 type) telephones.

3 LD 11 – Add or change LNR for Meridian 1 proprietary telephones.

LD 15 – Enable or disable LNR for a customer.

Prompt	Response	Description
REQ:	CHG	Change.
TYPE:	FTR	Features and options data block.
CUST	0-99	Customer number.
- OPT	(LRD) LRA	LNR (denied) allowed.

LD 10 – Add or change LNR for analog (500/2500 type) telephones.

Prompt	Response	Description
REQ:	CHG	Change.
TYPE:	500	Telephone type.
TN	l s c u	Terminal Number.
CLS	(LND) LNA	LNR (denied) allowed.
LNRS	4-(16)-31	LNR size.

LD 11 – Add or change LNR for Meridian 1 proprietary telephones.

Prompt	Response	Description
REQ:	CHG	Change.
TYPE:	aaaa	Telephone type, where: aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, or 2616.
TN	l s c u	Terminal Number.
CLS	(LND) LNA	LNR (denied) allowed.

LNRS	4-(16)-31	LNR size.
KEY	xx LNK	LNR key, where, xx = key number.

Feature operation

To automatically redial the last number dialed:

- Lift the handset or select a free Directory Number (DN).
- Press the **Last No.** or the **DN** key again.

To automatically redial the last number dialed (analog (500/2500 type) telephones):

- Lift the handset.
- Dial SPRE+89.

Limited Access to Overlays

Contents

The following are the topics in this section:

Reference list

The following are the references in this section:

- *Administration* (553-3001-311)

Feature description

Limited Access to Overlays allows the administrator to limit access to a configured database. It allows an administrator to define up to 100 login passwords in the configuration record (Overlay 17), each with its own set of access restrictions. For each Limited Access Password (LAPW), define the level of access the password provides:

- Only the Overlay numbers defined for each password can be accessed.
- Only the customer data specified can be modified by users of each password.
- Only the tenant numbers allowed can be accessed.

- Access to Print Routine Overlay 20 may or may not include access to the Speed Call lists.
- Access to the Configuration Record (CFN) Overlay 17 can be restricted to:
  - no access at all to Overlay 17
  - changing a user's own password only
  - full access to modify the system configuration
- With the Print Only option defined, certain users are limited to the following:
  - Access only to administration Overlays that contain print commands, and can only use the print commands in those Overlays.
  - Full access to all print routines: Overlay 20-22 and Overlay 81-83.
  - System commands in Traffic Overlay 02 are accessible only to users with access to all customers. Customer-defined commands are accessible according to the customer numbers defined for each password.

Only the highest level password users – Level 2 or PWD2 – can configure or change access for other passwords. These users are the administrators.

Implementing and using the LAPW feature does not interfere with the use of any existing passwords in the system. For a complete listing of the passwords currently used, refer to Overlay 17, prompts PWD2, NPW1, NPW2, and Overlay 15, prompts ATAC and SPWD in *Software Input/Output Guide - X11 Administration* (553-3001-311).

Each password can access up to 32 customer-tenant combinations. Each combination is defined by a number designator that includes the customer number (0-99) and the tenant number (0-511).

Each new Limited Access Password (LAPW) must be:

- any combination of numbers and letters (uppercase letters only)
- four to sixteen characters in length with no spaces

- leftwise unique, and
- different from existing passwords.

For example, acceptable passwords can include:

- JSMITH
- 0001
- 2GUEST, and
- TECHNICIAN.

System administrators using PWD1 and PWD2 in Overlay 17 define access to Overlays with this feature. They may also define certain command use levels within a given Overlay. For instance, the administrator can specify print only access in the Configuration record (Overlay 17). Any other requests generate the following system message:

SCH8836 PASSWORD HAS PRINT ONLY CLASS OF SERVICE.

After calling up an Overlay, certain commands can be restricted from use by the same password, if that password is properly defined. Trying to use those commands without the correct password is not successful – access is denied.

Logon attempts are monitored for security. Failed attempts with invalid passwords are counted and the tally is compared with a predefined threshold. If the threshold is met or passed, the entry point (TTY or terminal) is locked out for a predetermined time set in Service Change (and password protected). Access from that point is ignored by the system for the lock-out timer defined. Lock-out conditions are reported to all maintenance terminals when they occur, with a special report to the next system administrator who logs on.

The system can keep an Audit Trail to record login information. The four columns in the Audit Trail printout contain:

column 1 – DAT (date, appears at beginning of each day), or
LOG (a login record)
column 2 – aa/bb (month/day), or
cc:dd (hours: minutes)
column 3 – #ee (number associated with password)
column 4 – ff ff . . . (LD numbers accessed)

Figure 53
Example of Audit Trail printout (Overlay 22)

DAT	01/02									
LOG	08:01	#03	10	11						
LOG	09:32	#04	15	10	21	57	22	11	15	21
			14	15						
LOG	11:21	#99	12							
LOG	16:35	PWD2	15	17						

Only system administrators, logged in using PWD1 or PWD2, can access the Audit Trail from Overlay 22.

Administrators can change the size of the Audit Trail buffer, which can be from 50 to 1000 words (divisible by 50). When the buffer is full, new records overwrite the oldest information in the buffer (message OVL401 is sent to the active TTY and all maintenance TTYs). Printing the Audit Trail in Overlay 22 clears the buffer.

Operating parameters

The LAPW feature should only be enabled on a system with a completed Configuration record in Overlay 17 (a Meridian 1 or SL-1 machine that is already up and running). All passwords defined within the feature must be unique. Users and administrators cannot have more than one password defined for any one access configuration.

Feature interactions

Set-Based Administration Enhancements

The Set-Based Administration access passwords which are added to LAPW are subject to the same conditions as the overlay access passwords with the following exceptions:

- Set-Based Administration passwords must be numeric.
- There is no maximum number of login attempts for Administrator or Installer sets. Lockout procedures are not used.

- TTY users are not permitted to login using a Set-Based Administration password.
- Administration sets and User sets are not permitted to login using overlay access passwords.

The total number of LAPW passwords allowed, including overlay access and Set-Based Administration access, is 100.

The permissions and restrictions associated with a Set-Based Administration password used to login to an Administration set or Installer set remain unchanged throughout the login session. Thus, if a TTY user changes a Set-Based Administration password (in Overlay 17) while an Administration or Installer set is logged in with the same password, the permissions and restrictions associated with the session are not affected. The changes come into effect the next time a user logs in.

Feature packaging

This feature requires Limited Access to Overlays (LAPW) package 164.

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

1 LD 17 – Define LAPW options and passwords.

2 LD 17 – Change user's LAPW password (user must log in using current LAPW).

3 LD 22 – Check options available for LAPW passwords (administrator).

4 LD 22 – Print options for LAPW password (user).

5 LD 22 – Print contents of Audit Trail buffer (allowed if using PWD1 or PWD2).

Implementing the LAPW feature requires that you change the Configuration record (CFN) in Overlay 17.

LD 17 – Define LAPW options and passwords.

Prompt	Response	Description
REQ	CHG END	Change data, or terminate overlay.
TYPE	CFN PWD	Configuration Record. Gate opener.
- PWD2	xxxx	Current level 2 master password.
- NPW1	xxxx	New level 1 login password.
- NPW2	xxxx	New level 2 master password.
- LAPW	0-99	LAPW password number.
- - PWnn	dd...d <CR>	New password for "nn" above. No more changes to LAPW.
- - OVLA	xx xx xx . . .xx, ALL (XALL)	Add these overlays to the list access by password PWnn. Xnn removes the overlay.
- - CUST	0-99, ALL (XALL)	Customer number, all customers (no customers).

- - TEN	xxx xxx . . . xxx, ALL (XALL)	Tenant list for the above customer for password access. XALL removes tenant access for this password.
- - HOST	(NO) YES	Host mode.
- - OPT	aaaa (CFPA) CFPD (LLCD), LLCA (PROD) PROA (PSCA) PSCD	Password Options allowed. Changes to all LD 17 prompts (allowed) denied. Line Load Control commands (denied) allowed. Print Only Class of Service (denied) allowed. Printing Speed Call lists (allowed) denied.
- LAPW	<cr>	Stop defining passwords.
- FLTH	0-(3)-7	Failed logon attempt threshold.
- LOCK	0-(60)-270	Lock-out time in minutes.
- AUDT	(NO), YES	Audit Trail (denied) allowed.
- SIZE	(0)-65534	Word size stored in the Audit Trail buffer.
- INIT	(NO) YES	Reset ports locked out during manual INIT.

LD 17 – Change user's LAPW password (user must log in using current LAPW).

Prompt	**Response**	**Description**
REQ	CHG	Change password options.
TYPE	CFN PWD	Configuration Record. Gate opener.
- PWD2	<CR>	Level 2 master password.
- LPWD	aaaa	Logon Password for LAPW user.
- - NLPW	xx . . . x	New logon password for LAPW user.

LD 22 – Check options available for LAPW passwords (administrator).

Prompt	Response	Description
REQ	PWD	Lookup password options.
PWD2	xxxx	Level 2 master password.

Note: LAPW password options are output to the active TTY only. Options format is shown below:

FLTH	x	Failed logon attempt Threshold.
LOCK	xx	Lock-out time in minutes.
AUDT	aaa	Audit Trail allowed (denied).
SIZE	xxxx	Word size stored in the Audit Trail buffer.
INIT	aaa	Reset ports locked out during manual INIT.
PWD1	xxxx	Level 1 master password.
PWD2	xxxx	Level 2 master password.
PWxx	aaaa . . .	LAPW password number and password.
OVLA	xx xx xx . . .	Overlays accessible by this password.
CUST	xx TEN xxx	Customer number and tenant numbers accessible.
HOST	No	Host mode.
OPT	aaaa . . .	Password options allowed.

LD 22 – Print options for LAPW password (user).

Prompt	Response	Description
REQ	PWD	Print passwords.
PWD2	<CR>	Administrator's password.

Note: Options available to the logged on password are printed. The format is shown below:

PWxx	aaaaaa . . .	LAPW password number and password.
OVLA	xx xx xx . . .	Overlays accessible by this password.
CUST	xx TEN xxx	Customer number and tenant numbers accessible.
Host	No	Host mode.
OPT	aaaa . . .	Password options allowed.

LD 22 – Print contents of Audit Trail buffer (allowed if using PWD1 or PWD2).

Prompt	Response	Description
REQ	PRT	Print.
TYPE	AUDT	Audit Trail.

Feature operation

To bypass a specific restriction imposed by the Limited Access to Overlays feature, enter the appropriate password as defined in Overlay 17.

Limited Access to Overlays Password Enhancement

Contents

The following are the topics in this section:

Feature description

The Limited Access to Overlays Password (LAPW) protection mechanism has been enhanced to recognize a LAPW option that can be associated with a user login. Access options are used for ensuring that only a Loss Planning Expert will have the capability to customize entries in any of the Loss Planning tables, including the Static Loss Plan Download (SLPD) table and the Dynamic Loss Switching (DLS) table.

The options provide for Loss Planning data customization Allowed (LOSA) and Loss Planning data customization Denied (LOSD). These password options are configurable using Overlay 17, and are used to provide password protection for Loss Planning data including the existing Static Loss Plan Download (SLPD) table and the Dynamic Loss Switching (DLS) Alternate Levels table.

Operating parameters

Overlays 24 and 88 on all machines have their own passwords. These passwords are unaffected by the Limited Access to Overlay feature.

Feature interactions

There are no feature interactions associated with this feature.

Feature packaging

Limited Access to Overlays (LAPW) is packaged under package 164.

Feature implementation

Task summary list

The following task is required:

LD 17 – The OPT prompt associated with LAPW Password Option Access Rights accepts the access rights for Loss Planning Customization Allowed (LOSA) or Denied (LOSD).

LD 17 – The OPT prompt associated with LAPW Password Option Access Rights accepts the access rights for Loss Planning Customization Allowed (LOSA) or Denied (LOSD).

Prompt	Response	Description
REQ	CHG	Change.
TYPE	PWD	System password and limited access to overlay password.
- PWD2	xxx...x	Current Level 2 master password.
- LNAME_OPTION	(NO) YES	Require login name for password access?
- NPW1	xxx...x	Level 1 log-in password.
- - LOGIN_NAME	aaa...aaaa	Login name for password access.
- NPW2	xxx...x	Level 2 master password.
- LAPW	0-99	Limited Access password number to change.

- - PWnn	xxx...x	Current LAPW password for password nn.
- - OVLA	xx xx ... xx ALL (XALL)	Overlays (02-99) accessible with PWnn.
- - CUST	0-99 ALL (XALL)	Customers who can access overlays with password PWnn.
- - TEN	xx xx ... xx ALL (XALL)	Tenant list for password access.
- - HOST	(NO) YES	Enable HOST mode log-in for PWnn.
- - OPT	(PSCA PSCD (RDBD) RDBA (LLCD) LLCA (CFPA) CFPD (PROD) PROA (LOSD) LOSA	The following options are accessible with PWnn: Print Speed Call Lists Allowed/Denied Resident Debug Access Denied/Allowed Line Load Control Access Denied/Allowed Change Configuration Allowed/Denied Print Only Access Denied/Allowed, and Loss Plan Customization Denied/Allowed.
- FLTH	0-(3)-7	Failed log-in attempt threshold.
- LOCK	0-(60)-270	Lock-out time in minutes.
- AUDT	(NO) YES	Audit trail (denied) allowed.
- - SIZE	(50)-1000	Word size of audit trail buffer.
- INIT	(YES) NO	Reset locked-out ports on Initialization.

Feature operation

To be able to customize entries in any of the Loss Planning tables, including the Static Loss Plan Download (SLPD) table and the Dynamic Loss Switching (DLS) table, enter the appropriate password as defined in Overlay 17.

Line and Trunk Cards

Contents

The following are the topics in this section:

Reference list

- *Internet Telephony Gateway Line Card: Description, Installation, and Operation* (553-3001-204)
- *Meridian 1 Integrated Telephony Gateway Trunk 2.0/ISDN Signaling Link: Description, Installation, and Operation* (553-3001-202)

Feature description

In addition to providing a definition for card types, this section lists cards for Meridian 1 and SL-1 systems.

Line Cards

Line Cards provide the interface between the Meridian 1 and telephones, their associated data options, and Attendant Consoles.

- Line Cards
  - — NT8D02AA Digital (16 digital telephones plus 16 associated data options)
  - — NT8D03AA Analog (16 analog in-line telephones)

- 500/2500 Telephone Line Card
  - — QPC594 (4d) (16 ports per card)
  - — QPC452 (dd) (eight ports per card)
  - — QPC60 (sd) (four ports per card)
- Message Waiting Line Card
  - — NT8D09AA Analog Message Waiting (16 analog single-line telephones with Message Waiting lamps)
  - — QPC789 (4d) (16 ports per card)
  - — QPC494 (dd) (eight ports per card)
  - — QPC267 (sd) (four ports per card)
- SL-1 Telephone Line Card
  - — QPC451 (dd) (eight ports per card)
  - — QPC61 (sd) (four ports per card)
- Attendant Console Line Card
  - — QPC451 (dd) (eight ports per card; four ports per console)
  - — QPC61 (sd) (four ports per card; four ports per console; card must be vintage C or later)
- Integrated Services Digital Line Card (ISDLC)
  - — QPC578 (4d) (16 logical ports per card; eight physical ports; eight for voice/eight for data)

In addition, Data Line Cards are available to interface data communications products.

Note: For information on ITG Line cards, refer to *Internet Telephony Gateway Line Card: Description, Installation, and Operation* (553-3001-204)

Trunk Cards

Trunk Cards provide the interface between the Meridian 1 and all trunk facilities, including not only public and private network trunks (CO, TIE), but those that connect the Meridian 1 to special features (Recorded Announcement, Paging, and so forth).

- NT8D14AA Universal (any combination of eight: CO, DID, FX, RAN, Paging [low resistance], WATS, TIE, Music)
- NT8D15AA E&M (any combination of four: two-wire E&M, four-wire E&M, four-wire duplex, Paging [high resistance], Emergency Recorder)

Note: For information on ITG Trunk cards, refer to *Meridian 1 Integrated Telephony Gateway Trunk 2.0/ISDN Signaling Link: Description, Installation, and Operation* (553-3001-202).

Digitone Receivers (DTR)

Digitone Receivers convert Dual-tone Multifrequency (DTMF) signals to a digital format acceptable by the Central Processing Unit (CPU). They are required for all 2500 telephones, some incoming TIE trunks, and Digitone DID trunks. Because DTRs perform a service rather than support an item, the quantity depends on the volume of Digitone traffic generated in a system.

- NT8D16AA Digitone Receiver (eight Digitone Receivers)

Controller Cards

Controller Cards provide the interface and control between the network cards and telephones, consoles, and trunks. These cards are always installed in a dedicated slot in the Intelligent Peripheral Equipment (IPE) module. One Controller Card is required per IPE module.

- NT8D01AD Controller-2 (connects up to two Superloops to one IPE module)
- NT8D01AC Controller-4 (connects up to four Superloops to one IPE module)

Line Load Control

Contents

The following are the topics in this section:

Feature description

Line Load Control (LLC) is a manually activated feature that denies a percentage of call originations from defined groups of stations. Four distinct levels of control are provided:

- LLC OFF Control is set to OFF (default value)
- LLC F Control of First level only
- LLC S Control of Second level only
- LLC T Control of Third level only

When the active Line Load Control (LLC) level is set to OFF, there is no LLC in effect for the system. When the active level is F, S, or T, every line or trunk of the controlled stations has an equal probability of being denied origination. Each LLC level has its own blocking probability percentage (0-100), which is assigned in system software.

The selection of controlled stations is based on the Class of Service of the station or trunk. There are four Class of Service options for LLC:

- LLC N No LLC
- LLC 1 First LLC Class of Service
- LLC 2 Second LLC Class of Service
- LLC 3 Third LLC Class of Service

The control levels are enabled manually through LD entry and operate in a hierarchical manner. Only one control level can be active at a time. Progressive in sequence, each operating level restricts another class of stations and the classes below it.

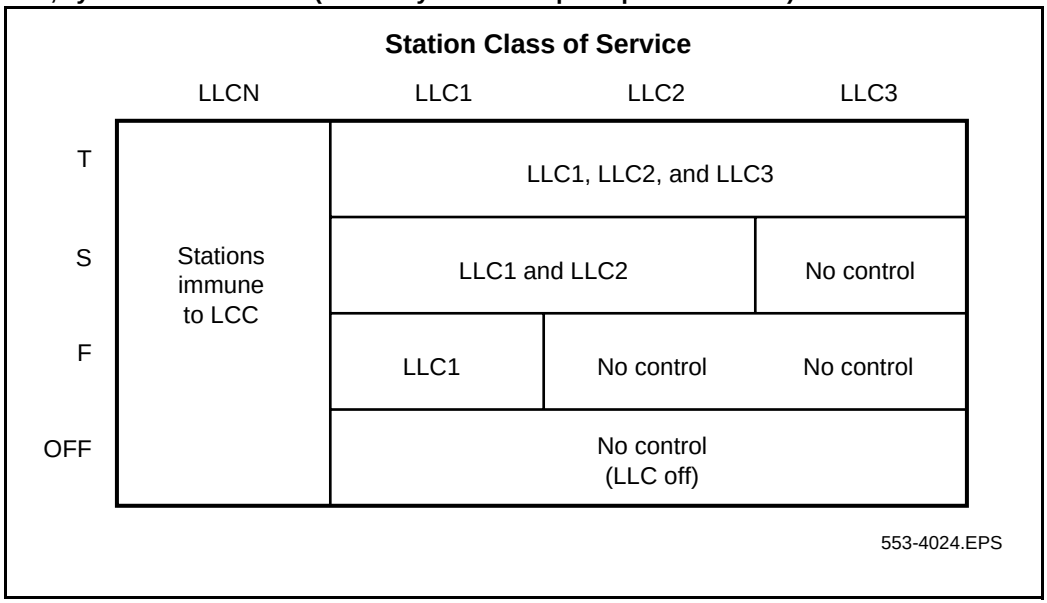
Figure 54 describes the hierarchical nature of LLC. Restrictions are based on the number of originating calls blocked by the probability level set in the LD program.

For example, when LLC S level is enabled, all stations with LLC 1 and LLC 2 Class of Service are limited by the feature, while LLC 3 calls function normally. When LLC T is enabled, only those stations with LLC N Class of Service are allowed to originate calls without restrictions.

Probability levels set by the LD program are whole numbers between 0 and 100. A probability set at 0 (the default value) means no call origins are restricted for that Class of Service. A probability setting of 100 means all calls are restricted when that Class of Service is enabled. Numbers between 0 and 100 are treated as a percentile of calls blocked.

During call processing, LLC screens calls to find the Class of Service for that Directory Number (DN) and the active LLC level, and then decides if the originating set is to receive a dial tone. Sets that are blocked during an LLC level upgrade do not receive a dial tone.

Figure 54
LLC, system control levels (hierarchy and overlap of operative levels)



Operating parameters

The following services are not subject to LLC:

- Attendant stations
- Direct Inward System Access (DISA), and
- Hot Line services.

Established calls are not affected by LLC upgrades, only new calls attempted.

The system counts the calls denied for each Class of Service, and prints the traffic data periodically as part of the Processor Load Format TFS004.

Feature interactions

Automatic Redial

Automatic Redial (ARDL) attempts are controlled and restricted by Line Load Control.

Feature packaging

Line Load Control (LLC) package 105 must be enabled for this feature to operate.

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

1 LD 10 – Add or change Line Load Control for analog (500/2500 type) telephones.

2 LD 11 – Add or change Line Load Control for Meridian 1 proprietary telephones.

3 LD 2 – Set Line Load Control levels.

LD 10 – Add or change Line Load Control for analog (500/2500 type) telephones.

Prompt	Response	Description
REQ:	CHG	Change.
TYPE:	500	Telephone type.
TN	l s c u	Terminal Number.
CLS	(LLCN) LLC1 LLC2 LLC3	LLC not enabled (the default). LLC class 1. LLC class 2. LLC class 3.

LD 11 – Add or change Line Load Control for Meridian 1 proprietary telephones.

Prompt	Response	Description
REQ:	CHG	Change.
TYPE:	aaaa	Telephone type, where: aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, or 3000.

TN	l s c u	Terminal Number.
CLS	(LLCN) LLC1 LLC2 LLC3	LLC not enabled (the default). LLC class 1. LLC class 2. LLC class 3.

LD 2 – Set Line Load Control levels.

Prompt	Response	Description
SCTL	x aaa	Set blocking probability. x = F (LLC, level F). S (LLC, level S). T (LLC, level T). aaa = 0-100.
SLLC	x	Activate LLC at level x. x = F (LLC, level F). S (LLC, level S). T (LLC, level T). OFF (deactivate LLC)
TLLC		Print blocking probability and current active LLC level.

Feature operation

No specific operating procedures are required to use this feature.

Line Lockout

Contents

The following are the topics in this section:

Feature description

When a user remains off hook without dialing any digits, a timeout occurs. The transmission path is released for other uses. Dial tone timeout and interdigit timeout for telephone and Direct Inward System Access (DISA) trunks are considered Line Lockout situations.

The 2500 telephones lock out after 15 seconds. Meridian 1 proprietary telephones, and 500 telephones lock out after 30 seconds. When Line Lockout occurs, the system gives overflow tone for 14 seconds and then puts the telephone in a lockout state. Meridian 1 proprietary telephones are idled, and analog (500/2500 type) telephones appear busy to any incoming calls. DISA calls receive overflow tone.

Flexible Line Lockout-This feature provides three options for lockout treatment for stations and DISA calls. Flexible Line Lockout can perform any of the following functions:

- provide the existing overflow tone and then lockout treatment
- immediately intercept calls to the attendant, or
- receive overflow tone and then intercept to the attendant.

When a call is intercepted to the attendant, ringback is returned and the call appears at the Attendant Console on a designated Line Lockout (LCT) Incoming Call Indicator (ICI) key. If an LCT ICI key is not defined, the call is treated as a normal incoming call.

When the attendant answers the call, the Directory Number (DN) of the originating telephone, followed by the name (if Call Party Name Display is enabled), is displayed on the console. The attendant may then terminate the call or offer assistance to the call originator.

Flexible Line Lockout Timers – This enhancement to Flexible Line Lockout provides three variable Line Lockout timers. The timers are defined in overlay 15, and range from 0 to 60 seconds.

Operating parameters

TIE trunk calls do not receive overflow tone during Line Lockout, and do not receive Flexible Line Lockout treatment.

Feature interactions

Attendant Blocking of Directory Number

If an Attendant Blocking of DN attempt is made on a set in Line Lockout state, busy tone will be returned.

Attendant Overflow Position

A call intercepted to the attendant due to Flexible Line Lockout receives Attendant Overflow Position (AOP) treatment if the feature package is equipped and the AOP Directory Number (DN) is defined.

Call Detail Recording

If a Direct Inward System Access (DISA) call routes to the attendant due to Flexible Line Lockout, and Call Detail Recording (CDR) is selected for incoming trunk calls, a call record generates when the attendant terminates the call after answer. The CDR record shows the attendant number and the route and member numbers.

If the attendant extends the call, the CDR record generates when the call is terminated. The CDR record does not show the attendant Directory Number (DN).

Digital Private Signaling System #1 (DPNSS1) Executive Intrusion

Executive Intrusion is not allowed for any telephone that is in Line Lockout state.

Direct Inward System Access

The defined Flexible Line Lockout treatment is provided to Direct Inward System Access calls.

Display

If a call from a telephone equipped with a display is intercepted to the attendant due to Flexible Line Lockout, the telephone displays the digits dialed, if any, before the intercept. If no digits are dialed, the attendant DN and name (if configured) will be displayed. When the attendant answers the call, the console displays the DN and the number zero (0), or any digits dialed and the name (if configured) of the telephone intercepted.

Off-Hook Alarm Security

Off-Hook Alarm Security treatment occurs when a telephone with ASCA Class of Service receives an interdigit or dial tone timeout. The ASTM is used instead of the dial tone and interdigit timers (DIDT and DIND, respectively) normally used for LLT and DLT line lockout treatment.

Recorded Overflow Announcement

Calls intercepted to the attendant due to Flexible Line Lockout receive Recorded Overflow Announcement (ROA) treatment if the Line Lockout (LCT) Incoming Call Indicator (ICI) key is configured for ROA.

System Overflow Tone

If the option for Flexible Line Lockout to the attendant is enabled, any call that is given overflow tone (e.g., if the wrong access code is dialed, or if the telephone is not allowed to dial the Trunk Access code) is intercepted to the attendant on overflow timeout.

Feature packaging

This feature is included in base X11 system software.

Feature implementation

Task summary list

The following task is required:

LD 15 – Implement Flexible Line Lockout for a customer.

LD 15 – Implement Flexible Line Lockout for a customer.

Prompt	Response	Description
REQ:	CHG	Change.
TYPE:	CDB INT_DATA	Customer Data Block. Intercept treatment options.
CUST	0-99	Customer number.
ICI	0-19 LCT	Assign a Flexible Line Lockout Incoming Call Indicator (ICI) key to Attendant Consoles.
- LLT		Line Lockout treatment.
	(OVF) OFA ATN	Overflow tone, then lockout. Overflow tone, then attendant intercept. Attendant intercept.
- DLT		Line lockout treatment for Direct Inward System Access (DISA) calls.
	(OVF) OFA ATN	Overflow tone, then lockout. Overflow tone, then attendant intercept. Attendant intercept.
TYPE	TIM_DATA	Timers.

- DIND	2-(30)-60	Dial tone and interdigit timeout for Meridian 1 proprietary telephones, and 500 telephones.
- DIDT	2-(14)-60	Dial tone and interdigit timeout for 2500 telephones.
- BOTO	2-(14)-60	Busy tone and overflow tone timeout for all telephones.

Feature operation

No specific operating procedures are required to use this feature.

Listed Directory Numbers

Contents

The following are the topics in this section:

Feature description

Each customer within the system can have up to four Listed Directory Numbers (LDNs) in the public directory on Direct Inward Dialing (DID) trunks. Each Listed Directory Number (LDN) is assigned to an Incoming Call Indicator (ICI) key, enabling the attendant to answer an incoming call appropriately. For systems without DID facilities, LDNs can be provided on incoming Public Exchange/Central Office (CO) trunks assigned to a trunk group and an Incoming Call Indicator (ICI) key on the console. Local telephones and TIE trunks can call the attendant using any of the four DNs.

Operating parameters

A maximum of four LDNs can be assigned per customer.

Feature interactions

Call Forward No Answer

A Listed Directory Number (LDN) that is assigned to an Incoming Call Indicator (ICI) has a higher priority than a Call Forward No Answer ICI. When a call is forwarded to an LDN via Flexible DN, the call is presented on an LDN ICI.

Call Party Name Display

Call Party Name Display (CPDN) is not supported for LDNs. If the LDN call is from an incoming trunk route, the CPND assigned to the route access code is displayed.

Directory Number Expansion

LDNs can have up to seven digits if the Directory Number Expansion (DNXP) package is equipped.

Feature packaging

This feature is included in base X11 System Software.

Feature implementation

Task summary list

The following task is required:

LD 15 – Assign Listed Directory Numbers for each customer.

LD 15 – Assign Listed Directory Numbers for each customer.

Prompt	Response	Description
REQ:	CHG	Change.
TYPE:	LDN	Gate opener.
CUST	0-99	Customer Number.
- LDN0	xxx...x	LDN0.
- LDN1	xxx...x	LDN1.
- LDN2	xxx...x	LDN2.
- LDN3	xxx...x	LDN3.

Feature operation

No specific operating procedures are required to use this feature.

Listed Directory Numbers, Network Wide

Contents

The following are the topics in this section:

Feature description

Listed Directory Numbers (LDNs) can be defined as Incoming Call Indicators (ICI) keys on an Attendant Console, making it possible to have different presentations when different DNs are dialed. This feature makes it possible to define six LDNs on a Meridian 1.

If the dialed DN is an LDN and an LDN key exists corresponding to the dialed LDN, the call will be presented on that ICI LDN key.

This feature also enables LDNs to be recognized network wide when Network Attendant Service (NAS) is used. The same LDNs must be configured in multiple nodes. Network LDN is defined on a customer basis.

Operating parameters

The network part of this feature works in a Meridian Customer Defined Network (MCDN) environment with NAS configured.

The LDNs to be used network wide cannot be used in conjunction with Distant Steering Codes.

Feature interactions

Call Forward No Answer

With this feature, the LDN ICI has a higher priority than CFNA ICI. When a call is forwarded to an LDN via Flexible DN, the call will be presented on the LDN ICI.

Centralized Attendant Service

Centralized Attendant Service (CAS) is mutually exclusive to the NAS package. As the network wide LDN feature requires NAS for its networking functions, the network part of this feature will not work with CAS, but the two extra LDNs can be used locally.

Console Operation - Console Presentation

Console Operation makes it possible for each console to select which ICI call types will be presented to the console. Network wide LDN does not work with the Console Presentation feature because it is not supported by NAS. Console Operation can, however, be configured with two additional LDNs.

Console Operation - Queue Thermometer

The queue thermometer indicates how many calls are in the queue for a certain ICI key. An ICI key can correspond to more than one ICI type. Even though the ICI type of a call may be different with or without this feature active, it will not interact with queue thermometer operations.

Console Presentation Group Level Services

This feature provides two more LDNs per Console Presentation Group.

Departmental Listed Directory Number

Departmental LDN is not supported over the network; however, this feature does provide two more LDNs for the DLDN feature.

Network Attendant Service

The way the network LDN calls are presented in a NAS environment is changed by this feature. The presentation on the NDID, NTIE, NCO, NFEX or NWAT, and the LDN0 key is changed to the correct LDN key, if it exists. Otherwise, it will be presented as it previously was on the NDID or LDN0 key.

Network Message Center

With this feature, the LDN ICI has a higher priority than MWC ICI. When a call is forwarded to an LDN over the network to a message center, the call will be presented on the LDN ICI.

Feature packaging

Since Network Wide LDN requires Network Attendant Service routing, the following existing software packages must be provisioned: Network Attendant Service (NAS) package 159; Network Alternate Route Selection (NARS) package 58; Network Class of Service (NCOS) package 32; Basic Routing (BRTE) package 14; and applicable ISDN options depending upon customer requirements.

To use the attendant queue thermometer, Console Operations (COOP) package 169 must be provisioned.

For Departmental LDN to be configured with six LDNS, Departmental LDN (DLDN) package 76 must be provisioned.

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

1 LD 15 – Four prompts define the extended LDN numbers and the Listed Attendants (LDAs) belonging to the LDNs. The prompts can be answered in the same way as the prompts LDN0, 1, 2, 3. The LDA prompts only appear if DLDN is set to YES. These store the Attendant Console number associated with the LDN number.

2 LD 15 – Add or change LDN keys.

3 LD 93 – Add or change LDN keys in CPG.

LD 15 – Four prompts define the extended LDN numbers and the Listed Attendants (LDAs) belonging to the LDNs. The prompts can be answered in the same way as the prompts LDN0, 1, 2, 3. The LDA prompts only appear if DLDN is set to YES. These store the Attendant Console number associated with the LDN number.

Activate Network Wide LDN in CDB.

Prompt	Response	Description
REQ:	NEW CHG	Add new data. Change existing data.
TYPE:	CDB LDN	Customer Data Block. Departmental Listed Directory Numbers.
...		
- DLDN	YES	YES if no Console Presentation Group (CPG) is configured.
...		
- LDN4	xxxx(xxx)	Listed Directory Number 4. If the DN Expansion (DNXP) package is equipped, up to seven digits are allowed; otherwise, only four digits are allowed.
- LDA4	xx xx... ALL	Attendant Consoles associated with LDN4.
- LDN5	xxxx(xxx)	Listed Directory Number 5. If the DNXP package is equipped, up to seven digits are allowed; otherwise, only four digits are allowed.
- LDA5	xx xx... ALL	Attendant Consoles associated with LDN5.
- OPT	NLDN, (XLDN)	Enable network wide LDN. Exclude LDN.

LD 15 – Add or change LDN keys.

Prompt	Response	Description
REQ:	NEW CHG	Add new data. Change existing data.

TYPE:	CDB LDN	Customer Data Block. Departmental Listed Directory Numbers.
...		
- ICI	x LD4	Listed DN 4, where x is the key number.
- ICI	x LD5	Listed DN 5, where x is the key number.

LD 93 – Add or change LDN keys in CPG.

Prompt	Response	Description
REQ	NEW CHG	Add new data. Change existing data.
TYPE	CPGP	Changes affect the Console Presentation Group parameters.
CUST	x	Customer number.
CPG	x	CPG number.
...		
LDN4	xxxx(xxx)	Listed Directory Number 4. If the DNXP package is equipped, up to seven digits are allowed; otherwise only four can be entered.
LDN5	xxxx(xxx)	Listed Directory Number 5. If the DNXP package is equipped, up to seven digits are allowed; otherwise only four can be entered.
...		
ICI	x LD4	x is the key number for listed DN 4.
ICI	x LD5	x is the key number for listed DN 5.

Feature operation

Calls to node 1 on an LDN, routed by NAS to node 2, are presented to the attendant on node 2 on an ICI according to the following rules.

Note: The feature option in the origination and terminating node is turned on.

1 If an LDN key exists corresponding to the dialed DN, the call is presented on this LDN ICI key.

2 If no LDN key corresponding to the dialed DN exists, and an ICI key for the trunk type exists, the call is presented on a matching trunk type key.

3 If neither of the above cases exists, the call is presented to LDN key 0.

4 If there is no LDN zero and no trunk type ICI keys, the call is only presented on the loop key.

Lockout, DID Second Degree Busy, and MFE Signaling Treatments

Contents

The following are the topics in this section:

Feature description

This feature allows networking treatment to be applied to Multifrequency Signaling for Socotel (MFE), provides an intercept treatment for sets in lockout state, and allows calls to Second Degree Busy sets to be disconnected or routed to the attendant.

These components are described below:

- Calls to a telephone set in lockout state are given full intercept treatment, rather than receiving busy tone. Depending on the configuration, the calls are either routed to the attendant, or given overflow tone. This treatment applies to standalone and networking environments.

- Direct Inward Dialing (DID) calls to a telephone set in Second Degree Busy (i.e., a set that is busy on a call, and has another call waiting or camped-on) state are either disconnected, receive busy tone, or routed to the attendant. If the Second Degree Busy Disconnect (DSTD) option is defined, the call treatment depends on the Class of Service of the second degree busy telephone set; Forward Busy Allowed (FBA) causes the calls to be call forwarded busy to the attendant, while Forward Busy Denied (FBD) causes the calls to receive busy tone.
- MFE signaling provides call status information for DID calls over MFE-registered trunks. If a call tandems across an Integrated Services Digital Network (ISDN) network, this enhancement allows the call status information to be sent to the incoming MFE trunk from any outgoing ISDN trunk.

Operating parameters

There are no operating parameters associated with this feature.

Feature interactions

Automatic Call Distribution

The lockout and second degree busy treatments do not apply to Automatic Call Distribution DNs.

Call Forward
Call Forward Busy
Hunting
Message Waiting Forward Busy
Flexible Feature Code (FFC) Boss Secretarial Filtering

Call Forward, Call Forward Busy, Call Hunt, Message Waiting Forward Busy, and FFC Boss Secretarial Filtering take precedence over lockout and second degree busy.

Feature packaging

This feature is packaged as International Supplementary Features (SUPP) package 131; Network Attendant Service (NAS) package 159; Integrated Services Digital Network (ISDN) package 145; and Multifrequency Signaling (MFE) package 135.

Feature implementation

Task summary list

The following task is required:

LD 15 – Define an option for DID calls to a second degree busy telephone, and define a new intercept treatment for calls in a lockout state.

LD 15 – Define an option for DID calls to a second degree busy telephone, and define a new intercept treatment for calls in a lockout state.

Prompt	Response	Description
REQ:	NEW CHG	Add new data. Change existing data.
TYPE:	CDB FTR_DATA	Customer Data Block. Features and options.
...		
- OPT	(DSTD) DSTA	DID call to Second Degree Busy treatment (denied) allowed. If allowed, DID calls forwarded to a busy set are disconnected. If denied, calls forwarded to a busy set follow the set's CLS (FBA/FBD) treatment.
TYPE	INT_DATA	Intercept treatment options.
...		
INTR	YES	Change Intercept Treatment.
- LCKT	(BSY) OVF ATN RAN NAP SRC1 SRC8	Four of these entries must be entered. The default value is BSY BSY BSY BSY.

Feature operation

No specific operating procedures are required to use this feature.

LOGIVOX Telephone

Contents

The following are the topics in this section:

Feature description

The LOGIVOX is a Swedish telephone similar to the SL-1 telephone, but designed to work on the Swedish A345 500/2500 (Meridian 1 with modified software). The Meridian 1 echoes dialed digits to the telephone, while the A345 does not. The LOGIVOX uses its own firmware to display dialed digits. Therefore, to allow the use of the LOGIVOX telephone with the Meridian 1, a Class of Service is provided that suppresses dialed digits from the Meridian 1, including Last Number Redial. All other digit-display messages are provided through the Meridian 1, as required. Expanded LOGIVOX telephones, with up to two extra key/lamp strips also may be configured, as required.

Operating parameters

Call party name display is not supported on LOGIVOX telephones.

The LVXA Class of Service cannot be defined or changed through Attendant Console overlay 12. In addition, LXVA Class of Service telephones cannot be tested through overlay 31.

A telephone assigned LXVA Class of Service cannot be a maintenance set.

The LVXA Class of Service should only be given to a LOGIVOX telephone.

Feature interactions

Digit Display

During manual dialing or last number redial, the display shows the dialed digits, even if the set has display denied Class of Service. If the set has LOGIVOX denied Class of Service, each digit is shown twice.

On-hook Dialing

Because of the firmware on the LOGIVOX set, the DN key 0 is automatically selected when the first digit is dialed, and no other DN has been selected.

Feature packaging

This feature is packaged under International Supplementary Features (SUPP), package 131.

Feature implementation

Task summary list

The following task is required:

LD 11 – Modify the system hardware and software parameters to allow logivox Class of Service:

LD 11 – Modify the system hardware and software parameters to allow logivox Class of Service:

Prompt	Response	Description
...		
CLS		Class of Service.
	(NDD) ADD DDS	No Digit Display. Automatic Digit Display. Digit Display Standard.
	(LVXD), LVXA	LOGIVOX Class of Service (denied) allowed.

Feature operation

No specific operating procedures are required to use this feature.

Loop Start Supervisory Trunks

Contents

The following are the topics in this section:

Feature description

This feature permits the Meridian 1 to detect disconnect and answer supervision, when provided by the Public Switched Telephone Network (PSTN), for outgoing Central Office (CO), FEX, or WATS loop-start trunks. Answer and disconnect supervision signals, provided by the PSTN and subsequently detected by the Meridian 1, reverse the battery polarity on the tip and ring leads of the trunk (reverse-battery signaling).

Polarity Sensitive Packs (PSPs) or Polarity Insensitive Packs (PIPs) are identified in overlay14.

This feature has the following options:

Toll Definition Coincident

The toll definition allows any digit dialed as the first digit after the trunk access code to define the call as a toll call (refer to LD 16).

Answer Supervision

An answer supervision signal received from the PSTN indicates the call is established for the purpose of other features such as Call Detail Recording (CDR) with answer supervision.

Disconnect Supervision

A disconnect supervision signal is sent when either the calling or called party disconnects thereby freeing the trunk for other use.

Operating parameters

There are no operating parameters associated with this feature.

Feature interactions

Automatic Call Distribution

Since Loop Start Supervisory trunks do not provide disconnect supervision on incoming calls it is not recommended that these trunks be used to auto terminate on an Automatic Call Distribution (ACD) DN.

Call Detail Recording

Call Detail Recording (CDR) will use the toll definition digits as defined in a trunk's Route Data Block instead of using "0" or "1" to identify toll calls.

Call Detail Recording with Answer Supervision

For outgoing calls, the Answer Supervision received from the far end, on Loop Start trunks, will determine when the "CDR with Answer Supervision" feature will start recording the duration of the call.

Call Transfer

If an internal station user transfers an answered outgoing call to another station in the ringing state, then any disconnect signal received from the far end causes the trunk to be released and ringing of the internal set to stop. This operation eliminates the problem of holding trunks and extensions due to lack of supervision on Loop Start trunks.

China – Busy Tone Detection

The interaction with Intelligent Peripheral Equipment (IPE) trunks occurs because Busy Tone Supervision (BTS) can be configured in conjunction with any existing supervision type. For the EXUT, BTS can now be configured with a supervision type of BST (both incoming and outgoing battery reversal) and Polarity Insensitive (PIP). These supervision type's call processing methods are not changed, except that now the first type of supervision received is the one acted upon.

1.5 Mbit Digital Trunk Interface

The CO Loop Start Supervisory trunk will not be supported as a 1.5 Mbit Digital Trunk Interface (DTI) type.

Feature packaging

Loop Start Supervisory Trunks is included in base X11 system software.

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

1 LD 14 – Create or modify trunk data blocks on a per trunk basis:

2 LD 16 – Create or modify trunk route data blocks:

LD 14 – Create or modify trunk data blocks on a per trunk basis:

Prompt	Response	Description
...		
SIGL	LOP	Loop start supervision.
SUPN	YES (NO)	Trunk Supervision required (not required).
STYP	PSP (PIP)	Polarity sensitive packs. Polarity insensitive packs.

LD 16 – Create or modify trunk route data blocks:

Prompt	Response	Description
...		
NATL	(YES) NO	North American toll scheme (a toll call has 0 or 1 as first digit after the trunk access code). Prompted when SUPP package is equipped or OAL = YES or OTL = YES.
TDG	0-9	Toll digits – list of digits after the trunk access code which indicates toll calls. Prompted when NATL = NO.

Feature operation

No specific operating procedures are required to use this feature.

Loop Start Supervisory Trunks (Incoming Calls)

Contents

The following are the topics in this section:

Feature description

This feature adds disconnect supervision for incoming calls from the Public Switched Telephone Network (PSTN) or Central Office (CO), FEX, or WATS loop-start trunks. This is in addition to the existing answer and disconnect supervision available on outgoing trunks for the loop start supervisory trunk feature provided on Group A of the Generic X11 Supplementary Features.

The disconnect supervision on incoming calls applies only to Polarity Insensitive Packs (PIPs). It is the change in polarity (reverse battery), rather than the absolute polarity, that must be detected.

A change in polarity from the PSTN side indicates that the calling party has discontinued the call. The detection of this supervision signal allows a Call Detail Recording (CDR) record to be produced and the trunk to be idled.

Operating parameters

The Central Office cannot disconnect until one second after it is answered by an attendant or station.

This feature is not compatible with the Japan Trunk feature, on a trunk basis.

Polarity detection is disabled during outpulsing. Therefore, polarity state changes of less than 200 milliseconds are ignored after trunk seizure, as are power interruptions of unlimited duration.

If an Meridian 1 station goes on-hook first, a far-end disconnection cannot be detected.

Feature interactions

Automatic Call Distribution

Loop Start trunks with Both Way Supervisory (BST) Class of Service may be used to auto terminate on an Automatic Call Distribution (ACD) DN. Caller disconnection can be detected on trunks designated as BST and removed from the ACD queue.

Call Modification

If an incoming call that is transferred by the attendant to a station is in the ringing state, and the far-end (the Central Office) disconnects, the trunk is released and the ringing stops.

Integrated Voice Messaging Service and Integrated Messaging Service

Integrated Voice Messaging Service (IVMS) and Integrated Messaging Service (IMS) use ACD queues, therefore trunks designated BST may the used for these services.

Feature packaging

International Supplementary Features (SUPP) package 131.

Feature implementation

Task summary list

The following task is required:

LD 14 – Create or modify trunk data blocks on a per trunk basis.

LD 14 – Create or modify trunk data blocks on a per trunk basis.

Prompt	Response	Description
SIGL	LOP	Loop start supervision.
Prior to Release 20.0x program the following:		
CLS	 (LNT) BST	Class of Service Loop start Non-supervised Trunk. Both Way Supervisory Trunk - Supervision on both incoming and outgoing loop start PSTN (CO) trunks.
For Release 20.0x and later program the following:		
SUPN	YES, (NO)	Trunk Supervision required (not required).
STYP	BST	Both way Supervisory Trunk - Supervision on both incoming and outgoing loop start PSTN (CO) trunks.

Feature operation

No specific operating procedures are required to use this feature.

Loopback on Public Exchange/ Central Office Trunks

Contents

Feature description

When a Loop Start signaling arrangement Public Exchange/Central Office (CO) trunk unit is disabled a loopback is performed – the unit is hardware seized to prevent the far end switch from making an incoming call; the CO trunk appears to be in an off-hook state. This enhancement prevents loopback from being performed in this scenario.

Operating parameters

This enhancement applies to the Central Office trunk card used in France, which is the NTD9742A.

Feature interactions

This enhancement does not apply to CO trunk cards located on Meridian 1 Intelligent Peripheral Equipment shelves (loopback prevention is handled by the trunk card in this configuration).

This enhancement does not apply to Direct Inward Dialing (DID)/Direct Outward Dialing (DOD) trunks.

Feature packaging

This feature requires French Type Approval (FRTA) package 197.

Feature implementation

There are no specific implementation procedures for this feature.

Feature operation

No specific operating procedures are required to use this feature.

M2312 Digit Display

Contents

The following are the topics in this section:

Feature description

This feature supports the addition of a two line by 24-character digit display to the M2112 telephone, making it possible to assign an M2112 digital telephone one of the Display Allowed (ADD or DDS) Classes of Service. With either of these classes assigned, the M2112 digital telephone with digit display (M2312) will display digits in a manner similar to the SL-1 telephone.

The display format is the same as that used for the SL-1 telephone, except that 24 characters are available (instead of 16).

Operating parameters

The M2312 telephones will operate on either double density or quadruple density loops. Those telephones configured on a double density loop will be capable of voice service only. Those telephones that are configured on quadruple density loops can provide integrated voice and data services.

Feature interactions

Call Party Name Display

The calling party number can be displayed only when the call is active.

Hold

The digit display will go blank when a call is placed on hold.

Mute

Muting a call will not affect the digit display.

SL-1 digit display

The first line of the digit display can show the characters 0-9, *, #, P, and - The M2312 digit display differs in this respect from that of the SL-1 telephone; the M2312 can display * and #, and hence does not use a space or the H character to represent them.

Feature packaging

M2000 Digital Sets (DSET) package 88.

Feature implementation

Task summary list

The following task is required:

LD 11 – Create or modify the data blocks for Meridian 1 proprietary telephones.

LD 11 – Create or modify the data blocks for Meridian 1 proprietary telephones.

Prompt	Response	Comment
TYPE:	xxxx	Digital data block for xxxx digital set.
CLS		Class of Service.
	(NDD) ADD DDS	No Digit Display, Automatic Digit Display, or Digit Display Standard.

Feature operation

The first line will be capable of displaying the same characters as the SL-1 telephone's digit display. The second line will display the date and time. In addition, when a call is active on key 0, a call timer will be displayed on the second line.

The following display lines can be called up by manual key operations:

- date and time
- buzz DN
- call waiting party
- voice call party
- autodial number
- speed call number
- ring again party
- call forward party
- call pickup

The following display lines can be automatically displayed:

- dialed number, and
- number of calling party.

The time and date function shown on the second display line is generated within the telephone. However, the telephone clock is automatically updated at least once a day from the switch's system clock. The call timer that appears on the second line is generated and controlled completely within the telephone. The function is not controlled by the switch.

Make Set Busy

Contents

The following are the topics in this section:

Reference list

The following are the references in this section:

- *Automatic Call Distribution: Feature Description* (553-2671-110)

Feature description

The Make Set Busy (MSB) feature allows a Meridian 1 proprietary telephone to appear busy to all incoming calls. Outgoing calls can still be made from the telephone. To activate this feature, a separate MSB key/lamp pair must be assigned. Incoming calls to Multiple Appearance Directory Numbers (MADNs) in the MSB mode are still signified by the indicator next to the Directory Number (DN) key, and can be answered even while MSB is active. Calls to any Single Appearance Directory Number on the telephone receive a busy indication.

Make Set Busy Flexible Feature Codes

You can activate Make Set Busy from an analog (500/2500 type) telephone by dialing the Make Set Busy Activate (MSBA) FFC (defined in LD 57). To deactivate Make Set Busy, the user dials the Make Set Busy Deactivate (MSBD) FFC (defined in LD 57) or the general Deactivate (DEAF) FFC (also defined in LD 57).

Operating parameters

Make Set Busy does not affect incoming Private Line calls.

Feature interactions

Attendant Blocking of Directory Number

The Attendant Blocking of DN feature will override the Make Set Busy feature. If the dialed DN of the set that has the Make Set Busy feature is idle, the DN will be blocked and if the DN is busy, busy tone will be heard.

Attendant Break-In

For a telephone with Make Set Busy in effect, Break-In is temporarily denied to the attendant. The Break-In lamp uses a slow flash to indicate this situation. Using the Break-In key prior to dialing the destination DN circumvents this situation. After the Break-In, the telephone returns to its prior status.

If the controlling party goes on hook in a Break-In conference, and is being re-rung by the attendant, the ringing takes precedence over Make Set Busy that may be applied to the set.

Attendant Overflow Position

If a telephone that is the only idle AOP DN has MSB activated, calls will not overflow.

If the AOP DN is a multiple appearance DN, the MSB key should be added to all telephones with an AOP DN.

If MSB is activated in a Multiple Call Ringing arrangement, the telephone appears busy. All other appearances of the AOP DN will still receive calls. This allows the user to leave the telephone and prevent callers from overflowing and receiving ringback with no answer.

If the AOP DN is a Multiple Appearance, Single Call arrangement and MSB is activated, the AOP DN of that telephone will flash, but the telephone will not ring (the call can still be answered from that appearance).

Automatic Call Distribution

See *Automatic Call Distribution: Feature Description* (553-2671-110) for information on MSB operations.

Automatic Set Relocation

If Make Set Busy is active when the telephone is relocated, Make Set Busy remains active.

Busy Lamp Field

When a Make Set Busy key is activated, the Busy Lamp Field array will indicate that the first DN only on that set is busy.

Call Forward All Calls

Call Forward All Calls and then Hunting take precedence over MSB.

Call Forward/Hunt Override Via Flexible Feature Code

Make Set Busy is overridden by the Call Forward/Hunt Override Via FFC feature, but there are no changes to the feature itself.

Call Park

Recall of a parked call to a telephone in the Make Set Busy mode is intercepted by the attendant.

Camp-On, Forced

Telephones with Make Set Busy active cannot be camped on to with Forced Camp-On. Overflow tone is returned to telephones attempting Forced Camp-On. Voice Call is blocked by Make Set Busy.

China – Attendant Monitor

If an attendant attempts to monitor a DN which has Make Set Busy activated and is idle, idle DN treatment is given.

China – Flexible Feature Codes - Customer Call Forward
Enhanced Flexible Feature Codes - Customer Call Forward

Customer Call Forward takes precedence over Make Set Busy if both are active.

Digital Private Signaling System #1 (DPNSS1) Executive Intrusion

Executive Intrusion is not allowed if either of these features is active at the requested party.

Flexible Feature Code enhancement

The Deactivate FFC can be used to deactivate Make Set Busy.

Group Call

A Group Call to a telephone in Make Set Busy or Individual Do Not Disturb mode cannot be completed. The telephone will not be rung and is not counted as part of the Group Call (i.e., if all other members in the group have answered, the lamp next to the Group Call key on the originator's telephone lights steadily).

Group Hunt

Make Set Busy (MSB) has priority over Group Hunting. Group Hunting will skip over sets with MSB active.

Hot Line

Make Set Busy is overridden by the Hot Line feature. If a Meridian 1 proprietary telephone is in Make Set Busy mode, incoming Hot Line calls still terminate (ring) on the telephone.

Idle Extension Notification

It is not possible to request Idle Extension Notification towards an extension that has the Make Set Busy feature activated.

If Idle Extension Notification is requested for a Multiple Call Arrangement DN, the first extension with this DN that becomes idle will cause the recall. This extension will also be blocked from receiving calls.

ISDN QSIG/EuroISDN Call Completion

Sets that have Make Set Busy (MSB) activated can request Call Completion to another DN, as the free notification overrides the MSB feature. Incoming Call Completion to Busy Subscriber (CCBS) requests do not override the MSB feature. A set is considered busy while MSB is active. A CCBS request is registered against a busy set, but only advances when the MSB feature is deactivated and the set remains free.

Make Set Busy and Voice Call Override

This feature allows an incoming voice call to override the Make Set Busy feature activated on a Meridian 1 proprietary telephone, and to terminate on the telephone. The telephone is given a two-second burst of ringing tone before the call connection is established.

All other incoming call types remain blocked by Make Set Busy.

Network Individual Do Not Disturb

The Individual Do Not Disturb (DNDI) intercept treatment takes precedence over Make Set Busy indication.

Network Intercom

Hot Type I calls terminating on a station in the Make Set Busy mode override Make Set Busy.

Override

Telephones with MSB active cannot be overridden. Overflow (fast busy) tone is returned to telephones attempting Priority Override.Voice Call is blocked by MSB.

Override, Enhanced

Priority Override

Telephones with MSB active cannot be affected by Priority Override. Overflow (fast busy) tone is returned to telephones attempting Priority Override.

Feature packaging

Make Set Busy (MSB) package 17 has no feature package dependencies.

The following packages are required for Make Set Busy FFCs:

- Background Terminal Facility (BGD) package 99.
- Flexible Feature Codes (FFC) package number 139, and

Feature implementation

Task summary list

The following task is required:

LD 11 – Add or change MSB for Meridian 1 proprietary telephones.

LD 11 – Add or change MSB for Meridian 1 proprietary telephones.

Prompt	Response	Description
REQ:	CHG	Change.
TYPE:	aaaa	Telephone type, where: aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, or 3000.
TN	l s c u	Terminal Number.
KEY	xx MSB	Add an MSB key (must be key 30 for M3000 telephones). xx = key number.

Feature operation

To make a telephone appear busy to callers:

- Without lifting the handset, press the MSB key. The indicator lights steadily and the telephone will not receive calls.

To cancel MSB:

- Without lifting the handset, press the MSB key. The indicator light is extinguished.

The following instructions are for using Make Set Busy FFCs:

- Activate
  The user must dial the Make Set Busy Activate (MSBA) FFC.
- Deactivate
  The user must dial the Make Set Busy Deactivate (MSBD) FFC or the Deactivate (DEAF) FFC.

Make Set Busy Improvement

Contents

The following are the topics in this section:

Feature description

This feature is designed for a boss/secretary environment. The same Directory Number (DN) appears on more than one set, and is defined as ringing on the secretary set and non-ringing on the boss set.

The Make Set Busy Improvement (MSBI) feature provides an audible notification to the executive non-ringing DN, when all of the secretaries have activated the Make Set Busy (MSB) key on the same appearance of the DN.

Example: The incoming call is directed to the executive DN, the key lamp flashes on the executive set, the secretary receives an audible notification of the same call. If the secretary is not available to answer the call, the secretary presses the MSB key and the call goes back to the executive with audible notification (buzzing or ringing).

The MSBI feature is configured as a new Class Of Service, Make Set Busy Improvement Allowed (MSIA) or Make Set Busy Improvement Denied (MSID). The MSBI feature is configured on a specific Terminal Number (TN) and affects the Single Call Non-Ringing (SCN), Multiple Call Non-Ringing (MCN) and the Private Line Non-Ringing (PVN) keys on that specific TN.

Operating parameters

This feature can be used on Meridian 1 proprietary sets with DN key type SCN, MCN or PVN.

The MSBI feature does not support data terminals, Integrated Services Digital Network (ISDN) Basic Rate Interface (BRI) sets or analog (500/2500) sets. However, the ringing appearances of the DN can be a (500/2500) set but not for a private line.

Feature interactions

Directory Number Delayed Ringing

The MSBI feature takes precedence over the Directory Number Delayed Ringing feature (DNDR). If the MSB key is active on all ringing SCR/MCR sets, the non-ringing SCN/MCN sets ring immediately even if the DNDR feature is active.

If the MSB key is not active on all of the SCR/MCR sets, then the DNDR feature is applied to the SCN/MCN keys.

Executive Distinctive Ringing/Distinctive Ringing by DN

With the distinctive ringing features, the MSBI feature can assign different audible notifications to specific DNs. The audible notification is defined even if the DN is non-ringing. If the MSBI feature turns a non-ringing key into a ringing key, the defined distinctive audible notification is heard.

Multiple Appearance Directory Number

The Make Set Busy Improvement (MBSI) feature affects Multiple Appearance DNs, since the MSB key can manipulate the ringing or non-ringing of multiple appearance DNs.

Ringing Change Key

If Single Call Ringing (SCR) or Multiple Call Ringing (MCR) is changed to non-ringing by Ringing Change Key (RCK) and all ringing sets have MSB active, the sets ring immediately. If MSB is not active on all ringing sets, the lamp flashes on the non-ringing SCR or MCR.

If the SCN or the MCN key is changed from non-ringing to ringing, SCN and MCN lines are rung immediately. If one set is defined as ringing then a lamp flashes at non-ringing sets.

Short buzz for Digital sets

If the MSB key is activated on a set, and there is an incoming call to another SCN/MCN DN key on the same set, a buzzing (or short-buzzing) is applied immediately.

Private Line Service

If the MSB key is active on all ringing appearances of a Private Line DN, the Private Line non-ringing appearances of the same DN rings.

Feature packaging

The MSBI feature requires:

- The Make Set Busy (MSB) package 17.

If analog(500/2500 type) sets are used, these additional packages are required:

- Background Terminal (BGD) package 99
- Flexible Features Codes (FFC) package 139

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

1 LD 11 – Activate the MSBI feature and define Primary DN set (boss) with non-ringing DN key.

2 LD 11 – Define another set (secretary) with ringing DN key and MSB key.

LD 11 – Activate the MSBI feature and define Primary DN set (boss) with non-ringing DN key.

Prompt	Response	Description
REQ:	NEW CHG	Add new data. Change existing data.
TYPE:	 aaaa	Set type. Where: aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, or 3000.
TN	 l s c u c u	Terminal Number. l = loop, s = shelf, c = card, u = unit for Options 51C-81C. c = card, u = unit for Option 11C.
...	...	
CLS	MSIA	Allow Make Set Busy Improvement feature. (MSID) = Deny Make Set Busy Improvement feature.
...	...	
KEY	 xx SCN yyyy xx MCN yyyy xx PVN yyyy	Set function key assignments. xx SCN yyyy = Key number, Single Call Non-Ringing, DN. xx MCN yyyy = Key number, Multiple Call Non-Ringing, DN. xx PVN yyyy = Key number, Private Line Non-Ringing, DN.
...	...	

LD 11 – Define another set (secretary) with ringing DN key and MSB key.

Prompt	Response	Description
REQ:	NEW CHG	Add new data. Change existing data.
TYPE:	aaaa	Set type. Where: aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, or 3000.
TN	 l s c u c u	Terminal Number. l = loop, s = shelf, c = card, u = unit for Options 51C-81C. c = card, u = unit for Option 11C.
...	...	
KEY	 xx SCR yyyy xx MCR yyyy xx PVR yyyy xx MSB	Set function key assignments. xx SCR yyyy = Key number, Single Call Ringing, DN. xx MCR yyyy = Key number, Multiple Call Ringing, DN. xx PVR yyyy = Key number, Private Line Ringing, DN. xx MSB = Key number, Make Set Busy.
...	...	

Feature operation

No specific operating procedures are required to use this feature.

Make Set Busy and Voice Call Override

Contents

The following are the topics in this section:

Feature description

This feature allows an incoming voice call to override the Make Set Busy feature activated on a Meridian 1 proprietary telephone, and to terminate on the set. The set is given a two-second burst of ringing tone before the call connection is established.

All other incoming call types remain blocked by Make Set Busy.

Operating parameters

A Voice Call key on a Meridian 1 proprietary telephone can only be programmed to a single appearance DN.

The set being voice called must be equipped with a speaker.

Feature interactions

Do Not Disturb

Voice calls are not allowed on a set with attendant-activated Do Not Disturb.

Make Set Busy

This feature allows an incoming voice call to override the Make Set Busy feature activated on a Meridian 1 proprietary telephone, and to terminate on the telephone. The telephone is given a two-second burst of ringing tone before the call connection is established.

All other incoming call types remain blocked by Make Set Busy.

Feature packaging

This feature is included in base X11 System Software.

Feature implementation

Task summary list

The following task is required:

LD 15 – Enable Make Set Busy Voice Call Override.

LD 15 – Enable Make Set Busy Voice Call Override.

Prompt	Response	Description
REQ:	NEW CHG	Add new data. Change existing data.
TYPE:	FTR	Gate opener.
CUST	0-99	Customer number.
...		
- OPT	VOBA	Voice Override Busy allowed. The response to the OPT prompt has to be VOBA to allow a voice call to override a Make Set Busy condition.

Feature operation

The following example illustrates how a voice call can be made to a set with MSB active:

In this example, Set A is a Meridian 1 proprietary telephone with a **VCC** key programmed with the DN of a single appearance key on set B.

Set B is a Meridian 1 proprietary telephone with a single appearance DN key. Set B has a **Make Set Busy** key which has been activated.

1 A goes off-hook, and receives dial tone.

2 A presses the **VVC** (Voice Call) key.
A's VCC key lamp is lit and A receives ringback tone. B receives a two-second burst of ring tone. B's terminating DN key lamp flashes.

3 After two seconds:
Set A has a one-way voice path to set B. B's DN key lamp is lit. Ring tone to B stops. Ringback tone to A stops. B's Make Set Busy lamp remains lit.

4 If B goes off-hook, A and B are connected in a normal two-way conversation.

Malicious Call Trace

Contents

The following are the topics in this section:

Feature description

Malicious Call Trace (MCT) allows users of selected telephones to activate a call trace that results in a printed report of the calling and called parties. The report is generated on all system TTYs designated as maintenance (MTC) terminals.

Malicious Call Trace (MCT) is activated either by Dial Access from single-line (analog (500/2500 type) telephones), SL-1 and Meridian digital telephones (Meridian 1 proprietary telephones), or by key access from SL-1 telephones, Meridian digital telephones, and Attendant Consoles.

If the initiator hears overflow tone, the call trace has failed for one of the following reasons:

- The station does not have Malicious Call Trace Allowed (MCTA) Class of Service (CLS)
- The station is not established on an active call, or
- The system could not allocate a print register to store the trace information.

An attendant can activate Malicious Call Trace (MCT) only from an Attendant Console by using the Trace (TRC) feature key. When the Trace (TRC) key is pressed, the system prints a trace report on the source party, the destination party, or both, depending on whether the source key, the destination key, or both keys are active.

The MCT record identifies the source or destination (or both) by printing S or D (or both) prior to the time and date stamp of the record.

Enhanced Malicious Call Trace (EMCT)

With EMCT, the above feature provides the following enhancements:

- Malicious Call Trace is supported on Central Office (CO), Direct Inward Dial (DID) trunks.
- The alarm has a flexible ring timer, allowing a user-selectable range of from 0-15 minutes instead of being fixed at 15 minutes.
- The malicious call can be recorded by using a recording trunk.
- The call trace record can be printed on any Serial Data Interface (SDI) port when MCT is defined as a user. It is also written to the history file.

  Note: If MCT is not defined, the record is still printed on the maintenance TTY(s) only.

- The format of the call trace record tells you whether the call type is internal or external. The record identifier is either MCI for internal or MCE for external.

The user may configure an alarm to ring for a flexible period of time (0-15 minutes) for both internal and external calls. If the alarm DN goes off hook, it stops prior to the flexible alarm timer expiring.

Enhanced Malicious Call Trace for Saudi Arabia

From a user's perspective, the Malicious Call Trace feature activation remains the same as it was prior to this enhancement. However, with this enhancement the feature is now available for different types of analog and digital (CO, DID, and DOD) trunks. In order to send the MCT request, a special digit string is transmitted to the CO for an analog or digital trunk interface.

Enhanced Malicious Call Trace for Australia

In Australia, MCT can be activated during the established state of the call when interfaced with AXE-10 Australia on 2.0 Mbit Primary Rate Interface (PRI) trunks. MCT can also be activated during the call clearing state of the call (within a maximum of 30 seconds from the caller going on-hook). When MCT is activated, a special FACILITY message with a Key Pad information element is transmitted to the CO.

Trace Number (TRC) Key Lamp Status

The TRC key lamp status indicates the progress and success of the Malicious Call Trace request signaling to the CO and availability of the recorder. The following are the lamp states:

Lamp Winking

Activation of the TRC key changes the lamp from dark to winking (fast flashing) if the trunk involved in the call requires the signaling to be done. The lamp remains winking, indicating a transient state, until the call trace request signaling to the CO has been completed.

In a Meridian Customer Defined Network (MCDN) tandem scenario, the set which originated the call trace remains winking until a Facility message is received from the node nearest to the Central Office. The user cannot invoke MCT again while the lamp is in the winking state.

Lamp Lit

If the call trace request to the CO is successful and the recorder is conferenced in the call, the lamp state is changed to lit.

In an MCDN tandem scenario, the lamp goes from winking to lit if a Facility message received from the node nearest to the CO indicates that the MCT request was successful. Activation of the TRC key during this state is ignored.

Lamp Flashing

The lamp flashing (slower frequency than winkling) indicates that the call trace request to the CO was transmitted successfully, but a recorder could not be conferenced in. Activation of the TRC key during this state regenerates the MCT record, activates the alarm, and again attempts to conference in the recorder. The call trace request signaling to the Central Office is not transmitted again.

Lamp Dark

This lamp state indicates an idle TRC key or failure of the call trace request to the CO.

In an MCDN tandem scenario, the lamp goes from winking to dark if a Facility message received from the node nearest the CO indicates that the MCT request was unsuccessful.

Activation of the TRC during this state initiates all call trace elements again including: transmission of trunk hook flash; conferencing a recorder (if one is not already hooked in); generating an MCT record; and activating an alarm.

Operating parameters

The MCT feature is implemented on a system basis.

Assignment of the Trace (TRC) key cannot be done through the Attendant Administration feature.

The Enhanced MCT feature is available with all telephone types except BRI.

The TRC key cannot be assigned as a soft key on Meridian digital telephones.

Any country using flexible firmware flash timing (60-1536 msec.) requires the Generic XFCOT cards NTCK16AE or NTCK16BE, or the Extended Flexible Universal Trunk (EXUT) card NT8D14BA. For any country not using either the Generic Extended Flexible Central Office Trunk (XFCOT) card or the EXUT card, the same functionality is provided by software control.

The Multi-purpose Serial Data Link (MSDL) (or Downloadable D-channel for the Option 11C must be used to support MCT for AXE-10 Australia (2.0 Mbit PRI).

MCT can be activated against only one established call at a time, regardless of the number of TRC keys defined.

The Meridian 1 is responsible for seizing the trunk to which recorders are connected. When a recorder is involved in the call, the call is treated as a conference call. The party on the source side is allowed to disconnect from the call; doing so also disconnects the recorder and resets the TRC key lamp to dark.

There is no special provision for warning tones while there is a conference with the recording device. The trunk is seized on the basis of the SRCH prompt in LD 16.

The following hardware is required to activate this feature on Options 51C - 81C: Analog CO/FX/WATS QPC525A; DID trunk QPC449B LP TRK, QPC825;CO trunk QPC832; XFCOT card NTCK16AE, NTCK16BE; EXUT card NT8D14BA; 1.5 Mbps DTI interface QPC472E; 2.0 Mbps DTI interface QPC536B; PRI2 interface NT8D72AA; Digitone Receiver QPC574A, NT8D16AB; Tone and Digit Switch (TDS) QPC609D, NTAK03AA; Recorded telephone trunk QPC71; Conference card QPC444A, NT8D17CA; and MSDL card NT6D80AA. Note these are the minimum vintages required.

The following hardware is required for the Option 11C: XUT NT8D14A; TDS/Digitone Receiver (DTR) NTAK03AA; CPU/CONF NAK01AA; 2.0 Mbps Primary Rate Interface (PRI) NTAK79AA; D-channel Handler (DCH) loadware NTBK50, NTBK51; 1.5 Mbps Digital Trunk Interface (DTI) NTAK09AA; 2.0 Mbps DTI NTAK10AA; Recorded telephone trunk NT8D14; and Generic XFCOT card NTCK16AE or NTCK16BE; and EXUT card NT8D14BA.

Feature interactions

Malicious Call Trace

China – Attendant Monitor

If a party involved in a monitored call activates the TRC key, monitoring is immediately deactivated.

Calling Party Privacy

Incoming calls to stations having the Malicious Call Trace feature enabled will continue to include the Terminal Number (TN) of the calling party in the Malicious Call Trace record, even if the caller has requested Calling Party Privacy.

Conference Call

When a station or console that is on the conference loop activates the MCT feature, the trace record shows only the conference loop number and conference number as the ORIGTN, and the Terminal Number (TN) of the station or console that activated the feature as the TERTN. No information on the other parties in the conference is given.

History File

The MCT records are stored in the History File if it has been defined as a maintenance (MTC) user in LD 17.

Meridian 911

The Malicious Call Trace (MCT) feature is modified to be supported on ACD sets. ACD sets are allowed to have the Malicious Call trace Allowed (MCTA) Class of Service and a Trace (TRC) key defined. The feature is activated via pressing the MCT key or dialing a MCT access code.

Meridian Mail

The Malicious Call Trace (MCT) feature is modified to be supported on Automatic Call Distribution (ACD) sets. ACD sets are allowed to have the MCTA Class of Service and a TRC key defined. The feature is activated via pressing the MCT key or dialing a MCT access code.

Enhanced Malicious Call Trace

Autodial Tandem Transfer

Enhanced Malicious Call Trace implements the ability to send a call trace request to the CO and provides the possibility to record the call using a recorder. This feature also uses the Centrex/Trunk Switchhook Flash feature; the same enhancement applies to the Autodial Tandem Transfer feature.

Automatic Call Distribution (ACD) Emergency Key (EMR)

The Malicious Call Trace feature operates in a similar manner to the Automatic Call Distribution (ACD) Emergency Key (EMR) feature when conferencing a recording. In this enhancement, the ACD set can activate both the Malicious Call Trace and ACD EMR features.

Called Party Control Option

Prior to this feature, the Called Party Control (CDPC) option was not supported for conference calls. The CDPC option is now supported if the conference contains exactly one recording trunk, one MCT activating party and one other trunk. This is done to make the recorder transparent to the user. The CDPC option remains unsupported for all other conference calls.

Centrex Switchhook Flash

Interaction with the Centrex switchhook flash results because the flash range is changed for this feature. Communication to the CO (trunk hook flash) is performed by using the Centrex switchhook flash feature base code. The enhanced range is available for the Centrex switchhook flash.

Collect Call Blocking

If a station activates Malicious Call Trace (MCT) while the Collect Call Blocking answer signal is being sent, MCT activation is ignored. This also applies to the case when MCT is activated from a remote node.

Conference Call

If MCT is activated during a conference, the trace record shows the conference number and the conference loop number. Trace records are printed for each party involved in the conference. The originator of the call's trace record is printed first.

History File

If the SDI port is defined as an MCT user in LD 17 or the SDI port as a maintenance (MTC) user in LD 17, the MCT records can be stored in the History File. If MCT and MTC users are both defined on the TTY in LD 17, MCT records can also be stored in the History File.

Malicious Call Trace DN/TN Print

If the option MCDC (in LD 15) is set, a second line is added in the MCT reports to show the DN of both parties of the call. If Calling Line Identification (CLID) is available, it is printed in the second line.

Malicious Call Trace Idle Signal

The existing operation of the Malicious Call Trace Idle Signal feature is unchanged.

Meridian 911

The Trunk Hook Flash functionality is used by Meridian 911, Enhanced Malicious Call Trace, and Autodial Tandem Transfer.

Feature packaging

Malicious Call Trace (MCT) and Enhanced Malicious Call Trace (EMCT) require Malicious Call Trace (MCT) package 107.

For ISDN environments, ISDN packages are required based on the node and network interface applicable to the specific country.

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

1 LD 10 – Enable MCT on an Analog (500/2500 type) telephone.

2 LD 11 – Enable MCT on a Meridian 1 Proprietary Telephone.

3 LD 17 – Allow printing of the MCT record on a dedicated MCT TTY port.

4 LD 16 – Set up the recorder route.

5 LD 14 – Set up the recorder trunk.

6 LD 15 – Set up the recorder and alarm options.

7 LD 16 – Set up the alarm for external calls.

8 LD 57 – Define the MCTFFC.

9 LD 16 – Configure the call trace string.

10 LD 14 – Enable Firmware timing for trunk hook flash (if available).

11 LD 73 – Define the DTI2 flash time range.

12 LD 16 – Set up MCTM timer and tandem delay (2 Mbps PRI for AXE-10 Australia only).

Note: In order to activate Malicious Call Trace from an analog (500/2500 type) telephone, the user has to dial SPRE + two-digit access code (83) or the MCT Flexible Feature Code FFC.

LD 10 – Enable MCT on an Analog (500/2500 type) telephone.

Prompt	Response	Description
REQ:	NEW CHG	Add new data. Change existing data.
TYPE:	500	Analog (500/2500 type) telephone data block.
TN	l s c u c u	Terminal Number. Terminal Number for Option 11C.
CLS	MCTA, MCTD	Malicious Call Trace is allowed if Class of Service is MCTA.

Note: In order to activate Malicious Call Trace from a Meridian 1 proprietary telephone, it should have CLS MCTA, and the TRC key should be defined. However, the same function can be achieved using a transfer or conference key and the SPRE + 83 or the MCT FFC.

LD 11 – Enable MCT on a Meridian 1 Proprietary Telephone.

Prompt	Response	Description
REQ:	NEW CHG	Add new data. Change existing data.
TYPE:	xxxx	Meridian 1 proprietary telephone type.
TN	l s c u c u	Terminal Number. Terminal Number for Option 11C.
CLS	(MCTD), MCTA	Malicious Call Trace is allowed if Class of Service is MCTA.
...		
KEY	xx TRC	Key number; Malicious Call Trace. Allowed when CLS = MTA. Key lamp not required. MCT is applied on a TN basis. This key can be configured on ACD telephones.

LD 17 – Allow printing of the MCT record on a dedicated MCT TTY port.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	ADAN	Configuration Record. Gate opener.
- ADAN	xxx TTY yy	xxx = NEW or CHG. yy = port number 0-63 or 0-15.
- USR	MCT	Dedicated TTY port for MCT record.

LD 16 – Set up the recorder route.

Prompt	Response	Description
REQ	NEW CHG	Add new data. Change existing data.
TYPE	RDB	Route data block.
ROUT	xxx	Route number.
TKTP	RCD	Recorder trunk data block.
ACOD	xxxx	Recorder route access code.

LD 14 – Set up the recorder trunk.

Prompt	Response	Description
REQ	NEW CHG	Add new data. Change existing data.
TYPE	RCD	Recorder trunk.
TN	 l s c u c u	Terminal Number. 51C, 61C, and 81C Option 11C

CUST	0-99	Customer number.
RTMB	xxx xxx	Trunk route and member number for RCD.

LD 15 – Set up the recorder and alarm options.

Prompt	Response	Description
REQ:	CHG PRT END	Change, print, or end.
TYPE:	FTR	Gate opener.
CUST	0-99	Customer number.
...		
- ALDN	xxxxxxx	DN for the alarm (the DN must be on the local system).
- ALRM	(NO) YES	The ALRM prompt appears only if ALDN is defined. ALRM has to be set to YES if the alarm is to be rung for any call (external or internal) when MCT is activated.
- TIME	0-(15)	Time is prompted only if ALRM is set to YES. Time for the alarm is set in one-minute increments from 1 to 15.
- INT	(NO) YES	INT is prompted only if ALRM is set to YES. In addition, INT must be YES if the alarm is to be rung when MCT is activated against internal calls.
- RECD	(NO) YES	If the user wants the recorder, set RECD to YES. This prompt does not appear when a new customer is being defined.
- - MCRT	xxxx	The user has to use the recorder route number defined in LD 16. It will only be prompted if the RECD is set to YES.

LD 16 – Set up the alarm for external calls.

Prompt	Response	Description
REQ	NEW CHG	Add new data. Change existing data.

TYPE	RDB	Route data block.
TKTP	DID COT	Direct Inward Dial or Central Office trunks.
ALRM	(NO) YES	Malicious Call Trace is allowed for external calls when the response is YES.

Note: In order to activate Malicious Call Trace from an analog (500/2500 type) telephone without using the SPRE and 83, the MCT FFC has to be defined.

LD 57 – Define the MCTFFC.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	FFC	Flexible Feature Code.
CUST	0-99	Customer number.
CODE	MTRC	Malicious Call Trace.
MTRC	xxxx	Flexible Feature Code for Malicious Call Trace.

Note: For analog and 1.5 Mbps digital trunks, the flash range to be sent to the Central Office is configured using the FLH timer. In order to send the string to the Central Office, MCCD has to be defined

LD 16 – Configure the call trace string.

Prompt	Response	Description
REQ	NEW CHG	Add new data. Change existing data.
TYPE	RDB	Route data block.
RCLS	(EXT) INT	Class marked route as (external) or internal.
...		

CNTL	YES	Changes control or timers.
- TIMR	FLH <space> 60-(510)-32640	Hook Flash timer (in msec.) The range for Centrex Switchhook flash timer is 256-(512)-1536. For CAS, it is recommended that the timer be set at 768 or greater. This timer must be at least 256 ms shorter than the remote OGF timer and 256 ms shorter than the ICF timer. • 60-89 ms = Digit 1 is sent • 90 ms = Hard coded for XFCOT hook flash • 91-255 ms = Digit 1 is sent • 256-1536 ms = Existing software controlled hook switch flash Range for Centrex Switchhook flash timer is 60-(510)-1536 msec (the value is rounded to the nearest 10 msec). Software controlled Centrex/Trunk Switch Flash timer range of 60- 127 msec is done by sending digit 1. The range of 128-1536 msec is already controlled by Centrex Switchhook Flash feature. Firmware flash user can enter any value from 60 to 1536. FWTM must be YES in LD 14 for the trunk associated with this route, if firmware timing is to be used.
...		
MCTS	(NO) YES	Enter YES to get the new prompts
MCCD	0-8 digits	The call trace request string can be 0-8 digits in length. Valid digits are 0-9, *, and #.
MCDT	(0)-4	Digit string delay is in seconds, in increments of one second.

Note: The FWTM prompt is provided for EXUT and XCOT cards. This prompt should be set to YES if firmware timing is to be done for the flash and the card supports this functionality. If the prompt is set to YES for one unit, it is also set to YES for all other units.

LD 14 – Enable Firmware timing for trunk hook flash (if available).

Prompt	Response	Description
REQ	NEW CHG	Add new data. Change existing data.
TYPE	DID COT	Trunk type.
TN	l s c u c u	Terminal Number. Terminal Number for Option 11C.
XTRK	EXUT XCOT	Card type
FWTM	(NO) YES	Firmware timing for the trunk hook flash is available. This prompt is set to YES if firmware timing for trunk hook flash is supported by the card.
CUST	0-99 0-31	Customer number. For Option 11C.
RTMB	xxx yyy	xxx – Trunk route. yyy – Member number for RCD.

LD 73 – Define the DTI2 flash time range.

Prompt	Response	Description
REQ	NEW CHG PRT	New, change, or print.
TYPE	DTI2	
FEAT	abcd	Digital signaling category.
SICA	2-16	SICA table number.
...		
FALT (R)	abcd N	Received bits. If FALT (receive) signal is not required.

P RRC(S)	abcd	Register recall signal activated by MCT.
TIME	10-(100)-630	Time of RRC(S) signal in milliseconds. This is the flash duration used for 2.0 Mbit DTI trunks. It is programmable in one-millisecond increments from 10 to 630.

LD 16 – Set up MCTM timer and tandem delay (2 Mbps PRI for AXE-10 Australia only).

Prompt	Response	Description
REQ	NEW CHG	Add new data. Change existing data.
TYPE	CDB	Customer data block.
CUST	0-99 0-31	Customer number. For Option 11C.
MCTS	YES NO	
MCTM	(0) - 30	Malicious Call Trace timer (in seconds).
MTND	(NO) YES	Malicious Call Trace disconnect delay for tandem calls for AXE-10 Australia.

Feature operation

To trace a malicious call from an analog (500/2500 type) telephone:

1 Flash the switchhook. A special dial tone signifies that the call is on hold.

2 Enter SPRE+83. You are reconnected to the call.

To trace a malicious call from a Meridian 1 proprietary telephone using Special Prefix (SPRE) code:

1 Press **Transfer** or **Conference**. A special dial tone signifies that the call is on hold.

2 Enter SPRE+83. You are reconnected to the call.

To trace a malicious call from a Meridian 1 proprietary telephone using the Trace (TRC) key:

1 Press **Call Trace**. You remain connected to the call.

Malicious Call Trace on Direct Inward Dialing

Contents

The following are the topics in this section:

Feature description

This feature provides an enhancement to the Malicious Call Trace (MCT) feature. If the MCT feature is activated by pressing the trace (TRC) key (on a Meridian 1 proprietary telephone or Attendant Console), or by dialing the SPRE and 83, a digit 1 is outpulsed to the trunk. This is an indication to the Public Switched Telephone Network (PSTN) to activate its own MCT feature.

Operating parameters

The Central Office must be equipped to handle the special signaling requirements associated with the Malicious Call Trace on DID feature described above.

The Malicious Call Trace on DID feature is not available on 1.5 Mbit digital trunks or Japanese Digital Multiplex Interface (DMI) trunks.

Feature interactions

There are no feature interactions associated with this feature.

Feature packaging

International Supplementary Features (SUPP) package 131.

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

1 LD 10 – Enable MCT on an analog (500/2500 type) telephone data block.

2 LD 11 – Enable MCT on a Meridian 1 proprietary telephone data block.

3 LD 15 – Enable MCT signal

4 LD 94 – Create or modify the MFC tables:

LD 10 – Enable MCT on an analog (500/2500 type) telephone data block.

Prompt	Response	Description
...		
CLS		Class of Service.
	MCTA	Malicious Call Trace allowed. When MCTA is assigned, the station must also have XFA defined.
	(XFD) XFA	Call Transfer (denied) allowed.

LD 11 – Enable MCT on a Meridian 1 proprietary telephone data block.

Prompt	Response	Description
...		
CLS		Class of Service.
	MCTA	Malicious Call Trace allowed. When MCTD is assigned, the MCT key is removed.
KEY	xx TRC	MCT Key number.

LD 15 – Enable MCT signal

Prompt	Response	Description
REQ:	NEW CHG	Add new data. Change existing data.
TYPE:	FTR	Gate opener.
...		
OPT	MCTA	Malicious Call Trace signal is allowed for attendants at this customer location.

LD 94 – Create or modify the MFC tables:

Prompt	Response	Description
...		
TYPE	MFT	Multifrequency table.
ICOG	ICT OGT	Incoming Table, Outgoing Table.
TBNO	1-127	MFC Table number.
XMIT	IDCT n	Idle Call Trace Signal number.

Feature operation

No specific operating procedures are required to use this feature.

Malicious Call Trace DN/TN Print

Contents

The following are the topics in this section:

Reference list

The following are the references in this section:

- “Malicious Call Trace” on page 1959

Feature description

This feature enhancement adds a second line to the Malicious Call Trace (MCT) record, printed on the maintenance TTY. This second line provides information about the DNs of the calling and called parties. For trunk calls, the Calling Line Identification (CLID) number (if available) is printed. This enhancement does not change the functionality of the Malicious Call Trace feature.

Operating parameters

The same as for Malicious Call Trace.

Feature interactions

The same as for Malicious Call Trace.

Feature packaging

Malicious Call Trace (MCT) package 107.

Feature implementation

Task summary list

The following task is required:

LD 15 – Enable Printing of Malicious call DN/CDIP information.

LD 15 – Enable Printing of Malicious call DN/CDIP information.

Prompt	Response	Description
REQ:	CHG	Change.
TYPE:	FTR	Gate opener.
...		
- MCDC	YES	Allow the printing of Malicious Call DN/CLID information for the originating and terminating parties.

Feature operation

The modified MCT record output format is as follows:

First Line

Field No.Field TypeContents

1 Record TypeMCT++

2 Customer No.CUSTxx++

3 Originator<*>TNlscu++/<*>TNlc++/<*>CFlc++

4 Terminator<*>TNlscu++/<*>TNlc++/<*>CFlc++

5 Source/Dest.+/S/D++

6 Time stamp hh:mm:ss++MM/DD/YYYY

7 CNIDCNI#xxxxxxxxxxxxxxx

Second Line

Field No.Field TypeContents

1 Originator<*>DNxxxxxxx++++++++++++++

2 Terminator<*>DNxxxxxxx++++++++++++++

or it could be of the following combinations of a DN and CLID number:

1 Originator<*>CLID#xxxxxxxxxxxxxxxx++

2 Terminator<*>DNxxxxxxx++++++++++++++

or

1 Originator<*>DNxxxxxxx++++++++++++++

2 Terminator<*>CLID#xxxxxxxxxxxxxxxx++

Malicious Call Trace Idle

Contents

The following are the topics in this section:

Feature description

The Malicious Call Trace (MCT) Idle signal instructs the Public Exchange/ Central Office to give the called party control of the call connection. If the called party does not go on-hook at the end of a conversation, the connection will be held through the Public Switched Telephone Network (PSTN) indefinitely by means of a Multifrequency Compelled (MFC) Idle Call Trace (IDCT) signal generated by the Meridian 1. This feature allows the automatic call-tracing equipment in the PSTN to print out the appropriate details of the calling party.

Operating parameters

Direct Inward Dialing (DID) calls which terminate on idle trunks result in the IDLE signal being returned to the Central Office.

DID calls which terminate on an Attendant Console result in either a Multifrequency Compelled IDLE or IDCT signal being returned, depending on the customer option. This applies to both direct and intercept calls.

When an Attendant Console is in Night Service, the signal being returned is determined by the customer option and not by the classification of the night DN, unless a DID call comes into a night DN.

When a DID call is diverted prior to termination, either by Call Forward, Hunting, or Call Forward Busy, the signal being returned is determined by the called party extension classification.

If a DID call terminates at a Multiple Appearance DN in which at least one station has malicious call trace allowed Class of Service, then a Multifrequency Compelled IDCT signal is returned to the Central Office. If all stations sharing the DN have Malicious Call Trace denied Class of Service, a Multifrequency Compelled IDLE signal is returned.

Feature interactions

Malicious Call Trace - Enhanced

The existing operation of the Malicious Call Trace Idle Signal feature is unchanged.

Recorded Announcement for Calls Diverted to External Trunks

DID calls to a busy Recorded Announcement (RAN) trunk group are queued and receive ring-back tone. A Multifrequency Compelled IDLE signal is returned.

Trunk Supervision

Once a Multifrequency Compelled IDCT signal is returned, the disconnect trunk supervision is limited to the called party.

Feature packaging

Malicious Call Trace (MCT) package 107.

Dependency:

- Multifrequency Compelled Signaling (MFC) package 128.

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

1 LD 10 – Enable MCT on an Analog (500/2500 type) telephone.

2 LD 11 – Enable MCT on a Meridian 1 proprietary telephone.

3 LD 15 – Enable the MCT signal.

4 LD 94 – Create or modify the MFC tables.

5 LD 16 – Create or modify data for each DID trunk route data block to allow or deny MFC Signaling option.

6 LD 14 – Create or modify data for each DID trunk data block to allow or deny MFC Signaling option.

LD 10 – Enable MCT on an Analog (500/2500 type) telephone.

Prompt	Response	Description
CLS		Class of Service.
	(MCTD) MCTA	Malicious Call Trace (denied) allowed. When MCTA is assigned, the station must also have XFA defined.
	(XFD) XFA	Call Transfer (denied) allowed.

LD 11 – Enable MCT on a Meridian 1 proprietary telephone.

Prompt	Response	Description
CLS		Class of Service.
	(MCTD) MCTA	Malicious Call Trace (denied) allowed. When MCTD is assigned, the MCT key is removed.
KEY	xx TRC	MCT Key number.

LD 15 – Enable the MCT signal.

Prompt	Response	Description
REQ:	CHG	Change.
TYPE:	FTR	Gate opener.
...		
- OPT	MCTA	Malicious Call Trace signal is allowed for attendants at this customer location.

LD 94 – Create or modify the MFC tables.

Prompt	Response	Description
TYPE	MFT	Multifrequency table.
ICOG	ICT OGT	Incoming Table, Outgoing Table.
TBNO	1 - 127	MFC Table number.
XMIT	IDCT n	Idle Call Trace Signal number.

LD 16 – Create or modify data for each DID trunk route data block to allow or deny MFC Signaling option.

Prompt	Response	Description
MFCI	(0) - 127	MFC Incoming table number.
AUTO	NO	Auto terminate.
MFCO	(0) - 127	MFC Outgoing table number.
AUTO	YES	Auto terminate.

CDCT	(NO) YES	Called Party Control (is not) is to be allowed on Malicious Call Trace Idle Calls.
CDPC	(NO) YES	Called Party Control (is not) is activated when the IDCT signal is sent for non-toll calls.

LD 14 – Create or modify data for each DID trunk data block to allow or deny MFC Signaling option.

Prompt	Response	Description
CLS		Class of Service.
	(DIP) DTN MFC	Dial Pulse. Dual Tone Multifrequency. R2 MFC Signal.
MFL	(0) - 7	MFC digit level required for signals to PSTN.

Feature operation

No specific operating procedures are required to use this feature.

Manual Line Service

Contents

The following are the topics in this section:

Feature description

Manual Line Service allows all calls made from an analog (500/2500 type) telephones defined as manual telephones to be handled automatically by an attendant. When the caller goes off-hook, the attendant is contacted immediately. Calls can be placed to telephones with Manual Line Service.

Operating parameters

Manual Line Service applies only to analog (500/2500 type) telephones.

Feature interactions

Attendant Alternative Answering

When Attendant Alternative Answering (AAA) is defined, Manual Line Service follows the AAA parameters.

Attendant Overflow Position

When Attendant Overflow Position (AOP) is defined, Manual Line Service follows the AOP directions.

Automatic Wake Up

Automatic Wake Up (AWU) does not support these features; an AWU call cannot be programmed against a manual line or private line DN.

Night Service

When the system is in Night Service (NSVC) mode, all telephones with a manual Class of Service are routed to the telephone designated as the night number for the customer group.

Phantom Terminal Numbers

Manual Line Service cannot be enabled on a phantom terminal number.

Station-to-Station Calling

If a single line telephone has been assigned a Manual Line Class of Service, the telephone automatically rings the attendant when it goes off-hook.

Feature packaging

This feature is included in base X11 System Software.

Feature implementation

Task summary list

The following task is required:

LD 10 – Define Class of Service for Manual Line telephones.

LD 10 – Define Class of Service for Manual Line telephones.

Prompt	Response	Description
REQ:	CHG	Change.
TYPE:	500	Telephone type.
TN	l s c u	Terminal Number.
DN	xxx...x	Directory Number assigned to the telephone.
CLS	MNL	Arrange telephone for Manual Line Service.

Feature operation

No specific operating procedures are required to use this feature.

Manual Service Recall to Attendant

Contents

The following are the topics in this section:

Feature description

This feature allows an incoming Direct Inward Dialing (DID) trunk with far-end control, that has been disconnected at the Meridian 1 end, to perform an attendant recall upon receiving a switchhook flash.

Operating parameters

The Public Exchange/Central Office must be equipped to handle the special signaling requirements associated with the Manual Service Recall to Attendant feature described above.

The Manual Service Recall to Attendant feature is not available on 1.5 Mbit digital trunks or Japanese Digital Multiplex Interface (DMI) trunks.

Feature interactions

There are no feature interactions associated with this feature.

Feature packaging

International Supplementary Features (SUPP) package 131.

Feature implementation

Task summary list

The following task is required:

LD 16 – Create or modify data for each DID trunk route data block to have or deny MFC Signaling:

LD 16 – Create or modify data for each DID trunk route data block to have or deny MFC Signaling:

Prompt	Response	Description
...		
RCAL	(NO) ATT	Enter ATT to allow Manual Service Recall to the attendant.

Feature operation

To perform an attendant recall upon flash the switchhook. The switchhook flash is considered valid if it lasts at least 30 milliseconds.

When the switchhook flash signal is recognized by the Meridian 1 system as being valid, the call is immediately presented to the attendant or to the Night Service number if the attendant is in Night Service.

Manual Signaling (Buzz)

Contents

The following are the topics in this section:

Feature description

Manual Signaling (Buzz) permits a Meridian 1 proprietary telephone user to sound a buzz tone at a specific telephone. The Meridian M3000 Touchphone provides the buzzing capability by means of an Active State screen softkey.

To activate this feature, a separate buzz key must be equipped. An associated lamp or indicator is not required.

The buzz tone continues as long as the key remains depressed. Manual Signaling (Buzz) has no impact on an existing call or on other active features. If the other telephone is busy on a call, it will still buzz, even if it is a Handsfree call.

Operating parameters

Manual Signaling (Buzz) does not apply to analog (500/2500 type) telephones.

Only Single Appearance Directory Numbers can be buzzed.

Feature interactions

Call Party Name Display

If the Signal key is pressed to buzz another telephone, no digit or name display appears on the telephone.

Network and Executive Distinctive Ringing

Network Distinctive Ringing and Executive Distinctive Ringing do not affect the buzzing of a set.

Voice Call

The same DN can be used for both Voice Call and Manual Signaling (Buzz) as long as it remains a Single Appearance DN.

Feature packaging

This feature is included in base X11 System Software.

Feature implementation

Task summary list

The following task is required:

LD 11 – Add Manual Signaling (Buzz) key for Meridian 1 proprietary telephones.

LD 11 – Add Manual Signaling (Buzz) key for Meridian 1 proprietary telephones.

Prompt	Response	Description
REQ:	CHG	Change.
TYPE:	aaaa	Telephone type, where: aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, or 3000.
TN	l s c u	Terminal Number.
KEY	xx SIG yyy...y	Add a Manual Signaling (Buzz) key, where: xx = key number, and yyy...y = DN to be buzzed (must be a Single Appearance Directory Number).

Feature operation

To buzz a specific telephone:

- Press **Buzz**. The other telephone emits a buzz sound from the speaker for as long as you hold down the Buzz key.

Manual Trunk Service

Contents

The following are the topics in this section:

Feature description

Manual outgoing trunk service permits you to complete an outgoing call, after ringing the trunk, by dialing a predefined trunk access code. Manual incoming trunks, when seized at the far end, are automatically terminated on a specified Directory Number (DN) or, if no DN is specified, at the attendant.

Manual Trunk Service is defined by the trunk Class of Service, and can be applied to outgoing, incoming, and outgoing/incoming trunks. This feature is available to the Central Office (CO), FX, WATS, and TIE trunks with an immediate start arrangement.

Operating parameters

Manual incoming service can be applied to TIE trunks only.

Feature interactions

There are no feature interactions associated with this feature.

Feature packaging

This feature is included in base X11 System Software.

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

1 LD 16 – Add or change an incoming manual trunk route.

2 LD 14 – Add or change an incoming manual trunk.

3 LD 16 – Add or change an outgoing manual trunk route.

4 LD 14 – Add or change an outgoing manual trunk.

LD 16 – Add or change an incoming manual trunk route.

Prompt	Response	Description
REQ	NEW CHG	Add new data. Change existing data.
TYPE	RDB	Route Data Block.
CUST	0-99	Customer number.
ROUT	0-511	Route number.
TKTP	TIE	Incoming manual trunks (must be TIE trunks).
ICOG	ICT	Incoming route.
ACOD	xxxx . . x	Trunk route access code.

LD 14 – Add or change an incoming manual trunk.

Prompt	Response	Description
REQ	NEW CHG	Add new data. Change existing data.
TYPE	TIE	TIE trunks are required for manual incoming trunks.
TN	l s c u	Terminal number.
CUST	0-99	Customer number.
RTMB	rrr mmm	Route and member number.
MNDN	xxx...x	Directory Number for automatically terminate.
SIGL	aaa	Trunk signaling, where: aaa = DX2, DX4, EAM, EM4, GRD, LDR, LOP, or OAD.
STRI	IMM	Incoming start arrangement.
SUPN	(NO) YES	Answer and disconnect supervision (not required) or required.
CLS	(MID) MIA	Manual incoming service (denied) allowed.

LD 16 – Add or change an outgoing manual trunk route.

Prompt	Response	Description
REQ	NEW CHG	Add new data. Change existing data.
TYPE	RDB	Route Data Block.
CUST	0-99	Customer number.
ROUT	0-511	Route number.

TKTP	aaa	Outgoing trunk type, where: aaa = ADM, AID, ATVN, AWR, CAA, CAM, COT, CSA, DIC, DID, FEX, ISA, ISL, MDM, MUS, PAG, RAN, RCD, RLM, RLR, TIE, or WAT.
ICOG	OGT	Outgoing route.
ACOD	xx . . x	Trunk route access code.
MANO	YES	Enable manual outgoing trunk route.

LD 14 – Add or change an outgoing manual trunk.

Prompt	Response	Description
REQ	NEW CHG	Add new data. Change existing data.
TYPE	aaa	Outgoing trunk type.
TN	l s c u	Terminal number.
CUST	0-99	Customer number.
RTMB	rrr mmm	Route and member number.
MNDN	xx...x	Directory Number for automatically terminate.
SIGL	aaa	Trunk signaling, where: aaa = DX2, DX4, EAM, EM4, GRD, LDR, LOP, or OAD.

Feature operation

No specific operating procedures are required to use this feature.

Meridian 1 Attendant Console Enhancements

Contents

The following are the topics in this section:

Feature description

The Meridian 1 Attendant Console Enhancements (MACE) feature expands existing Meridian 1 Attendant Console functionality. This feature provides the following enhancements:

- Attendant Console Autoline
- Individual Attendant Console Directory Number (IADN)
- Attendant Emergency Codes

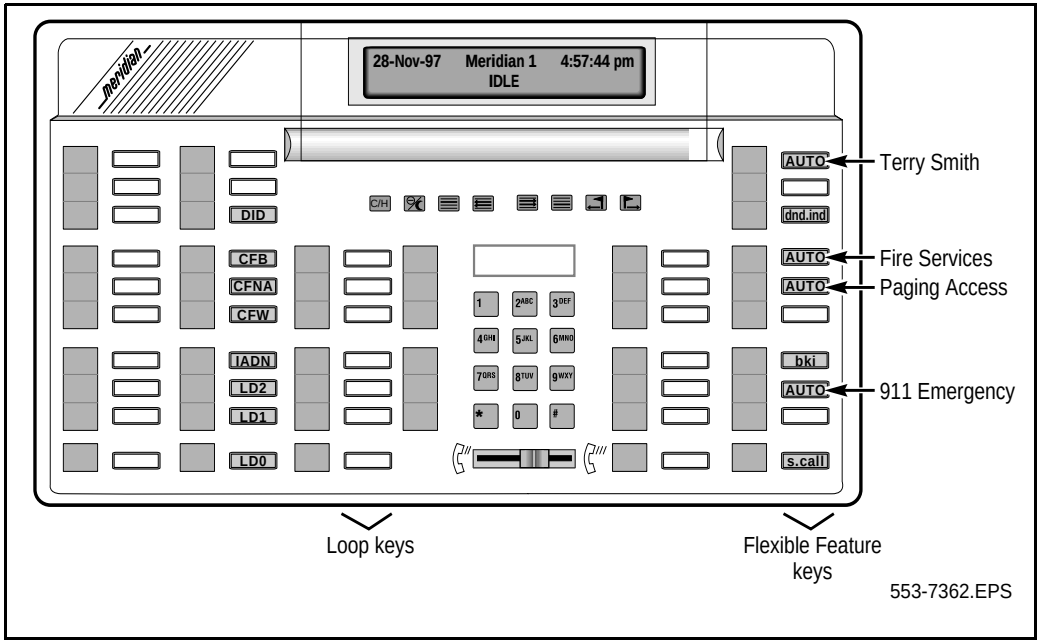
Attendant Console Autoline

The Attendant Console Autoline functionality provides secure autodial services for all types of Attendant Consoles. These services are programmed on Flexible Feature keys on an attendant basis. When the Autoline key is activated, the Meridian 1 system automatically dials a pre-programmed Directory Number (DN). The DN that is stored for the Autoline key can be from 1-31 digits in length and can be either internal or external to the Meridian 1 system.

The Autoline key's functionality is almost identical to that of the Autodial key. However, with Autoline functionality, the DN cannot be programmed from the console. Also, the display key function is simplified. With the Autoline functionality, to display a DN programmed for the Autoline key, the attendant presses the Autoline key when the console is idle or in Position Busy. On an analog console, to display a DN that is longer than eight digits, the attendant presses the Display Source key after pressing the Autoline key.

Figure 55 illustrates a Meridian 1 Attendant Console with four Autoline keys configured on Key Strip 5. This key strip holds the Flexible Feature keys. On Key 2, Autoline is configured to dial 911 for Emergency Calls; on Key 5, Autoline is configured for Paging Access; on Key 6, Autoline is configured to dial Fire Services; and on Key 9, Autoline is configured to dial Terry Smith's DN.

Figure 55
M1 Attendant Console with four Autoline keys configured



In order for an Autoline call to be placed, the attendant presses a Loop key and then presses the Autoline key. When the Autoline key is pressed, the pre-programmed number is automatically dialed.

Figure 56 shows an Attendant Console display when an Autoline call is placed. In this example, the attendant places an Autoline call to Terry Smith at DN 2029. The attendant presses the Loop key and then the Autoline key that is configured to dial Terry Smith's DN. In this case, once the Autoline key is pressed, the attendant display is as shown in Figure 56.

Figure 56
Attendant display when the Autoline functionality is in progress

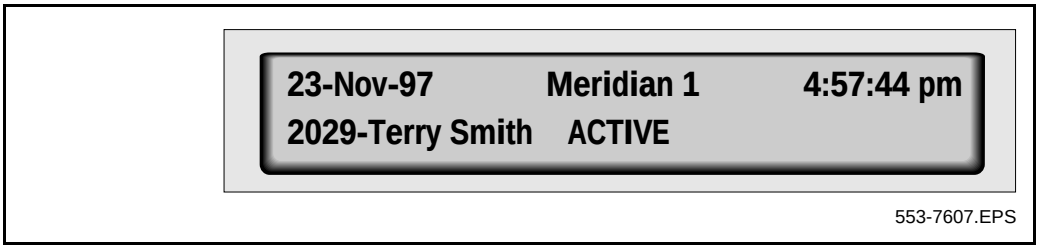
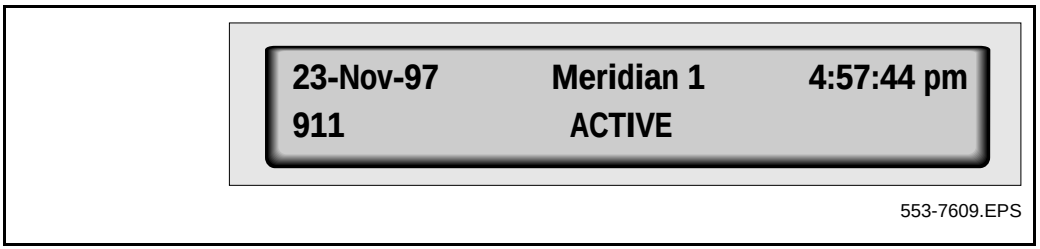


Figure 57 shows an Attendant Console display when an Autoline call is placed to an Autoline DN that is external to the Meridian 1 system. In this example, the Autoline key is programmed for 911 Emergency. When the attendant presses the Loop key and then the Autoline key, the display shows the external DN that is programmed for the Autoline key. In this case, the external DN is 911.

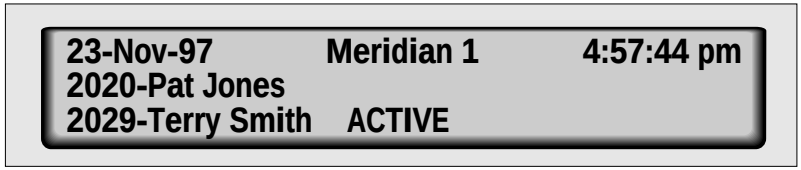
Figure 57
Attendant display when the attendant places an Autoline call to an external Autoline DN



If an attendant is already active on a call and wishes to extend that call to the Autoline DN, the Autoline key is pressed to extend the call.

Figure 58 shows an example of an Attendant Console display when the attendant is already involved in an established call. In this example, Pat Jones at DN 2020 dials the attendant, and a call is established. The attendant wishes to extend the current call to Terry Smith at DN 2029 and does so by pressing the Autoline key that is configured with Terry Smith's DN. Once the Autoline key is pressed, the attendant display is as shown in Figure 58. When the attendant presses the Release key, the display is cleared.

Figure 58
Attendant display when the attendant extends a call to the Autoline DN



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Individual Attendant Console Directory Number (IADN)

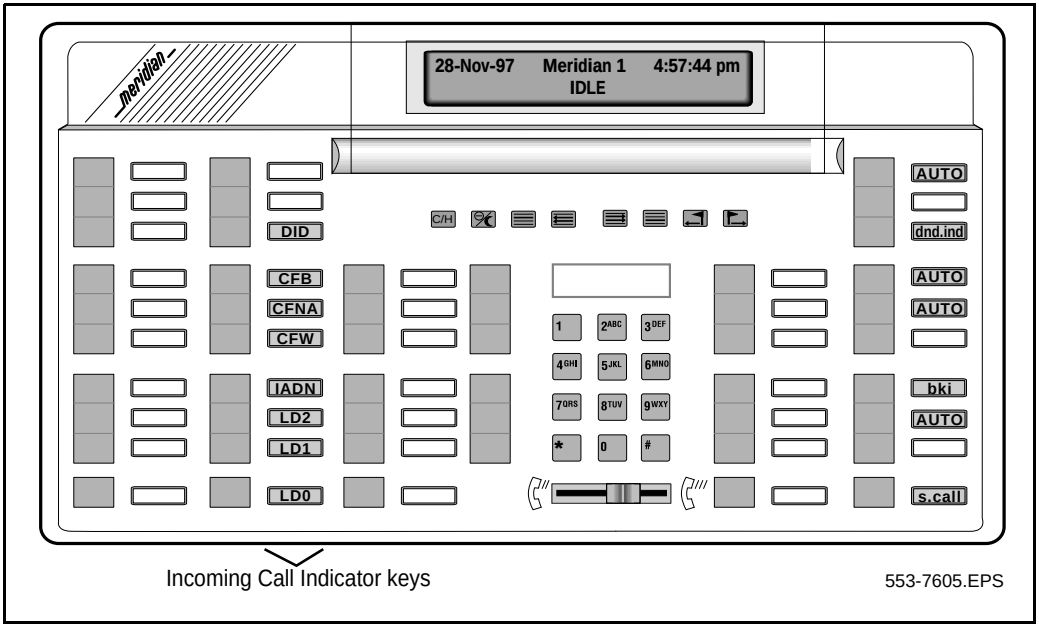
The Individual Attendant Console Directory Number (IADN) functionality allows digital attendant consoles (M2250) to be directly contacted from an internal or external set. Individuals who are paged by an Attendant Console can now re-call that specific console directly, using a new DN type - Individual Attendant Console Directory Number (IADN).

The IADN can have a maximum of four digits or seven digits if Directory Number Expansion (DNXP) package 150 is equipped. The IADN is defined at an attendant level. For an external set to reach the IADN console, the IADN must be defined as a Direct Inward Dialing (DID) number.

A new Incoming Call Indicator (ICI) key is also introduced with the IADN functionality. The IADN ICI key is defined at a customer level. It allows the attendant to answer an IADN call "out of turn" from the attendant queue. If there is at least one IADN call waiting in the attendant queue, the IADN ICI key lamp flashes.

Figure 59 illustrates a Meridian 1 Attendant Console with an IADN ICI key configured on Key Strip 2. This key strip holds the ICI keys.

Figure 59
M1 Attendant Console with an IADN ICI key configured



When an IADN call is made to an Attendant Console that is already active, the call is placed in the attendant queue. An audible tone, Priority Buzzing, may be provided to the active attendant as an indication that an IADN call is waiting to be answered.

> ***Note:*** The Meridian 1 system does not place IADN calls ahead of other calls in the attendant queue. It is the attendant who gives priority to IADN calls by answering them on the IADN ICI key.

For Priority Buzzing to be provided to the active attendant, the Individual Attendant DN Buzzing (IDBZ) prompt must be set to YES in the Customer Data Block. Also, the IADN ICI key must be configured by defining the Incoming Call Indicator (ICI) prompt in the Customer Data Block.

The default cadence for Priority Buzzing is two seconds on and ten seconds off. However, the cadence can be modified with the Priority Buzzing Cadence (PBUZ) prompt in the Customer Data Block. The PBUZ prompt is a prompt introduced with this feature.

The flexible cadence value range is from 2-16 seconds in multiples of two seconds for the on and the off buzzing phases. If the value entered for either of these two phases is an odd number in the valid range, it is rounded down. For example, if the value entered for the on or off buzzing phase is five, it is rounded down to four.

Idle Attendant Console

An Attendant Console is idle when it is available to receive incoming calls. When an internal or external party dials the idle attendant's IADN, the call is presented to the attendant on an idle Loop key. The IADN ICI key lamp, if configured, flashes when the call is presented, and the Attendant Console receives a continuous buzz. Hence, Priority Buzzing is not applicable in this case. When the attendant answers the call, the IADN ICI, Source (SRC), and Loop key lamps are all lit on the console.

Active Attendant Console

When an Attendant Console is in an active state, the Release (RLS) key lamp is not lit. When an internal or external set places a call to the active IADN attendant, the call waits in the attendant queue to be answered. The treatment given to such a call depends upon whether or not the IADN ICI key is configured as well as how the IDBZ prompt is defined in the Customer Data Block.

When an IADN ICI key is configured and the IDBZ prompt is set to NO in the Customer Data Block, Priority Buzzing is **not** provided when an IADN call is waiting to be answered in the attendant queue. Consider the following example:

1 An IADN attendant is involved in an active call.

2 An IADN call is placed to the active attendant and waits to be answered in the attendant queue. No Priority Buzzing is provided to the Attendant Console.

3 The attendant releases the active call.

4 The next call in the queue is presented to the attendant. All ICI keys on the Attendant Console, including the IADN key, are updated. The IADN ICI key lamp flashes if there is at least one IADN call waiting in the attendant queue.

5 The attendant chooses to answer the IADN call, from the queue, by pressing the IADN ICI key.

When an IADN ICI key is configured and the IDBZ prompt is set to YES in the Customer Data Block, Priority Buzzing is provided when an IADN call is waiting to be answered in the attendant queue. Consider the following example:

1 An attendant is involved in an active call.

2 An IADN call is placed to the active attendant and waits to be answered in the attendant queue.

3 Priority Buzzing is provided to the Attendant Console. During this time, if another IADN call for the same attendant, is placed in the attendant queue, the Priority Buzzing is not affected.

4 The attendant releases the active call.

5 The next call in the queue is presented to the attendant.

6 The Priority Buzzing stops, and the attendant receives a continuous buzz for the newly presented call. All ICI keys on the Attendant Console, including the IADN key, are updated. The IADN ICI key lamp flashes if there is at least one IADN call waiting in the attendant queue.

7 The attendant chooses to answer the IADN call, from the queue, by pressing the IADN ICI key. If there is another IADN call waiting for the attendant in the queue, Priority Buzzing is applied to the attendant again. If there is not another IADN call waiting, then the Priority Buzzing stops. If the attendant selects another call over the IADN call (using another ICI key or taking a non-IADN call if presented on the Loop key), Priority Buzzing begins again.

When an IADN ICI key is **not** configured and whether or not the IDBZ prompt is set to YES, Priority Buzzing **does not** function. The IADN ICI key must be configured for the Priority Buzzing functionality to be applicable. Consider the following example:

1 An attendant is involved in an active call.

2 An IADN call is placed to the active attendant and waits in the attendant queue. No Priority Buzzing is provided to the Attendant Console.

3 The attendant releases the active call.

4 The next call in the queue is presented to the attendant.

5 The IADN call is only presented to the attendant when its "turn" comes about in the attendant queue. The IADN call is presented on a Loop key in this case.

Attendant Console in Position Busy

An Attendant Console is not able to receive incoming calls when it is in a Position Busy state. In this case, IADN calls unable to reach the busy attendant are treated as normal attendant calls and are instead sent to an available Attendant Console in the system. Priority Buzzing is not provided to the available console, and the IADN ICI key does not flash, as the IADN call was not originally intended for this particular console. The IADN call is presented to the attendant on a Loop key when its "turn" comes about in the attendant queue. No ICI keys are lit for these calls.

When an IADN console leaves the Position Busy state, it receives Priority Buzzing for all of the IADN calls waiting in the attendant queue.

Customer/Tenant in Night Mode

A customer or tenant is in Night Mode when all of its Attendant Consoles are in Position Busy. When an IADN call is placed to an Attendant Console in this situation, the call receives the standard night treatment defined for the Customer. If Network Attendant Service (NAS) is equipped and also has NLDN, Priority Buzzing is provided (if configured).

An Attendant Console returns to an idle state from Position Busy with an IADN call waiting in the attendant queue. Priority Buzzing is only provided to this Attendant Console if there is more than one call waiting in the attendant queue and if the IADN call is not the first call in queue. Otherwise, normal attendant treatment occurs.

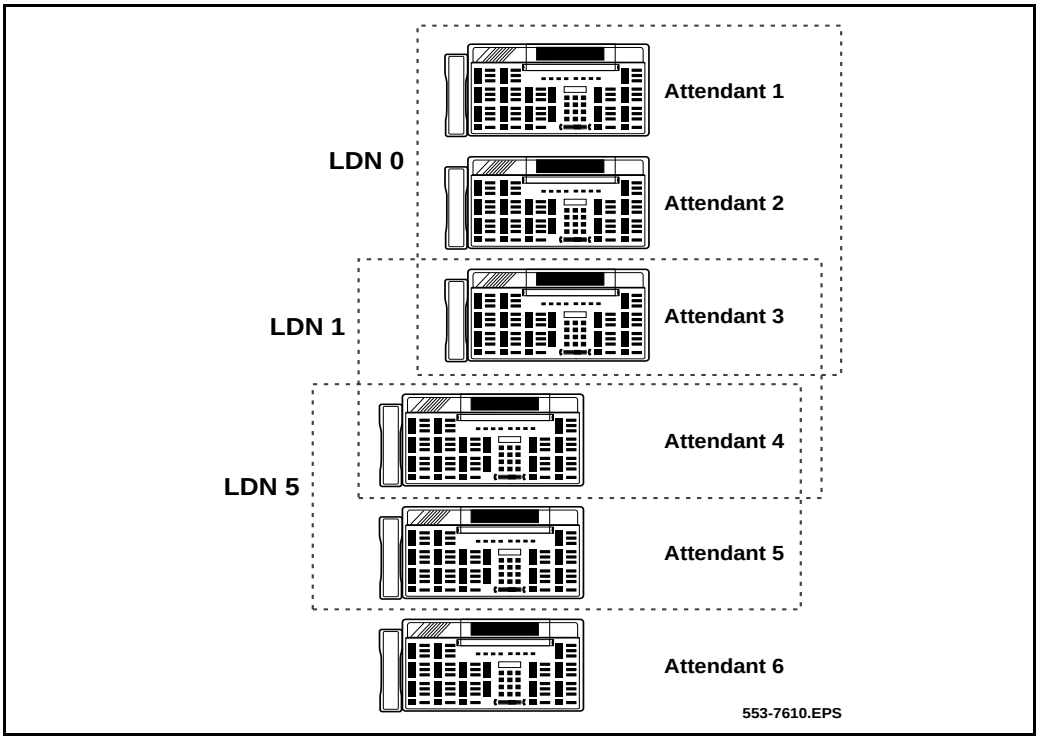
Attendant Emergency Codes

The Attendant Emergency Codes functionality allows an internal/external set to access a group of attendants by dialing an emergency code. This functionality is an enhancement to the existing Departmental Listed Directory Number (DLDN) feature.

The DLDN feature allows specified telephones that share the same numbering plan to belong to one out of a possible six subgroups in a Meridian 1 customer. Each DLDN subgroup is identified by one of the customer's Listed Directory Numbers (LDNs). Each department consists of an LDN (0-5) and an associated list of Attendant Consoles (maximum 63) to which LDN calls are delivered.

Figure 60 provides an example of Attendant Console DLDN groupings. These groups are assigned using the LDA prompt in Overlay 15. In Figure 60, LDN 0 consists of Attendants 1, 2,and 3; LDN 1 consists of Attendants 3 and 4; and LDN 5 consists of Attendants 4 and 5. Attendant 6 does not belong to a DLDN group.

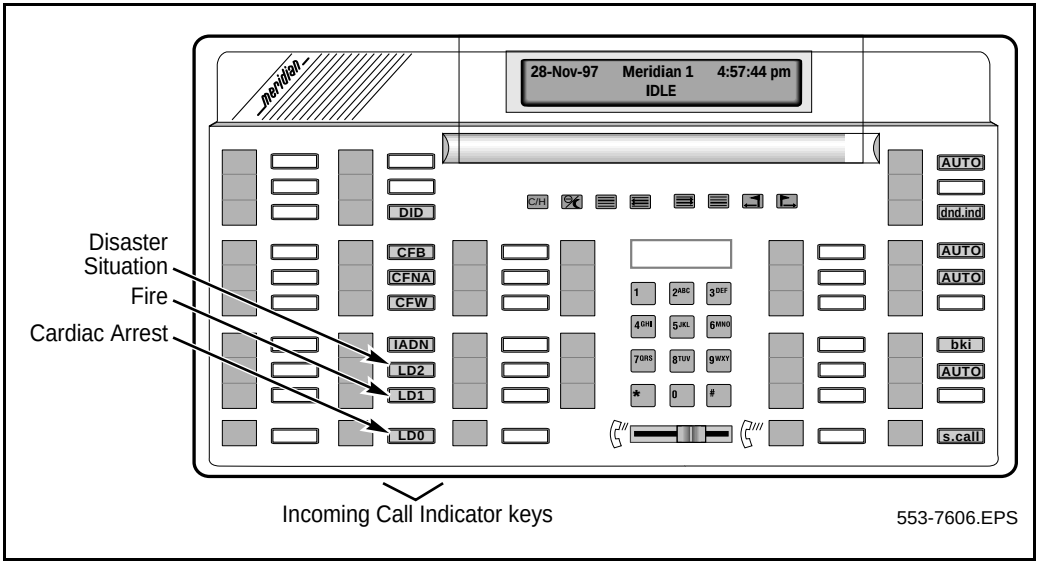
Figure 60
An example of Attendant Console DLDN groupings



ICI keys LDN 0 to LDN 5 can be configured for LDN calls. Emergency code calls use these same ICI keys, as the Attendant Emergency Codes functionality is an enhancement of the DLDN feature. One ICI key can be associated with more than one type of incoming call. Therefore, one ICI key can be configured to answer all emergency code calls.

Figure 61 shows an example of a Meridian 1 Attendant Console with three LDN ICI keys configured. In this example, a hospital has three LDNs that are associated with a particular emergency situation. LDN 0 and the associated ICI key are used for Cardiac Arrest; LDN 1 and the associated ICI key are used for fire emergencies; and LDN 2 and the associated ICI key are used for disaster situations.

Figure 61
An M1 Attendant Console with three LDN ICI keys configured



Attendant Emergency Codes functionality provides each DLDN group with the option for Priority Buzzing. Therefore, when the LDN Buzzing (LDBZ) prompt is configured in the Customer Data Block, an audible notification is presented to each of the consoles in the contacted DLDN group. This notification indicates that an emergency code call is waiting to be answered in the attendant queue. The LDBZ prompt allows the selection of each DLDN group that is to be buzzed when an emergency code call is queued.

Therefore, when an internal/external call is placed to LDN 0 as an alert of Cardiac Arrest, all of the attendants in this DLDN group are alerted with Priority Buzzing while the call is waiting in the attendant queue. The LDN 0 ICI key lamp is lit for all Attendant Consoles in the Customer. However, only the attendants of the selected DLDN group receive Priority Buzzing.

The default cadence for Priority Buzzing is two seconds on and ten seconds off. The cadence can be modified by defining the Priority Buzzing cadence (PBUZ) prompt in the Customer Data Block. The Priority Buzzing functionality for emergency code calls is the same as that for IADN calls.

Idle Attendant Console

When an internal/external emergency code call is placed, the Meridian 1 system seeks an idle attendant in the DLDN group. The emergency code calls are presented on an idle Loop key in a “Round Robin” fashion. For example, when an LDN call is received, it is presented to the next listed attendant after the one that was last offered a call. This ensures that emergency code calls are distributed in an equitable fashion. Emergency code calls, dial-0 calls, and timed recalls are serviced according to a circular list for the particular LDN.

When the emergency code call is presented on the idle Loop key, the associated ICI key lamp is lit. The ICI lamp status of other Attendant Consoles in the Customer is not updated, since the call is already presented on the Loop key.

Referring to Figure 60, consider the following example:

1 Party 1, an internal set or external trunk, dials LDN 0.

2 The system finds that Attendant Consoles belonging to this group (Consoles 1, 2, and 3) have presentation status for this call.

3 An analysis is now performed to find the attendant that was last offered an LDN call for this group. It is found that Attendant Console 3 was offered the last LDN call.

4 The Meridian 1 system attempts to present this call to the next available attendant of this group.

5 The scanning begins with Attendant 2. If Attendant Console 2 is idle, the call is presented to it.

6 If Attendant Console 2 is not available, the system searches for the next Attendant Console (Console 1) in a round robin fashion.

7 When the call is presented to the idle attendant on an idle Loop key, the associated Loop key lamp is lit. Also, the LDN 0 ICI key, if configured, is lit on this console. The Source (SRC) key winks.

8 Once the call is answered, the SRC lamp is steadily lit, and the status of the other lamps remain the same.

When a call is presented to the Attendant Console, the Attendant Console is buzzed continuously by the system, hence Priority Buzzing is **not** applied.

Active Attendant Console

An Attendant Console is in an active state when the Release lamp is dark and the Position Busy key is not activated. When an internal/external call is placed to a DLDN group in which all attendants are active, the call is placed in the attendant queue. The LDN ICI key corresponding to this LDN is updated whenever an Attendant Console of the Customer becomes idle. All active digital Attendant Consoles in the DLDN group receive Priority Buzzing if the LDN ICI key is configured and if this particular DLDN group is defined at the LDBZ prompt.

Referring to Figure 60, consider the following example:

1 Party 1 (an internal set or external trunk) dials LDN0.

2 The system finds that the Attendant Consoles belonging to this group (Consoles 1, 2, and 3) have presentation status for this call.

3 An analysis is now performed to find the attendant that was last offered an LDN call for this group. It is found that Attendant 3 was offered the last LDN call.

4 The system now attempts to terminate the call to the next available attendant of the group.

5 The scanning begins with Attendant 2, the next attendant, and proceeds in a “Round Robin” fashion until an idle Attendant Console is found.

6 If none of the LDN0 consoles are idle, the call is placed in the attendant queue. The call then waits for an idle attendant that has presentation status for the call.

7 The system searches for whether or not the LDN 0 ICI key is configured for the customer. If it is configured, the LDN 0 ICI key lamp is lit for all other Attendant Consoles not in the DLDN group.

8 Priority Buzzing is provided to the digital consoles of this DLDN group, depending on the value of the LDBZ prompt and the configuration of the ICI keys in the Customer Data Block.

When an emergency code call is placed, the corresponding LDN ICI key configuration and the value of the LDBZ prompt is checked. If the DLDN group is included for LDN Buzzing (LDBZ) and if an LDN ICI key is configured, all attendants of the group receive Priority Buzzing.

Referring to Figure 60, consider the following example regarding an active Attendant Console:

1 Party 1 (an internal set or external trunk) dials LDN0.

2 The LDN 0 ICI key lamp is lit for all Attendant Consoles not in the DLDN group.

3 The LDBZ prompt in the Customer Data Block is checked for whether or not LDN0 should be buzzed when an emergency code call is waiting in the attendant queue.

4 When LDN0 is included at the LDBZ prompt, Priority Buzzing is provided to all active digital consoles in this group.

Attendant Consoles 1 and 2 are found to be active and Console 3 in Position Busy. Hence, Consoles 1 and 2 (digital consoles) receive Priority Buzzing.

If Console 3 leaves the Position Busy state, it is presented with the next call in the attendant queue. When the attendant answers the call, Priority Buzzing is provided to the Attendant Console if there is at least one emergency code call waiting in the attendant queue.

5 When a call is waiting in the attendant queue, any one of the attendants in the Customer can pick up the call by pressing the ICI key.

6 When one of the attendants belonging to LDN 0 become free, the first call is presented on an idle Loop key.

7 When the emergency code call is presented, the associated Loop key lamp is lit and the Source (SRC) key lamp winks. Priority Buzzing stops for all of the DLDN attendants of this group and normal continuous buzzing is provided to the console where the call is presented.

8 Once the call is answered, the SRC lamp is steadily lit, and the status of the other lamps remain the same.

If the LDN ICI key is configured and the LDN group is **not** defined at the LDBZ prompt, the Attendant Consoles of the LDN group are **not** provided with Priority Buzzing.

Referring to Figure 60, LDN 0 is not included at the LDBZ prompt; therefore, no buzzing is provided to the LDN0 group of Attendant Consoles. The LDN 0 ICI key lamp is lit for all of the attendants not in the DLDN group.

If the LDN ICI key is **not** configured, the LDN call **does not** receive Attendant Emergency Codes treatment, regardless of how the LDBZ prompt is defined in the Customer Data Block. Without the LDN ICI key configured, the call cannot be taken "out of turn" from the attendant queue, and no Priority Buzzing is provided.

Attendant Console in Position Busy

If all attendants in the DLDN group are in Position Busy when an emergency code call enters the attendant queue, the call is given the same treatment as an LDN call under the same conditions. Since all Attendant Consoles in the LDN group are in Position Busy when the call enters the attendant queue, no Priority Buzzing is provided, and the call remains in the attendant queue. This call updates the corresponding LDN ICI key (if configured) on all available attendants in the Customer. Hence, the attendant can answer the call by pressing the ICI key.

When an Attendant Console leaves the Position Busy mode, all of the emergency code/IADN calls waiting in the attendant queue for this particular attendant receive priority treatment. Hence, if any of the Attendant Consoles in the DLDN group leave the Position Busy state before the call is removed from the queue, Priority Buzzing is provided (if configured).

Customer/Tenant in Night Mode

The customer/tenant is in Night Mode if all of its attendants are in the Position Busy. When an LDN/emergency code call is placed, the call receives the standard night treatment as defined for the customer. If Network Attendant Service (NAS) is equipped and also has NLDN, Priority Buzzing is provided (if configured).

Operating parameters

Existing limitations apply to the Meridian 1 Attendant Console Enhancements feature.

Attendant Console Autoline

Autoline functionality is supported on all Attendant Console types.

Any changes to the Autoline Directory Number must be made in Overlay 12 and cannot be done on the Attendant Console itself.

The DN programmed on the Autoline key is not verified for validity during configuration. If the DN is invalid, the attendant receives an overflow tone when the Autoline key is used.

The Attendant Autoline key lamp always remains dark.

Individual Attendant Console Directory Number (IADN)

IADN functionality is supported on digital Attendant Consoles (M2250) only.

IADNs must be unique DNs. Therefore, they cannot be Multiple Appearance DNs.

The IADN is a way to contact an attendant and not a DN key. Hence, when an attendant originates a call, the IADN is not relevant.

The IADN can be programmed from the existing range of DID numbers purchased by the customer.

The Calling Party Name Display (CPND) associated with an IADN is the same as the CPND associated with the Attendant DN.

When an IADN call is placed to a particular attendant when the customer/ tenant is in Night Mode, the call receives standard Night treatment as defined for the Customer. During Night Treatment, the call has no priority over other calls in the queue.

As per existing operation, when an attendant places an IADN/LDN call on hold and the system initializes, the IADN/LDN call that is on hold is lost.

As per existing operation, when there is an IADN/LDN call in the attendant queue and the system initializes, all calls in the queue are dropped.

The Call Waiting lamp on the Attendant Console reflects the IADN calls waiting in the attendant queue.

When an IADN call is placed in the attendant queue, a maximum of a two second delay may occur before Priority Buzzing begins.

When an Attendant Console is service changed in Overlay 12 while it is active, the Attendant Console goes into a Position Busy state. In this case, Priority Buzzing stops for any buzzing IADN call waiting in the attendant queue.

If the Attendant Console is service changed in Overlay 12 and REQ = OUT, all IADN calls to this attendant are treated as normal attendant calls and are presented to any available attendant in the Customer/Console Presentation Group. ICI keys are not lit for these calls on other Attendant Consoles.

If the Attendant Console is service changed in Overlay 12 and REQ = CHG, all IADN calls for this attendant are presented to any available attendant in the Customer/Console Presentation Group, unless the IADN attendant leaves the Position Busy state before the call is taken out of the attendant queue and the attendant number is not changed. If this is the case, the call receives priority treatment as defined for IADN.

During service change, when the IADN DN is changed, the IADN calls for the originally intended Attendant Console can still terminate to that console as long as the attendant number remains the same.

When the IADN ICI key configuration is removed from the Customer Data Block, or if IDBZ = NO, then Priority Buzzing for any IADN calls waiting in the attendant queue is stopped. The attendant is no longer able to answer the IADN call “out of turn” from the attendant queue if the ICI key is removed.

If the IDBZ prompt is changed from NO to YES, the IADN calls waiting in the attendant queue do not apply Priority Buzzing to the respective attendants. However, when a new IADN call is placed in the attendant queue, the Attendant Console receives Priority Buzzing within two seconds for all of the IADN calls waiting for this particular console in the attendant queue.

If an IADN ICI key is configured for the Customer, Priority Buzzing is not provided for the IADN calls that are already waiting in the attendant queue. Priority Buzzing is only provided when new IADN calls are placed in the queue.

If the IADN ICI key is not configured, the IDBZ prompt is still given, but its value is ignored. Therefore, Priority Buzzing is not provided in this case.

When an IADN call is placed in the attendant queue and waits for a console that is already being buzzed (Recall Buzzing, Attendant Emergency Codes Priority Buzzing, or another IADN call Priority Buzzing) Priority Buzzing is not provided immediately.

Priority Buzzing is not provided when an IADN call is presented to an idle Attendant Console with normal buzzing.

IADNs cannot be configured as an Attendant Alternative Answering (AAA) DN, Attendant Overflow Position (AOP) DN, or Night DN.

Data calls to an IADN are not supported.

An IADN can be configured as a valid intercept computer DN.

An attendant cannot place a call to another attendant on the same node by dialing the attendant's IADN. If an attendant tries to do this, an overflow tone is given.

Attendant Emergency Codes

All existing limitations/interactions of the DLDN feature apply to emergency code calls.

Attendant Emergency Codes functionality is supported on digital Attendant Consoles (M2250) only.

The DLDN package must be equipped and enabled in order for Attendant Emergency Codes to function.

Attendant Emergency Codes functionality is supported at a customer level only.

A DLDN group may contain any type of Attendant Console; however, only digital consoles receive Priority Buzzing.

When the Attendant DN 0 is called, the call is routed to only those Attendant Consoles belonging to the LDN group. Dial 0 and Slow Answer Recalls are not treated as emergency code calls, and no Priority Buzzing is provided, regardless of how the LDBZ prompt is defined.

When an emergency code call is placed in the attendant queue, a maximum of a two second delay may occur before Priority Buzzing begins.

Each DLDN that is configured as an emergency code number decreases one customer LDN.

When an Attendant Console is service changed in Overlay 12 while it is active, the Attendant Console goes into a Position Busy state. In this case, Priority Buzzing stops for any buzzing emergency code call waiting in the attendant queue. If the Attendant Console leaves the Position Busy state while the emergency code call is still waiting in the attendant queue, the console receives Priority Buzzing.

If a new LDN ICI key is configured for the Customer, Priority Buzzing is not provided for the emergency code calls that are already waiting in the attendant queue. The console receives Priority Buzzing for new emergency code calls placed in the attendant queue.

If a new DLDN group is defined at the LDBZ prompt, Priority Buzzing is not provided for the emergency code calls that were already waiting in the attendant queue. When a new emergency code call is inserted in the attendant queue, however, Priority Buzzing is provided if the corresponding LDN ICI key is configured.

If an Attendant Console is removed from its LDN group while an emergency code call is waiting in the attendant queue, Priority Buzzing is stopped. The status of the LDN ICI key lamp remains the same. Also, the Attendant Console loses its presentation status.

If the ICI key and the LDBZ/IDBZ prompts are not configured appropriately, there may be calls waiting in the attendant queue that are not providing Priority Buzzing to any consoles. If, through service change, the ICI key and the IDBZ/LDBZ prompt are then configured appropriately, Priority Buzzing is still not provided until another valid call enters the queue or the appropriate attendant enters the Position Busy state and then leaves the Position Busy state.

When an Attendant Console is added to an LDN group, Priority Buzzing is not provided to the console for the emergency code calls that are already waiting in the attendant queue. The console only receives Priority Buzzing for new emergency code calls inserted in the attendant queue.

If the LDN ICI key configuration is removed from the Customer Data Block, or if an LDN group is removed from the LDBZ prompt, then Priority Buzzing for any emergency code calls waiting in the attendant queue is stopped. The attendant will no longer be able to answer the DLDN call “out of turn” from the attendant queue.

An emergency code call that enters the attendant queue to wait for an Attendant Console which is already being buzzed (e.g. the recall buzzer, IADN Priority Buzzing, another Attendant Emergency Codes Priority Buzzing) is not given priority treatment immediately.

When an emergency code call is waiting in the attendant queue, the ICI key lamp on the Attendant Console is the only visual indication of the emergency. Audible indication, Priority Buzzing can still be provided.

Priority Buzzing is not provided when an emergency code call is presented to an idle Attendant Console with normal buzzing.

Feature interactions

Attendant Console Autoline

The feature interactions for Attendant Console Autoline are similar to those for Attendant Autodial.

Individual Attendant Console Directory Number (IADN)

Attendant Console

The Attendant Console feature provides equal load distribution among all available attendants. When an IADN call has been handled by an attendant, the system does not consider this attendant as the attendant last used.

Attendant Emergency Codes

If an attendant is already being buzzed for an emergency code call and an IADN call is placed in the attendant queue to wait for this particular attendant, Priority Buzzing is not provided immediately for the IADN call.

Attendant Alternative Answering

Presented IADN calls are given Attendant Alternative Answering (AAA) treatment as defined for the customer. After the predefined timing threshold, unanswered IADN calls are forwarded to the AAA DN. The AAA DN of a console cannot be defined as an IADN.

Attendant Calls Waiting Indication

The Call Waiting lamp on the console winks when the Call Waiting queue Update (CWUP) prompt is set to NO and there is at least one IADN call waiting in the attendant queue for the particular console.

If CWUP = YES in the Customer Data Block, the Call Waiting count on the console includes the IADN calls waiting in the queue. When CWUP = YES, the Call Waiting lamp always remains lit.

If a console is in Position Busy, the IADN call is counted against the Console Presentation Group (CPG) and it is reflected on all consoles of that particular CPG.

Attendant Forward No Answer

IADN calls are given Attendant Forward No Answer (AFNA) treatment as defined for the customer. If an IADN call is not answered in the specified time, it is put back in the attendant queue and the console is put in Position Busy mode. The IADN call now loses its priority and can terminate to any of the available Attendant Consoles or the NITE DN.

Attendant Overflow Position (AOP)

An IADN call is not forwarded to the Attendant Overflow Position (AOP) DN as long as the intended attendant is available. This is because the addressed attendant is still available and the call can eventually terminate to it once it is placed in the queue.

If the attendant is in Position Busy, its IADN calls will be forwarded to the AOP DN. The AOP DN cannot be an IADN.

Attendant Recall (Slow Answer Recall)

The Slow Answer Recall feature is not affected by Meridian 1 Attendant Console Enhancements.

For call presentation, slow answer recalls take priority over all other calls in the attendant queue. When an active attendant becomes idle, the Meridian 1 system first searches for any recalls waiting to be presented and then it attempts to present calls from the main attendant queue.

For an IADN call to be recalled to the same attendant, the Recall to Same Attendant (RTSA) feature must be configured. The Recall ICI key lamp is lit when an IADN call slow answer recalls back to the attendant. The IADN ICI key lamp is not lit in this case, and Priority Buzzing is not applied.

When an analog (500/2500 type) set transfers a call to an IADN, this call is treated as an IADN call whether it is in the queue or presented to the console. When this call is presented to the console, the ICI key lamp is lit and the call is split onto the source and destination sides, as per existing recall functionality.

Attendant Recall (Set Recall)

For call presentation, set recalls do not take priority in the attendant queue.

When an analog (500/2500 type) set without CLS = XFA/TSA performs a switch hook flash or when a Meridian 1 proprietary set presses the Attendant Recall (ARC) key during an established call, this call is treated as an attendant recall. The Recall ICI key lamp is lit and the dialed DN is shown as the Attendant DN.

When an analog (500/2500 type) set with CLS = XFA/TSA performs a switch hook flash and then dials an IADN, the call is treated as a regular set recall while in the attendant queue. The Recall ICI lamp is lit while in the attendant queue. Once this call is presented to the console, it is split onto the source and destination sides as a recall normally does. The IADN ICI lamp is lit.

When a Meridian 1 proprietary set transfers a call to an IADN, Set Recall functionality is applicable.

Automatic Call Distribution

An IADN can be configured as an ACD Night DN. When an ACD Night call attempts to terminate on the Attendant Console, it is treated as a priority call for this attendant.

Console Operations

The IADN feature overrides the presentation status defined by the Console Operations (COOP) feature. Therefore, even if presentation status is denied on the IADN ICI key, IADN calls are automatically presented on the Loop key.

Call Redirection features

Whenever an IADN call is made as a result of Call Redirection, this call receives the standard IADN treatment (i.e. Priority Buzzing and IADN ICI). The Attendant IADN feature does not distinguish between forwarded calls and direct dial IADN calls.

Hunt

If an IADN is defined as part of a Hunt chain, calls terminate to the IADN, following the Hunt chain. Once a call is placed in the attendant queue, however, the next DN in the Hunt chain is not sought.

If the IADN console is in Position Busy, the call is presented to any one of the available attendants in the Customer/Console Presentation Group. Therefore, the next DN in the Hunt chain is not sought once an attempt is made to present the call to the IADN attendant.

Message Center

If an IADN is given as an MWK DN, the Message Waiting calls receive IADN treatment. Therefore, Priority Buzzing is provided, and the IADN ICI key is lit (if configured).

Multi-Tenant Service

Sets belonging to a Customer can be divided into customer subgroups known as tenants. A set belonging to one tenant can call an attendant belonging to another tenant by dialing the attendant's IADN. The IADN functionality takes precedence over the Multi-Tenant Service feature.

Network Attendant Service

Network Attendant Service (NAS) treatment is applied when the Customer/ Console Presentation Group is in Night mode. An IADN call rerouted via NAS loses its priority at the remote node.

If the NAS ID of one node is defined as the IADN/emergency code number of the remote node, priority treatment is provided to all redirected calls, including IADN/emergency code calls. In this case, the IADN ICI key has a higher precedence than the corresponding NAS ICI key.

Network Message Services

The IADN ICI key takes priority over the MWC ICI key. When a call is forwarded to an IADN over a network to a Message Center, the call receives Priority Buzzing and the IADN ICI key is updated (if configured).

Night Service

When the Meridian 1 system is in Night mode and an IADN call is the next call to be presented, the call receives Night treatment as defined for the Customer. Priority Buzzing is not provided to the Night DN. The IADN call is presented to the Night DN whenever its “turn” comes about.

If the system returns to Day Mode, the remaining IADN calls in the attendant queue are provided with priority treatment. The Night DN for the Customer/ Console Presentation Group cannot be an IADN.

Enhanced Night Service

IADN calls from the public network lose their priority treatment when presented to the Enhanced Night DN. If the system returns to Day Mode, the remaining IADN calls in the attendant queue receive priority treatment. The Enhanced Night DN of a trunk cannot be an IADN.

Permanent Hold

If a set is in Permanent Hold and dials an IADN, the set receives overflow tone.

Attendant Emergency Codes

Attendant Forward No Answer

When an unanswered emergency code call is given Attendant Forward No Answer (AFNA) treatment, it is placed back in the attendant queue when it is not answered within the specified time, and the console is placed in Position Busy. If the other consoles of this particular DLDN group are in an active state, Priority Buzzing is provided for them, depending upon the configuration of the LDN ICI key and the value of the LDBZ prompt.

Individual Attendant Directory Number

If an Attendant Console is already receiving Priority Buzzing for an IADN call that is waiting in the attendant queue, Priority Buzzing is not provided immediately for an emergency code call that enters the attendant queue.

Network-wide Listed Directory Number

When the DLDN dialed at one node is configured as an emergency code number at a remote node, a call routed via Network Attendant Service (NAS) (when Network-wide Listed Directory Number (NLDN) is configured) terminates at the remote node and receives priority treatment.

Feature packaging

The Attendant Console Autoline and the Individual Attendant Console Directory Number (IADN) functionalities are included in base X11 System Software. For Attendant Emergency Codes functionality, however, Departmental Listed Directory Number (DLDN) package 76 is required:

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

1 LD 15 – Configure Priority Buzzing and an Individual Attendant Directory Number (IADN) Incoming Call Indicator (ICI) key for a digital Attendant Console.

2 LD 15 – Configure Departmental Listed Directory Number (DLDN) and Priority Buzzing for Attendant Emergency Code calls.

3 LD 12 – Configure an Autoline DN for an Attendant Console.

4 LD 12 – Configure an Individual Attendant Directory Number (IADN) for a digital Attendant Console.

LD 15 – Configure Priority Buzzing and an Individual Attendant Directory Number (IADN) Incoming Call Indicator (ICI) key for a digital Attendant Console.

Prompt	Response	Description
REQ:	CHG	Change existing data.
TYPE:	ATT	Attendant Console options.
CUST	xx	Customer number.
...		

IDBZ	YES	Individual Attendant DN Buzzing-on for IADN calls in the attendant queue. NO = Individual Attendant DN Buzzing-off for IADN calls in the attendant queue (default).
PBUZ	xx yy	Flexible Priority Buzzing cadence for IADN and Attendant Emergency Code calls, where: xx = Priority Buzzing - on phase yy = Priority Buzzing - off phase The PBUZ range is from 2 to 16 seconds. If the value entered is an odd number between 2 and 16, it is rounded down to the next lowest even integer.
...		
ICI	xx IADN	ICI key for individual Attendant DN, where: xx = ICI key number (0 - 19).

LD 15 – Configure Departmental Listed Directory Number (DLDN) and Priority Buzzing for Attendant Emergency Code calls.

Prompt	**Response**	**Description**
REQ:	CHG	Change existing data.
TYPE:	LDN	Listed Directory Numbers.
CUST	xx	Customer Number.
DLDN	YES	Departmental Listed Directory Numbers.
...		
LDN5	xxxx	Emergency code number.
LDA5	1-63	M2250 Attendant Console associated with LDN5.

ICI	xx LD0 xx LD1 xx LD2 xx LD3 xx LD4 xx LD5	Incoming Call Indication for Listed Directory Numbers 0-5. xx = key number 00-19.
LDBZ	n n n n n n	The DLDN groups which should be buzzed when an LDN/ emergency code call is in the attendant queue, where: n = 0, 1, 2, 3, 4, and/or 5.

LD 12 – Configure an Autoline DN for an Attendant Console.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	2250 ATT 1250	Attendant Console type.
TN	l s c u c u	Terminal Number. For Option 11C.
...		
KEY	nn AUTO xxx...x	Direct Autoline DN, where: nn = Key number (0 - 19) and xxx....x = Autoline DN. The Autoline DN can be 1-31 digits in length.

LD 12 – Configure an Individual Attendant Directory Number (IADN) for a digital Attendant Console.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	2250	Attendant Console type.
TN	l s c u c u	Terminal Number. For Option 11C.

ANUM ... IADN	1 - 63 xxxx	Attendant Number. Individual Attendant DN for this Attendant Console. The Individual Attendant DN can be 1-4 digits in length or 1-7 digits in length if DNXP package 150 is equipped. The IADN cannot be a Multiple Appearance DN.

Feature operation

Attendant Console Autoline key

To place an Autoline call:

1 The attendant presses a Loop key. The Loop key lamp is lit.

2 The attendant presses the Autoline key. The pre-programmed number on the Auto-line key is automatically dialed. The Source (SRC) lamp on the Attendant Loop key winks.

3 The dialed party answers the call, and the SRC key lamp is steadily lit.

To extend a currently active call to the Autoline DN:

1 The attendant is active on an established call.

2 The attendant presses the Autoline key to extend the call.

3 The pre-programmed number on the Autoline key is automatically dialed. The destination (DEST) lamp on the Attendant Console winks.

4 The dialed party answers the call, and the DEST lamp is steadily lit.

5 To complete the transfer, the attendant presses the Release (RLS) key. Once the Release key is pressed, the display is cleared.

To display the DN programmed for the Autoline key, the attendant presses the Autoline key when the console is idle or in Position Busy.

On an analog console, to display a DN that is longer than eight digits, the attendant presses the display key after pressing the Autoline key.

Individual Attendant Directory Number

The following is an example of Individual Attendant Directory Number (IADN) functionality for an active Attendant Console with an IADN ICI key configured. Also, the IDBZ prompt set to YES in the Customer Data Block.

1 An attendant is involved in an active call.

2 An IADN call is placed to the active attendant and waits to be answered in the attendant queue.

3 Priority Buzzing is provided to the Attendant Console. During this time, if another IADN call for the same attendant, is placed in the attendant queue, the Priority Buzzing is not affected.

4 The attendant releases the active call.

5 The next call in the queue is presented to the attendant.

6 The Priority Buzzing stops, and the attendant receives a continuous buzz for the newly presented call. All ICI keys on the Attendant Console, including the IADN key, are updated. The IADN ICI key lamp flashes if there is at least one IADN call waiting in the attendant queue.

7 The attendant chooses to answer the IADN call, from the queue, by pressing the IADN ICI key. If there is another IADN call waiting for the attendant in the queue, Priority Buzzing is applied to the attendant again. If there is not another IADN call waiting, then the Priority Buzzing stops. If the attendant selects another call over the IADN call (using another ICI key or taking a non-IADN call if presented on the Loop key), Priority Buzzing begins again.

Attendant Emergency Codes

The following is an example of Attendant Emergency Codes functionality for Attendant Consoles with an LDN ICI key configured. Also, the DLDN group is included for LDN Buzzing at the LDBZ prompt. Referring to Figure 60:

1 Party 1 (an internal set or external trunk) dials LDN0.

2 The LD0 ICI key lamp is lit for all Attendant Consoles not in the DLDN group.

3 The LDBZ prompt in the Customer Data Block is checked for whether or not LDN0 should be buzzed when an emergency code call is waiting in the attendant queue.

4 LDN0 is included at the LDBZ prompt. Therefore, Priority Buzzing is provided to all active digital consoles in this group.

Attendant Consoles 1 and 2 are found to be active and Console 3 in Position Busy. Hence, Consoles 1 and 2 (digital consoles) receive Priority Buzzing.

If Console 3 leaves the Position Busy state, it is presented with the next call in the attendant queue. When the attendant answers the call, Priority Buzzing is provided to the Attendant Console if there is at least one emergency code call still waiting in the attendant queue.

5 When a call is waiting in the attendant queue, any one of the attendants in the Customer can pick up the call by pressing the ICI key.

6 When one of the attendants belonging to LDN0 become free, the first call is presented on an idle Loop key.

7 When the emergency code call is presented, the associated Loop key lamp is lit and the Source (SRC) key lamp winks. Priority Buzzing stops for all of the DLDN attendants of this group and normal continuous buzzing is provided to the console where the call is presented.

8 Once the call is answered, the SRC lamp is steadily lit, and the status of the other lamps remain the same.

Meridian 1 Initialization Prevention and Recovery

Contents

The following are the topics in this section:

Feature description

The Meridian 1 Initialization Prevention and Recovery feature reduces the occurrences of initializations by tracking specific hardware faults and automatically disabling the affected hardware locally. This feature offers the following specific functionalities:

- Network Loop Response Time-out Initialization Prevention (LRIP)
- Serial Data Interface Device Response Time-out Initialization Prevention (SRIP)

- Network Loop Overload Initialization Prevention (LOIP), and
- Localized Faulty Hardware Recovery (FHWR).

Network Loop Response Time-out Initialization, Serial Data Interface Device Response Time-out Initialization Prevention, and Network Loop Overload Initialization Prevention are designed to prevent system initialization. The function of Localized Faulty Hardware Recovery is to automatically disable any faulty loops, Serial Data Interface (SDI) devices or Expanded Serial Data Interface (ESDI) devices identified by this feature.

Network Loop Response Time-out Initialization (LRIP)

When a network loop fails to respond to a processing request, the LRIP function is automatically invoked to avert a system initialization. An FHW000 message is printed on all maintenance TTYs to notify the system administrator of the faulty loop. The loop is marked as faulty in the Meridian 1 database.

Serial Data Interface Device Response Time-out Initialization Prevention (SRIP)

When a Serial Data Interface (SDI) or ESDI device fails to respond to a processing request, the SRIP function is automatically invoked to avert a system initialization. An FHW001 message is printed on all maintenance TTYs to notify the system administrator of the faulty SDI. An FHW002 message is printed on all maintenance TTYs to notify the system administrator of the faulty ESDI. The device is marked as faulty in the Meridian 1 database.

Network Loop Overload Initialization Prevention (LOIP)

When loop overload is detected, the LOIP function is automatically invoked to avert a system initialization. This function disables the signaling capability of the network loop and marks it as faulty in the Meridian 1 database before allowing the existing processing to continue. An FHW003 message is printed on all maintenance TTYs to indicate the faulty network loop and to indicate that an INI000 0006 has been averted. The device is marked as faulty in the Meridian 1 database.

Localized Faulty Hardware Recovery (FHWR)

Once a network loop, SDI or ESDI is identified as being faulty, it is tracked by the FHWR function. When the Meridian 1 is available to load and run a background routine and the faulty network loop, SDI or ESDI device is still in enabled status, an appropriate maintenance overlay is automatically invoked to disable it. A technician can also manually disable it by using existing maintenance overlay commands. The faulty loop, SDI or ESDI device is tracked by the FHWR function until the loop is disabled.

When a maintenance overlay is running and Multi-User Login is not enabled, an OVL111 xx FHWR message is given prior to a user logging into the system to indicate that the system is automatically performing the FHWR maintenance task. If the user does log in, the FHWR maintenance task is interrupted; when the user logs out, the FHWR function will reload the maintenance overlay to resume disabling the faulty hardware. Once it has disabled the loop, an FHW004 message is printed on all maintenance TTYs to indicate that a faulty network loop has been automatically disabled and the maintenance overlay has terminated (the message FHW005 is printed for an SDI device and FHW006 for an ESDI device). The device is marked as faulty in the Meridian 1 database.

Operating parameters

This feature applies to Meridian 1 Options 51C, 61C, and 81C.

After the Network Loop Overload Initialization Prevention function has identified a faulty network loop, if there are trunks configured on the hardware, far-end seizure of such trunks are treated in the same manner as a non-responding trunk.

Feature interactions

Meridian 1 Fault Management

FHW000, FHW001, FHW002, FHW003, FHW004, FHW005, and FHW006 can be defined as a trigger string that is monitored by the Meridian 1 Fault Management feature.

Feature packaging

This feature is included in base X11 System Software.

Feature implementation

There are no specific implementation procedures for this feature.

Feature operation

No specific operating procedures are required to use this feature.

Meridian 911

Contents

The following are the topics in this section:

Reference list

The following are the references in this section:

- “10/20 Digit ANI on 911 Calls” on page 79
- “Call Detail Recording” on page 617

Feature description

The number 911 has been adopted for the purpose of reporting emergencies and requesting emergency services. For localities with 911 systems, the number:

- is the same in all communities
- is easily remembered, even under adverse conditions
- provides direct telephone access to emergency services regardless of the time of day, or the caller's familiarity with an area, or the caller's ability to identify the type of emergency

A 911 system is planned, implemented, and operated under the auspices of local governments. In most communities, 911 provides access to police, fire, and emergency medical services. In some locations additional services are accessible (for example, dialing 911 in certain locations provides access to Coast Guard search and rescue services). Approximately 80 percent of all 911 calls are intended for the police, with the balance split between fire and ambulance.

Because the overwhelming majority of 911 calls require police attention, local police departments generally maintain, manage, and staff the center to which emergency calls are first directed. These centers are referred to as primary answering centers. A secondary answering center could be a police, fire, or ambulance station (for example, fire-related 911 calls may be transferred to a secondary answering center that handles incoming calls regarding fires). In many instances, the fire department also determines the degree of urgency for emergency medical services.

If the primary or secondary answering center is busy or out of service, the 911 call is directed to a backup answering center, referred to as an alternate answering center.

The public network routes a 911 call to the appropriate primary answering center based on the caller's telephone number. For this reason, callers dialing 911 give up their right to privacy regarding:

- the telephone number of the station from which they are calling, and
- the billing address associated with that telephone number.

To protect a caller's right to privacy, some communities still allow the use of seven-digit emergency numbers, routed either to an answering center or directly to the responding agency.

Basic 911 service

Basic 911 service routes emergency calls to an answering center based on the location of the Public Exchange/Central Office serving the calling station. The jurisdiction of an answering center is determined by the Central Office boundaries. The most basic 911 system involves only one Central Office and one exchange service area, and can be a single answering center.

Enhanced 911 service

In areas where telephone company Central Office boundaries do not match jurisdictional boundaries, there is a problem in identifying which emergency agency should receive the emergency call. There may be an even more complicated situation if the 911 network includes two or more primary answering centers, and each serves areas that do not match the Central Office serving areas.

Enhanced 911 (E911) service ensures that an emergency call originating in any particular jurisdiction covered by the 911 system is recognized and forwarded to the appropriate responding agency in the same political or geographical jurisdiction as the originating call.

Enhanced 911 service uses more sophisticated equipment and features than basic 911 service. Specialized features include:

- Automatic Number Identification (ANI)
- Automatic Location Identifier (ALI), and
- Selective Routing (SR).

Display of the ANI associated with the originating call sometimes replaces the need for the following basic 911 options: Called Party Hold; Emergency Ringback; and Switchhook Status. Therefore, sometimes these features are not provided with enhanced 911 service.

The Automatic Number Identification (ANI) of a 911 call consists of eight digits (a Numbering Plan or Information digit followed by the seven digits of the calling party number). Whether the first digit of the ANI string is to be interpreted as a Numbering Plan Digit (NPD) or an Information Digit (ID) depends on the trunk interface and Meridian 911 configuration.

> ***Note:*** The 10/20 digit ANI on 911 calls feature brings Meridian 1 systems into compliance with the Federal Communications Commission (FCC) decision that requires a private branch exchange (PBX), working as a Public Safety Answering Point (PSAP), to accept a 10 or 20 digit ANI when terminating 911 calls. For more information on the 10/20 Digit ANI on 911 Calls feature, please refer to the "10/20 Digit ANI on 911 Calls" on page 79.

The Automatic Location Identifier (ALI) host computer uses the ANI to locate the ALI record for the calling party number. This includes the name and address, and whether the line is business or residence. An enhanced 911 system creates ALI information from the ALI record and automatically routes the ALI information to an optional data terminal display at the answering center.

An enhanced 911 system routes all emergency calls from the originating Central Offices through an E911 Tandem, sometimes called a 911 control office, to the primary answering center. There, using Selective Routing features, a call taker can transfer the call through the public network by signaling the E911 Tandem. The Autodial Tandem transfer feature can be used for this. For example, if the primary answering center transfers calls to several fire departments, it uses one fire department button. The option automatically:

- identifies the fire department associated with the caller's location, and
- transfers the call to that department.

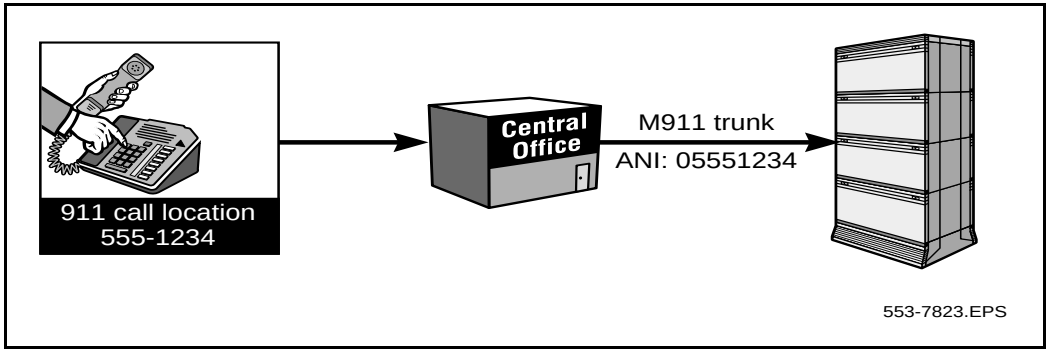
Meridian 911 (M911) system

The Meridian 911 system:

- gives priority to emergency calls
- routes priority calls, without interrupting service, to answering positions that can identify and dispatch the assistance required with minimum delay

- displays the calling party's number
- puts the calling party number into Call Detail Recording (CDR) Q and N records, and
- provides an external notification that an emergency call is queued.

Figure 62
Routing the call, along with the ANI digits, to the Meridian 1



When a call arrives at the Meridian 1 via an M911 trunk, the trunk software in the Meridian 1 communicates with the serving Central Office (CO) (either the local Central Office or the M911 tandem office) to receive the ANI information via multifrequency (MF) signaling. When all ANI digits are received, the Meridian 1 software starts to process the call.

Meridian 911 Call Abandon

A 911 call is considered abandoned by the Meridian 1 if the call terminates on a 911 trunk route, and the calling party disconnects after trunk seizure, but before the call is answered. This can occur while the call is waiting in an Automatic Call Distribution (ACD) or Controlled DN (CDN) queue, or when the call is presented to the ACD agent but is not yet answered.

The Call Abandon feature allows the Meridian 1 to treat an abandoned call as though the calling party is still connected. The call maintains its place in the ACD queue, and is presented to an agent. When the agent answers, the agent receives a continuous, cadenced six-second tone, as well as an indication on the set's display, to indicate that the call is an abandoned call. Automatic Number Identification (ANI) information is also displayed. The agent can then call back the originator of the call.

Once the call is abandoned, the trunk is released for other 911 calls. Information on abandoned calls can be included in Call Detail Recording (CDR) records if New Format CDR (FCDR) package 234 is equipped.

Operating parameters

Meridian 911

Meridian 911 routes are restricted to incoming traffic only.

Incoming M911 trunks use MF signaling only. Dial Pulse (DP) and Dual-tone Multifrequency (DTMF) are not supported for M911 routes.

911 Calls on Integrated Services Digital Network (ISDN) trunks are not supported.

A call is considered a 911 call by X11 software if it arrived on a trunk belonging to an M911 route. Calls dialing 911 internally can, through configuration of the Electronic Switched Network (ESN) digit manipulation tables, be terminated locally (for example, to a Controlled DN), but these calls are internal calls to the software, not 911 calls.

ANI is expected for every call. Meridian 911 does not support 911 calls from an E911 Tandem which does not support sending ANI.

The priority of incoming trunk calls internally transferred to an Automatic Call Distribution (ACD) DN queue (a secondary answering center) may be preserved via blind transfer only. All other types of call modification (for example, consultation transfer, or conference) are treated as internal calls and the calls are linked to the low priority queue of the ACD DN.

The No Hold Conference feature, the recommended feature for transferring calls between answering positions, is not available on analog (500/2500 type) telephones.

The Call Prioritization (911 calls presented with higher priority) and Call Waiting Notification features are applicable to ACD answering centers only. These cannot be supported on Multiple Appearance Directory Number (MADN) answering centers.

The first answering center must be an ACD DN.

M911 trunk calls must terminate on a CDN. If an autoterminate DN is specified that is not a CDN, an SCH error message is printed. If a CDN is used as the autoterminate destination of at least one M911 trunk, the CDN cannot be removed via LD 23 (an SCH message will be given). To remove the CDN, all M911 trunks terminating to it must be removed, or they must be changed to terminate to a different CDN.

CDNs as well as ACD DNs are normal dialable numbers. Nothing prevents non-911 calls from arriving at either the CDN, or any of the ACD DNs acting as answering centers via direct dialing. Non-911 calls arriving at CDNs are defaulted to the CDN's default ACD DN; non-911 calls arriving at an ACD DN are treated as normal calls.

The Call Waiting Notification (CWNT) package 225 is a separate package and an M911 system can be installed without it. If the package is not equipped, no external alert can be given for 911 calls arriving at an ACD queue.

The CWNT software is available for 911 calls in ACD queues only. There is no provision for alerting MADN call takers of arriving 911 calls.

911 calls in an ACD queue are treated the same as other ACD calls. Therefore, if Recorded Announcement (RAN) is configured for the ACD queue, 911 calls will be given RAN treatment. The same interactions between RAN and Central Office loopstart trunks exist for M911 as they do for general ACD operation.

Meridian 911 Call Abandon

Calls released by the originator after the call has been answered are not calls abandoned by the definition used for the M911 Call Abandon feature and do not receive abandon treatment.

Abandoned calls waiting in the ACD queue activate the Call Waiting Notification Terminal Number.

If ANI is not received, the abandoned call is not presented to the agent since it is no longer useful; however, a Call Detail Recording (CDR) N record, if configured, can be printed to indicate that the call has abandoned.

Only external 911 calls abandoned before answer are supported.

When the call is abandoned, the speech path is dropped, and the trunk is released.

If Flexible Tones and Cadences (FTC) package 125 is equipped, it is possible to configure a tone other than the one provided by default.

Call Abandon is configured on a per route basis.

Call Abandon is supported on 911 trunks only.

No B record is generated by CDR for an M911 abandoned call, because the B record is package dependent and only applies to an established call with Internal CDR.

Wireless sets are not supported at the Public Safety Answering Point (PSAP) or Secondary Safety Answering Point (SSAP) for Call Abandon.

An MF tone receiver (QPC916 or NTAG20AA) is required.

Feature interactions

Meridian 911

10/20 Digit ANI on 911 Calls

The 10 Digit ANI feature changes the ANI format to include the NPA in the ANI field. A single PSAP can handle any number of valid NPAs with the 10 digit format.

The 20 digit ANI feature addresses the problem of accurately determining the location of a wireless calling party dialing 911. The first 10 ANI digits provide the Calling Station Number (CSN). The CSN for a 911 call is the Calling Party Number (CPN), if available, or the billing number if the CPN is not available. The CPN, if available, is used to call the originator back when a 911 call is disconnected.

The second 10 ANI digits, or Pseudo Automatic Number Identification (PANI), provides the cell site and sector information to best define the wireless calling party's location. The PANI allows emergency assistance to be sent to the correct area.

Automatic Call Distribution Interactions

ACD-C Reports

The Meridian 911 product does not change the ACD-C reports. M911 will use the ACD-C reports for CDNs as introduced for Customer Controlled Routing (CCR).

Only four of the fields in the report will have any meaning. Because M911 uses the Route-to Application Module Link (AML) message instead of the Queue-to message, only “Route To”, “Default DN”, “Abandoned”, and “Calls Accepted” are meaningful. Those calls that are successfully routed count towards the “Route To” category. Those calls that get default treatment count towards the “Default DN” category. Those calls that abandon while they are in the CDN queue count towards the “Abandoned” category. The “Calls Accepted” category will be the sum of the “Route To”, “Default DN”, and “Abandoned” categories.

The “# of Calls in the Queue” category represents those calls that are sitting in the CDN queue. This should always be zero, since calls waiting for a Route-to request from the Application Module are sitting in a timing queue as opposed to the CDN queue.

M911 calls routed to an ACD answering center will show up in the normal ACD queue and agent reports for that queue. Calls routed to MADN answering centers will show up only in the CDN report.

ACD-D Auxiliary Message

No changes to the ACD-D reports are needed for Meridian 911.

Controlled Directory Number (CDN) Ceiling

The CDN ceiling feature returns busy tone to calls arriving at the CDN while it is in default mode. If a 911 call should arrive while these conditions are true, the 911 call will not hear busy tone, but will be linked into the default destination ACD DN’s queue. Therefore, the setting of the ceiling value is irrelevant if only 911 calls are expected at the CDN. The ceiling value will, however, still be applied to non-911 calls arriving at the CDN.

Controlled Directory Number (CDN) Ringback

911 calls get ringback immediately upon arrival at a CDN, whereas CCR calls do not.

Customer Controlled Routing (CCR) Call Abandoned Message (ICAB)

This message is sent for controlled calls that were abandoned before being answered.

Customer Controlled Routing (CCR) Call Enters Queue Message (ICEQ)

This message is sent to ACD-MAX each time a default call is placed in the default ACD DN (default mode).

Customer Controlled Routing (CCR) Call Modification Message (ICCM)

This message is sent to ACD-MAX when a call modification request (route to, disconnect, busy) is successfully executed upon a CDN controlled call.

Note that since the Route To, Disconnect and Busy treatments remove CDN control from the call, ICCM messages will be sent for the call for each of the queues from where it must be removed. The ICCM message also applies to Enhanced ACD Routing calls or CDN default calls which were busied by the call ceiling value while trying to route to the default ACD-DN.

Customer Controlled Routing (CCR) “Route to” Command

The Route to destination for 911 calls are restricted to ACD DNs only. If the routing destination is not an ACD DN, the call will be routed to the CDN’s default destination ACD DN. CCR calls can be routed to any dialable number.

Enhanced ACD Routing/Customer Controlled Routing

The Enhanced ACD Routing/Customer Controlled Routing (EAR/CCR) features introduce CDNs. The Enhanced ACD Routing (EAR) package 214 allows CDNs to be configured and is a prerequisite of the Meridian 911 (M911) package 224.

INIT ACD Queue Call Restore

INIT ACD Queue Call Restore restores M911 Abandoned calls waiting in either ACD or CDN queues. M911 Automatic Number Identification information is restored on the set display.

Interflow

911 calls interflow the same as other ACD calls. If the interflow feature is configured so that when a call gets busy tone from an internal destination, the 911 call will not get busy tone, but will instead be linked back into the source ACD queue.

If the interflow destination is a number outside the Meridian 1, the software has no control over the treatment the call gets, so this configuration is not recommended for 911 sites.

Load Management Commands

No changes are made to Load Management for Meridian 911.

Night Service

Night Call Forward

It is recommended that the primary ACD DN not be put in Night Service. If the primary ACD DN is put in Night Service, calls will be sent to the Night Call Forward (NCFW) destination. Even if a 911 call arrived on a trunk with Called Party Disconnect Control (CPDC) defined, the call will still be allowed to NCFW, unlike non-911 ACD calls. This restriction is lifted for 911 calls only. The CWNT set will not ring for calls entering the queue while in Night Service when the queue has a NCFW destination specified.

Overflow

911 calls will overflow (by count and by time) just like any other ACD calls.

Supervisor Control of Queue Size

This feature causes calls to get busy tone once the overflow threshold (OVTH) of the ACD queue is exceeded. This feature is bypassed for 911 calls.

Call Detail Recording (CDR) Records

ANI available for 911 calls is included as the Calling Line Identification (CLID) in CDR Records pertaining to 911-trunk calls. Call Detail Recording records affected are: Normal Records, Start/End Records, Authorization Code Records, Connection Records (Q, R, and F records), and Charge Account Records.

Call Transfer

Trunk priority associated with an incoming 911 call is only preserved if blind transfer is used.

Called Party Disconnect Control

The Called Party Disconnect Control (CPDC) feature is used to retain a 911 trunk when a 911 call is disconnected by the caller. No modification to the feature is required for Meridian 911, except lifting the CPDC and ACD NCFW limitation. 911 calls, arriving via trunks with CPDC defined, will be allowed to NCFW, unlike non-911 ACD calls.

Calling Party Name Display

The Calling Party Name Display feature can be used to configure and display the incoming 911 route name.

Calling Party Privacy

If an incoming call with a Privacy Indicator terminates on a Meridian 1 switch configured with M911, the ANI information (if it exists) is still sent to the Meridian 911 application.

Conference

When a call is answered, and then conferenced, the trunk priority is lost (the conference consultation call is an internal call and treated as low priority by the software). This operation is the same for normal calls and 911 calls.

Dialed Number Identification Service

Dialed Number Identification Service is not supported on 911 trunks.

Display of Calling Party Denied

An incoming M911 call with Automatic Number Identification (ANI) information always displays ANI digits on the terminating set regardless of the calling party's DPD Class of Service.

Integrated Services Digital Network (ISDN) Basic Rate Interface (BRI)

Answering positions are not supported on BRI sets.

Integrated Services Digital Network (ISDN) Primary Rate Interface

911 trunks are not supported on ISDN PRI Trunks or Integrated Service Link (ISL) trunks.

Japan Direct Inward Dialing (DID) Trunks

Japan DID trunks are not supported.

Malicious Call Trace

The Malicious Call Trace (MCT) feature is modified to be supported on ACD sets. ACD sets are allowed to have the Malicious Call Trace Allowed (MCTA) Class of Service and a Trace (TRC) key defined. The feature is activated via pressing the MCT key or dialing an MCT access code.

Malicious Call Trace - Enhanced

The Trunk Hook Flash functionality is used by Meridian 911, Enhanced Malicious Call Trace, and Autodial Tandem Transfer.

No Hold Conference

No Hold Conference calls are treated as internal calls and are linked to the low priority queue of the ACD DN.

Single and Multiple Call Ringing for MADNs

The DN keys for multiple appearance sets can be defined as an SCR (single call ringing) key or as an MCR (multiple call ringing) key. For those DNs (keys on MADN sets) that are SCR, only one call may be answered at a time. That is to say that once a call taker has answered a call, future calls to that DN will receive busy tone until the call taker on that DN has disconnected.

For DNs that are MCR, calls will only be given busy tone once every call taker is busy answering a call. If one call taker is answering a call and there are other call takers available, a new call to that DN will cause the sets of the available call takers to ring. Any available call taker can then answer the new call.

Transfer

Trunk priority associated with an incoming 911 call is only preserved if blind transfer is used.

Meridian 911 Call Abandon

Attendant Break-In

Since an abandoned call does not have a speech path established, the Break-In deny treatment is given to the attendant so that Break-In cannot occur.

Automatic Call Distribution

When a call is abandoned, the call remains in its current state (for instance, Automatic Call Distribution (ACD) queue, CDN queue, or ringing on an ACD agent set).

Automatic Call Distribution Reports

ACD-C and ACD-D packages are not modified for M911 Call Abandon. However, a new interpretation for the report fields are needed for abandoned calls. The incoming call is pegged as an abandoned call when the caller abandons. However, it is not repeatedly pegged as an answered call when the call taker answers the abandoned call.

For ACD-C package, the CALLS ANSWD field only accounts for real calls; the ABANDONED field accounts for abandoned calls that are answered, assuming all abandoned calls are eventually answered by an agent. Consequently, the CALLS ACCPTD field is equal to the CALLS ANSWD field plus the ABANDONED field (number of calls entering queue = number of real calls + number of abandoned ones). This way the Average or Total Call Processing (DCP) Time accurately reflects the amount of time an agent spent on real calls, since answering an abandoned call requires little time. The work an agent does for an abandoned call is more accurately reflected in the DN OUT and OUT TIME fields, which mean total number of outgoing calls and total time of all outgoing calls respectively. Since the agent must hang up the abandoned call and call back to see what the condition is, the outgoing call that is made is more valuable for reporting the agent's work.

For the ACD-D package, the reports also need to be interpreted in this way. When the caller abandons, a CAB message is sent to Meridian MAX; however, later when an abandoned call is answered by an agent no CAA message is sent to Meridian MAX.

Call Force

M911 abandoned calls cannot be call forced.

Call Transfer
M911 abandoned calls cannot be transferred or conferenced.

Called Party Disconnect Control
There is no interaction with M911 Call Abandon and Called Party Disconnect Control.

Conference
M911 abandoned calls cannot be conferenced.

Display Calls Waiting Key
ACD Calls Waiting Key
Ongoing Status Display
Real-time Display
In all of these situations, abandoned calls contribute to the queue count.

Hold
M911 abandoned calls cannot be put on hold.

Initialization
Unanswered abandoned calls are lost if the system initializes.

Interflow
Abandoned calls contribute to the queue count. An abandoned call can interflow only to ACD DNs.

Network ACD
Network ACD is not supported.

Night Service
Abandoned calls can be forwarded to the Night Call Forward DN if the Night Forward DN is an ACD DN. If a primary answering center goes into Night Service while there are abandoned calls in the queue, those abandoned calls are dropped. A CDR N record is printed if CDR is configured.

Night Service Key
Abandoned calls are part of the transition mode when agents go to Night Service and the supervisor selects transition mode.

No Hold Conference

M911 abandoned calls cannot be No Hold conferenced.

Not Ready Key

When an abandoned call is presented to an agent and the agent presses the Not Ready Key, the call is put back into the queue. If an agent is established on an abandoned call and presses the Not Ready Key, the call is dropped.

Overflow by Count

Abandoned calls contribute to the queue count. An abandoned call can overflow.

R2MFC Calling Number Identification/Call Detail Recording Enhancements

M911 trunks do not support Calling Number Identification (CNI). If a CNI is available on an M911 trunk, in addition to the ANI, the ANI is used for the CLID.

Supervisor Observe

Since there is no speech path between the ACD agent and the caller, the supervisor observe feature will be blocked. The supervisor can still press the observe key to observe an agent active on an abandoned call, but will hear silence.

Feature packaging

The following packages are required:

- Digit Display (DDSP) package 19
- Basic Automatic Call Distribution (BACD) package 40
- Automatic Call Distribution Package B (ACDB) package 41
- Automatic Call Distribution Package A (ACDA) package 45
- Enhanced Automatic Call Distribution Routing (EAR) package 214
- Meridian 911 (M911) package 224
- Call Waiting Notification (CWNT) package 225

The following additional packages are not required, but are recommended:

- At least one of either Call Detail Recording (CDR) package 4 or Call Detail Recording on Teletype Machine (CTY) package 5
- Automatic Call Distribution Package C (ACDC) package 42 (not needed if packages 51 and 52 are enabled)
- Automatic Call Distribution Load Management Reports (LMAN) package 43
- Automatic Call Distribution Package D (ACDD) package 50
- Automatic Call Distribution Package D, Auxiliary Link Processor (LNK) package 51
- Call Party Name Display (CPND) package 95
- Malicious Call Trace (MCT) package 107
- Calling Line Identification in Call Detail Recording (CCDR) package 118

The M911 Call Abandon feature is included in Meridian 911 (M911) package 224, and requires Call Identification (CALL ID) package 247.

If an application also involves Meridian Link, Meridian Link Module (MLM) package 209 is required.

Feature implementation

Task summary list

The following is a summary of the tasks in this section:

1 LD 10 – Configure a Terminal Number for an analog (500/2500 type) telephone with a Class of Service of CWNA (Call Waiting Notification Allowed).

2 LD 23 – Configure ACD DNs. The CWNC (CWNT control) is recommended to be set as YES for the primary answering centers (rings for priority calls only) and NO for secondary answering centers (rings for all calls).

3 LD 23 – Configure CDNs. The ceiling value is irrelevant for 911 calls terminating at the CDN, but will be applied to non-911 type calls. When the ceiling value is exceeded, new non-911 calls will receive busy tone.

4 LD 16 – Configure an M911 route.

5 LD 16 – Create a Numbering Plan or Information Digit (NPID) Table:

6 LD 14 – Configure 911 trunks.

7 LD 16 – Configure Call Detail Recording (CDR).

8 LD 17 – Configure the insertion of ANI digits into the CDR record.

9 LD 10 – Configure non-ACD sets (analog (500/2500 type) telephones).

10 LD 11 – Configure non-ACD sets (Meridian 1 proprietary telephones).

11 LD 11 – Configure Meridian 1 proprietary telephones to function as ACD sets.

12 LD 16 – Enable M911 Call Abandon.

13 LD 56 – Configure the new flexible tone for M911 abandoned calls, if desired.

This section provides an example of how to configure Meridian 911. The order in which all items need to be configured to get M911 to run on the Meridian 1 is shown. In addition, the implementation procedures for M911 Call Abandon are shown.

LD 10 – Configure a Terminal Number for an analog (500/2500 type) telephone with a Class of Service of CWNA (Call Waiting Notification Allowed).

Prompt	Response	Description
REQ:	NEW	New.
TYPE:	500	Type of telephone set.
TN	l s c u c u	Terminal Number (loop, shelf, card, and unit). For Option 11C.
DES	xxx	Office Data Administration System (ODAS) package designator.
CUST	0-99 0-31	Customer number. For Option 11C.
...		
DN	nn...n	Internal Directory Number.
...		
CLS	CWNA	Call Waiting Notification Allowed Class of Service (DTN or DIP).

LD 23 – Configure ACD DNs. The CWNC (CWNT control) is recommended to be set as YES for the primary answering centers (rings for priority calls only) and NO for secondary answering centers (rings for all calls).

Prompt	Response	Description
REQ	NEW	New.
TYPE	ACD	ACD Data Block.
CUST	0-99 0-31	Customer number. For Option 11C.
ACDN	nn...n	ACD Directory Number.
...		

MAXP	nn	Maximum number of agent positions.
...		
ISAP	YES	ACD DN uses Meridian Link messaging.
VSID	n	Server ID used for Meridian Link messaging (defined in LD 17).
...		
OVTH	2047	Recommended overflow threshold.
...		
CWNT	l s c u	Call Waiting Notification TN.
CWNC	YES	Call Waiting Notification control.

LD 23 – Configure CDNs. The ceiling value is irrelevant for 911 calls terminating at the CDN, but will be applied to non-911 type calls. When the ceiling value is exceeded, new non-911 calls will receive busy tone.

Prompt	**Response**	**Description**
REQ	NEW	New.
TYPE	CDN	Controlled Directory Number Data Block.
CUST	0-99 0-31	Customer number. For Option 11C.
CDN	nn...n	Controlled DN number.
...		
DFDN	nn...n	Default ACD DN.
CEIL	2047	Recommended Ceiling Value.
RPRT		Report control.

CNTL	YES	Controlled mode (controlled = YES).
VSID	n	Server ID used for Meridian Link messaging (defined in LD 17).

LD 16 – Configure an M911 route.

Prompt	Response	Description
REQ	NEW CHG	Add new data. Change existing data.
TYPE	RDB	Route data block.
CUST	0-99 0-31	Customer number. For Option 11C.
ROUTE	nnn	Route number.
TKTP	DID	Meridian 911 routes use Direct Inward Dialing trunks.
M911_ANI	YES	Enter YES for 911 route.
M911_TRK_TYPE	(911T) 911E	911T = E911 tandem connection. 911E = End office connection.
NPID_TBL_NUM	0-7	Meridian 911 route table index The ID table must be created before this prompt can be answered.

LD 16 – Create a Numbering Plan or Information Digit (NPID) Table:

Prompt	Response	Description
REQ	NEW CHG	Add new data. Change existing data.
TYPE	NPID	Numbering Plan or Information Digit data block.
IDTB	0-7	ID table index. ID table index to be used by this M911 route.
NPID	0-9	NPID for M911 routes.

TRMT	(NONE) NPA FAIL TEST	Numbering Plan Digit or Information Digit treatment.
- NPA	nnn	Numbering Plan Area. Prompted only if TRMT = NPA.

LD 14 – Configure 911 trunks.

Prompt	Response	Description
REQ	NEW	New.
TYPE	DID	Meridian 911 trunks must be DID.
TN	l s c u	Terminal number (loop, shelf, card, and unit).
...		
XTRK	XUT, XEM	Universal, or Enhanced E&M trunk card.
CUST	0-99 0-31	Customer number. For Option 11C.
NCOS	xx	Network Class of Service Group Number.
RTMB	xx xx	Route number and Member number.
MNDN	xxxx	Manual Directory Number.
ATDN	xxxxxxx	Autoterminate DN.
TGAR	xx	Trunk Group Access Restriction.
SIGL	EAM EM4 LDR	Trunk signaling.
...		
STRI	WNK	Incoming start arrangement.
SUPN	YES	Answer and disconnect required.
CLS	MFR APY	Meridian 911 trunks must have MFR and APY Classes of Service (this is done automatically).

LD 16 – Configure Call Detail Recording (CDR).

Prompt	Response	Description
REQ	CHG	Change.
TYPE	RDB	Route data block.
CUST	0-99 0-31	Customer number. For Option 11C.
ROUTE	xxx	Route number.
TKTP	DID	Meridian 911 routes use DID trunks.
...		
CDR	YES	CDR trunk route.
INC	YES	CDR records generated on incoming calls.
QREC	NO	CDR ACD Q initial records to be generated.

LD 17 – Configure the insertion of ANI digits into the CDR record.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	PARM	Gate opener.
...		
- CLID	YES	Calling Line ID (ANI for M911) in CDR.

LD 10 – Configure non-ACD sets (analog (500/2500 type) telephones).

Prompt	Response	Description
REQ:	NEW	Add a set.
TYPE:	500	Type of telephone set.

TN	l s c u	Terminal Number (loop, shelf, card, and unit).
CDEN	(DD) SD 4D	(Double), single and quadruple card density.
CUST	0-99 0-31	Customer number. For Option 11C.
DIG	xx yy	Dial Intercom Group number and Member number.
DN	nn...n	Directory Number.
...		
IAPG	2	ISDN/AP status message group.
...		
CLS	USMA	Unsolicited Status Allowed Class of Service. M911 position.

LD 11 – Configure non-ACD sets (Meridian 1 proprietary telephones).

Prompt	**Response**	**Description**
REQ:	NEW	Add a set.
TYPE:	aaaa	Telephone type, where: aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, and 3000.
TN	l s c u c u	Terminal Number (loop, shelf, card, and unit). For Option 11C.
CDEN	(DD) SD 4D	(Double), single and quadruple card density.
DES	x...x	ODAS set designator.
CUST	0-99 0-31	Customer number. For Option 11C.
KLS	1-7	Number of Key/Lamp strips.
...		

CLS	USMA MCTA	Unsolicited Status Allowed Class of Service. M911 position; Malicious Call Trace allowed.
...		
IAPG	2	ISDN/AP status message group.
...		
KEY	xx SCR yyyy	This defines a Single Call Ringing DN key. The xx is the key number and the yyyy is the DN.

LD 11 – Configure Meridian 1 proprietary telephones to function as ACD sets.

Prompt	**Response**	**Description**
REQ:	NEW	Add a set.
TYPE:	aaaa	Telephone type, where: aaaa = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616, and 3000.
TN	l s c u c u	Terminal Number (loop, shelf, card, and unit). For Option 11C.
CDEN	(DD) SD 4D	(Double), single and quadruple card density.
DES	x...x	ODAS set designator.
CUST	0-99	Customer number.
KLS	1-7	Number of Key/Lamp strips.
...		
CLS	ADD AGN USMA MCTA	AGN is for agent; SUPN is for supervisor, USMA = M911 position, and MCTA = Malicious Call Trace allowed.
...		
IAPG	2	ISDN/AP status message group.
...		

KEY	0 ACD yyyy	Key 0; ACD; ACD Directory Number.
KEY	xx TRC	Malicious Call Trace key. The xx is the key number.

LD 16 – Enable M911 Call Abandon.

Prompt	Response	Description
REQ	NEW CHG	Add new data. Change existing data.
TYPE	RDB	Route Data Block.
CUST	0-99 0-31	Customer number. For Option 11C.
ROUT	0-511 0-127	Route number. For Option 11C.
TKTP	DID	M911 trunks are DID trunk type.
...		
M911_ANI	(NO) YES	Set to YES to receive ANI for M911 routes.
M911_TRK_TYPE		Meridian 911 ANI trunk types, where:
	(911T) 911E	T911T = E911 tandem connections, and 911E = End office connection.
M911_ABAN	(NO) YES	Optional call abandon treatment, where: YES = abandoned call treatment for this route, and NO = no abandoned call treatment for this route.
M911_TONE	(YES) NO	Optional call abandon tone, where: YES = tone given on answer, and NO = silence given on answer.

LD 56 – Configure the new flexible tone for M911 abandoned calls, if desired.

Prompt	Response	Description
REQ	NEW CHG PRT	New, change, or print.

TYPE	FTC	Flexible Tone and Cadence data block.
TABL	0-31	FTC table number.
DFLT	0-31	Default table number.
RING	<CR>	
...		
CAB	YES	M911 Call Abandon upon Answer Tone.
TDSH	i bb cc tt	TDS external, burst, cadence, and tone.
XTON	0-255	NT8D17 TDS Tone code.
XCAD	0-255	NT8D17 cadence code for FCAD.

Feature operation

Meridian 911 operation

To answer a call at a primary, secondary, or alternate answering center that is configured with ACD positions, the 911 call taker presses the ACD DN key. The DN of the incoming call is displayed on the call taker's set.

Meridian 911 Call Abandon operation

When the call is abandoned it remains in its current state (for instance, in CDN or ACD queue or ringing a call taker). Once the call taker answers, a continuous cadenced tone is heard for six seconds, followed by silence. This tone is programmable with the FTC package; otherwise, a default is given. The call taker must hang up and dial the ANI that is shown on the terminal display if call back is required.

Upon answer, the telephone set display is updated with the 911 call taker's ANI and the trunk group name if the Call Party Name Display feature is used. Since the call has been abandoned, the telephone set display flags the abandoned call by appending "ABAND" to the ANI.

Figure 63 shows what is displayed on a telephone set with a Numbering Plan Digit (NPD) call with an NPD of 2 and with the Call Party Name Display feature enabled. The trunk group name is displayed on the first line of the set display; the ANI appears on the second line.

Figure 63
Display for an NPD call

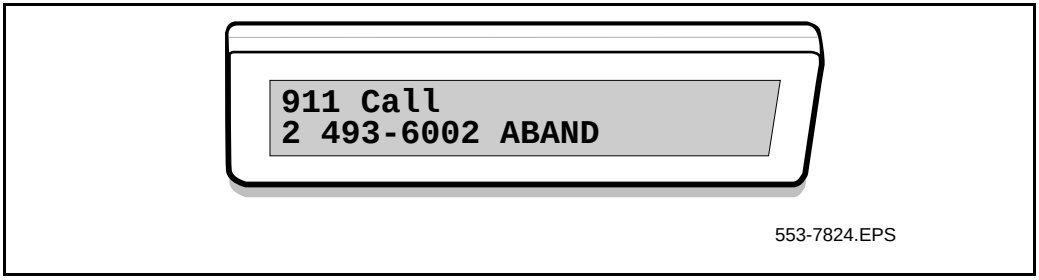
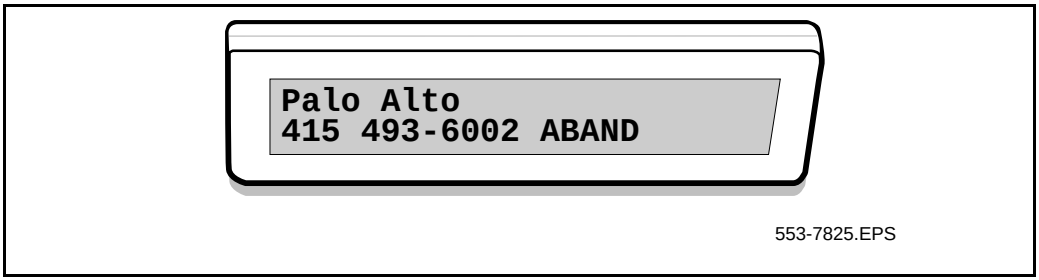


Figure 64 shows a set with an NPA call with an NPD of 1 that was translated to 415 and has the Call Party Name Display feature enabled. The trunk group name (for example, Palo Alto) is displayed on the first line of the set display. The ANI appears on the second line.

Figure 64
Display for an NPA call



Meridian Companion Enhanced Capacity

Contents

The following are the topics in this section:

Reference list

The following are the references in this section:

- Meridian Companion
- Meridian Companion DECT documentation suite.

Feature description

The Meridian Companion Enhanced Capacity feature doubles the capacity of Meridian Companion and Meridian Companion DECT line cards from 16 units to 32 units. For detailed information, refer to the *Meridian Companion* or *Meridian Companion DECT documentation suite*.

Operating parameters

This feature works with the Companion Meridian Controller Card (CMCC), the Meridian Companion Radio Card (CMRC), the DECT Mobility Card (DMC) and the DECT Mobility Card - Expander (DMC-E). The CMCC and CMRC supported systems include Option 11C, 51C, 61C, and 81C with IPE equipment. The DMC and DMC-E supported systems include Option 11C, 11C Mini, and 51C to 81C with IPE shelves.

Feature packaging

The Meridian Companion Enhanced Capacity requires the following packages:

- Meridian 1 Companion Option (MCMO) package 240
- MC32 package 350

Feature implementation

Task summary list

The following task is required:

LD 10 – Configure up to 16 or 32 units on a CMCC, CMRC, or DMC/DMC-E.

This section contains the overlay procedures required to configure the Meridian Companion Enhanced Capacity feature on a Meridian 1 PBX.

LD 10 – Configure up to 16 or 32 units on a CMCC, CMRC, or DMC/DMC-E.

Prompt	Response	Description
REQ:	NEW CHG	Add new data. Change existing data.
TYPE:	500	500 set.
TN	 l s c u c u	Terminal Number. l = loop, s = shelf, c = card, u = unit for Options 51-81C. c = card, u = unit for Option 11C.
...		
CDEN	(4D)	Card density.
WRLS	(NO) YES	Wireless analog set.
MWUN	(16) 32	Maximum number of wireless units. The MWUN prompt appears only if WRLS = YES.
WTYP	(MCMO) DECT	Wireless type assigns the TN to Meridian Companion cards or to Meridian Companion DECT cards.

Feature operation

No specific operating procedures are required to use this feature.

Meridian 1 and Succession Communication Server for Enterprise 1000

Features and Services

Book 2 of 3

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Publication number: 553-3001-306
Document release: Standard 10.00
Date: January 2002
Printed in Canada

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