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About This Document

1. Purpose

1.01 The purpose of the Product Release Document (PRD) is to provide customers with information pertaining to the new features that are introduced in the *4ESS*[™] switch. A PRD is written to cover the features introduced in full generic releases and quarterly generic releases. This particular PRD provides information pertaining to the new features included in the 4E23 Release 3 Generic.

2. Scope

2.01 The Product Release Document provides customers with information not covered in other *4ESS* switch documentation. It is not a replacement for other documentation such as Standard Lucent Technologies Practices, Task Oriented Practices (TOP), Maintenance Reference Handbooks, etc., that support the *4ESS* switch. The information in this document is intended only for the introduction of the new 4E23 Release 3 features, not the long-term maintenance. Since other documentation is used for the operation and maintenance of features after their introduction into the *4ESS* switch, this PRD will not be reissued.

3. Intended Audience

3.01 This document is intended for people involved in testing, provisioning, maintenance, administration, and technical support of the *4ESS* switch. Feature managers, Integrated Test Network (ITN) personnel, field support, Network Control

Center (NCC), Product Engineering Control Center (PECC), and National Electronic Switching Assistance Center (NESAC) personnel are examples of some of the people who will use the PRD.

4. How to Use This Document

4.01 The PRD for 4E23 Release 3 Generic contains xx new features. Each chapter in this document provides information about these features. The chapters are in numerical order according to feature number. The chapter titles are also the feature names.

4.02 The following is a list of the chapters contained in this document with a brief description of the feature covered in that chapter:

Chapter 1: *Segmentation Directory Phase 2 - Release 3 Feature (4880b)*

This feature continues with the Segmentation Directory, Phase 2 - Release 3, concentrating on migrating on customers out of the 4ESS Switch Automatic Numbering Identification Plan (ANI) Trigger Tables. For this release, this feature migrates calls identified by the Universal Subscriber Data Structure (USDS) Transition Type.

Chapter 2: *Assignment Input/Output for 4ESS Integrated Test Network (ITN) Feature (5005)*

This feature assigns three 4ESS switch Input/Output (I/O) channels for the exclusive use of AT&T's Integrated Test Network (ITN).

Chapter 3: *NAI Call Redirection for 500, 900 & ATP Calls Feature (5460a)*

This feature is a modification of Feature 5460 located in the 23 Release 2 Generic. It provides software capabilities for Network Access Interrupt (NAI) Call Redirection to work with 500 number call types, such as EasyReach or TrueConnection, 900 numbers, and calls that involve the AT&T Trigger Platform (ATP) features, for instance Leave-A-Message or 1+Branding.

Chapter 4: *Enhanced Carrier Identification Code Routing for Operator Services Feature (5822)*

This feature adds the capability to accept both wholesale operator and wholesale long distance traffic on a single trunk group, and route the wholesale operator traffic to a Wholesale Operator Service Platform (WOSP).

Chapter 5: *2000 A.D. Transition Feature (6130)*

This feature provides the requirements for network elements to function properly and reliably through the year 2000 and beyond.

Chapter 6: *Additional Support Capabilities for 4E Local Nodal Customers Phase 2 Feature (6142)*

This feature enhances the 4E Local Nodal Phase 2 Feature (5371) in the 4E22 Release 4 Generic by providing operational support capabilities.

Chapter 7: *Enhanced Carrier Identification Code Routing for Directory Assistance Feature (6143)*

This feature provides the routing treatment for Directory Assistance (DA) calls originated by switched access and nodal access wholesale customers to a customer-specified DA platform. Prior to this feature, Carrier Solution DA calls were routed to the AT&T Unbranded DA platform.

Chapter 8: *Enhanced Carrier Identification Code Routing for International Phase 1 Feature (6266)*

This feature provides the capability to route calls on a per-customer basis for each terminating country code and Carrier Identification Code (CIC), to different external platforms, based on AT&T wholesale international customer subscription. It also provides the required routing treatment for AT&T wholesale international calls to a particular international platform, as specified by the wholesale customer for each terminating country code and CIC.

Chapter 9: *4ESS Switch Performance Enhancement for SD Feature (6272)*

This feature provides the 4ESS switch and NEMOS requirements for the 4ESS switch Performance Enhancements for Segmentation Directory.

Chapter 10: *Segmentation Directory CIC Based Processing and Software Defined Network Default Handling Feature (6426)*

This feature defines two new capabilities that support the migration of the Software Defined Network service to the Segmentation Directory architecture. The new capabilities are Carrier Identification Code based processing and Software Defined Network default handling for 10288 Software Defined Network Automatic Number Identification.

Chapter 11: *International Toll Free Service— TEST:TCAPDSD Support FSIT Routing Feature (6487)*

This feature modifies the **TEST:TCAPDSD** message to allow the country or carrier of origin information to be included in a test Transaction Capabilities Application Part (TCAP) message. This new capability allows National Electronic Switching Assistance Center (NESAC) technicians to test the Foreign Subscriber

Identifying Telephone (FSIT) number format and all other formats of International Toll Free Service (ITFS) inbound calls.

Chapter 12: *Terminating Traffic Architecture Feature (6745)*

This feature describes the 4ESS switch function that is involved in routing Terminating Traffic Architecture eligible calls on high usage trunk routes. Under the Terminating Traffic Architecture, traffic terminating through 4ESS switches is sent on a route that bypasses the exhausting Terminating AT&T switch.

Chapter 13: *Network Access Interrupt Call Redirection with AT&T Trigger Platform Feature (6757)*

This feature is a modification of Feature 5460a located in this same release. It extends the time interval for calls involving AT&T Trigger Platform (ATP) features to be Network Access Interrupt (NAI) call redirected.\$

Chapter 14: *Release Summary—4E23 Release 3 Generic*

This chapter summarizes several aspects of the features in this document. This chapter identifies Growth and Retrofit documents (if any) affected by this release; new, changed, or deleted input and output messages; Operations Support Systems impacts of the release; and new or changed alarms. The final section of this chapter tells how each of the new features is turned on and off.

- 4.03** A list of abbreviations and acronyms, and their definitions, is included at the end of this document.

5. Product Safety Labels

5.01 There are three types of safety labels used in Lucent Technologies documentation: DANGER, WARNING, and CAUTION. This document contains safety labels in the form of CAUTIONS. A CAUTION safety label indicates the presence of a hazard that will or can cause minor personal injury or property damage if the hazard is not avoided.

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Segmentation Directory Phase 2 — Release 3 Feature (4880b)

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Segmentation Directory Phase 2 — Release 3 Feature (4880b)

1

1. Feature Description

1.01 This feature continues with the Segmentation Directory (SD), Phase 2, Release 3, concentrating on migrating customers out of the 4ESS™ switch Automatic Number Identification (ANI) Trigger Tables. For the 4E23 Release 3 Generic, this feature migrates calls identified by the Universal Subscriber Data Structure (USDS) Transition Type.

2. Call Flow

2.01 The call flow for USDS was described in the Call Flow section of Feature 4880 in the Product Release Document for the 4E23 Release 1 Generic (234-090-231AC).

3. Provisioning

Transition Plan

3.01 USDS capabilities are transitioned in the same fashion as in SD Phase 1. An SD Transition Type is defined for each service, and the associated Software Defined Network (SDN) Transition Status is set to PMO in each 4ESS switch. In the SD, the SD Transition Status associated with the Precedence Index for each ANI being transitioned is also set to PMO. Each service is transitioned to SMO on a switch-by-switch basis, by

setting both the SD Transition Status in the switch and the SD Transition Status associated with that switch in all SDs to SMO at approximately the same time. Capabilities supporting new methods of operation for Software Defined Data Network (SDDN)-700 Number Outdialing and for Switched Digital International Carrier Specific Routing (SDI-CSR) are supported in SDN Phase 2 to remove the dependence of these capabilities on Universal Global Title Translation (UGTT).

4. Recording (Not Affected)

5. Network Management

New Input Commands

5.01 The 4ESS switch will accept a command from NEMOS to override the setting of the SD Transition Status of the new SD Transition Type (USDS) in the SD Transition Status Table. The command instructs the 4ESS switch either to override the value of the Transition Status to PMO or to revert to the provisioned value.

New Measurements

5.02 The SD feature, Phase 2, introduces several new measurements. In each case, a 5-minute count and an hourly count are involved. The 5-minute counts are sent to Network Management Operations System (NEMOS), while the hourly counts are generated for access by Dynamic Engineering Mechanized System/Data Acquisition Reports and Integrated Communications System (DEMS/DARICS).

5.03 Table 1-A shows the measurements for the number of calls for which the SD Query is blocked because of the 4ESS switch Pre-SDQuery control and calls will receive final handling treatment.

Table 1-A. SD Query Blocked Measurements

Measurement	Description
PreSDQ_Blocked_FHT	The SDQuery is blocked because of the Pre-SDQuery control and the call receives final handling treatment.
PreSDQ_Blocked_Def	The SDQuery is blocked because of the Pre-SDQuery control and the call is default-handled.

5.04 Table 1-B shows the measurements and service indicators of calls which the switch default handles due to the receipt of a Proceed message with a Reason Code indicating "Manual Control", on a per-Service Indicator basis.

Table 1-B. Manual Control Measurements

Measurement	Service Indicator
PCP_MC	PCP
NISGen_MC	NIS-general
CSMSGen_MC	CSMS-general
SPx_MC	Spares 1-10

5.05 Table 1-C shows the measurements and service indicators of calls which the switch default handles due to receipt of a Proceed message with a Reason Code indicating "Application Overload Control", on a per-Service Indicator basis.

Table 1-C. Application Overload Control Measurements

Measurement	Service Indicator
PCP_AOC	PCP
NISGen_AOC	NIS-general
CSMSGen_AOC	CSMS-general
SPx_AOC	Spares 1-10

5.06 Table 1-D shows the measurements and service indicators of calls directed to a service processor by SD.

Table 1-D. Calls Directed to a Service Processor Measurements

Measurement	Service Indicator
Calls_Directed_To_NISGen	NIS-general
Calls_Deirected_To_CSMSGen	CSMS-general
Calls_Directed_To_SPx	Spares 1-10

5.07 Table 1-E shows the measurements and service indicators of calls for which the 4ESS switch is instructed to query a service processor, on a per-Service Indicator basis.

Table 1-E. Service Processor Query Measurements

Measurement	Service Indicator
Calls_Queried_For_PCP	PCP
Calls_Queried_For_PCP	NIS-general
Calls_Queried_For_CSMSGen	CSMS-general
Calls_Queried_For_SPx	Spares 1-10

5.08 Table 1-F shows the measurements and service indicators of calls for which the SP Response Timer expires.

Table 1-F. Response Timer Measurements

Measurement	Service Indicator
SPR_PCP_Timeout	PCP
SPR_NISGen_Timeout	NIS-general
SPR_CSMSGen_Timeout	CSMS-general
SPR_SPx_Timeout	Spares 1-10

5.09 Table 1-G shows the measurements and service indicators of calls for which the incoming call is cleared while waiting for an SPResponse message, on a per-Service Indicator basis.

Table 1-G. Abandon Measurements

Measurement	Service Indicator
SPR_PCP_Abandon	PCP
SPR_NISGen_Abandon	NIS-general
SPR_CSMSGen_Abandon	CSMS-general
SPR_SPx_Abandon	Spares 1-10

5.10 Table 1-H shows the measurements and service indicators of calls for which the SP Query Timer expires, on a per-Service Indicator basis.

Table 1-H. Query Timeout Measurements

Measurement	Service Indicator
SPQ_PCP_Timeout	PCP
SPQ_NISGen_Timeout	NIS-general
SPQ_CSMSGGen_Timeout	CSMS-general
SPR_SPx_Timeout	Spares 1-10

5.11 Table 1-I shows the measurement and service indicators of calls default-handled due to an abnormal condition.

Table 1-I. Default-Handled Measurements

Measurement	Service Indicator
PCP_Calls_Default_Handled	PCP
NISGen_Calls_Default-Handled	NIS-general
CSMSGGen_Calls_Default_Handled	CSMS-general
SPx_Calls_Default-Handled	Spares 1-10

⇒ NOTE:

The following measurements from the SD Phase 1 are no longer supported:

- SPR_abandon
- SPQ_timeout
- SDR_query.

A. New Discretes and Audits

5.12 The 4ESS switch sends NEMOS a change discrete indicating whether, during the past 30 seconds, any NEMOS-provided overrides have been removed per a maintenance channel. This discrete will remain set until the 4ESS switch has responded to a NEMOS request (audit) for the override information.

6. Maintenance/Troubleshooting (Not Affected)

7. Transition Considerations

Requirements

- 7.01** If a call with an Originating Line Information (OLI) of 41 arrives on a Trunk Sub-Group (TSG) parameter set to "Y", and all other conditions of the SDN SDTT are met, the call has an SDTT of SDN.

Deployment Requirements

- 7.02** It is not necessary for all 4ESS switches in the network to be running the 4E23 Release 3 Generic for this feature to be fully operational.

Feature Activation Mechanism

A. RC Form 810

- 7.03** SDTRS04 (USDS) must be manually provisioned to SMO via RC 810 in order to receive SD treatment.
- 7.04** Entries can be populated only if this is an AT&T office (that is, OD4OPTSD in word OD4OPT is 4ODOPT_YES).

8. Input/Output Manual Pages (Not Affected)

Assignment Input/Output for **4ESS™ Integrated Test Network (ITN) Feature (5005)**

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Assignment Input/Output for 4ESS™ Integrated Test Network (ITN) Feature (5005)

2

1. Feature Description

1.01 This feature assigns three 4ESS™ switch Input/Output (I/O) channels for the exclusive use of AT&T's Integrated Test Network (ITN). Feature testing at the ITN uses the Tools Network (Toolnet).

1.02 Prior to this feature, the ITN had to share I/O channels with other features or services; thus, forcing the ITN to find alternate channels. This feature helps solve the ITN's problem of not having dedicated I/O channels for testing purposes. By reserving these channels for ITN testing only, it will be assured that this access will be available for testing for each generic load.

1.03 This feature reserves the the following three channels for ITN testing purposes only:

- *Switched Control Center 2 I/O channel (SCC2)*
- *Recent Change Channel (RCRRT2)*
- *Recent Change Channel (RCDT3).*

2. Call Flow (Not Affected)

3. Provisioning (Not Affected)

4. Recording (Not Affected)

5. Network Management (Not Affected)

6. Maintenance/Troubleshooting (Not Affected)

7. Transition Considerations

Deployment Requirements

- 7.01** It is not necessary for all 4ESS switches in the network to be running the 4E23 Release 3 Generic for this feature to be fully operational.

Feature Activation

- 7.02** This feature is turned on automatically with software deployment at the Integrated Test Network (ITN) for testing purposes.

8. Input/Output Manual Pages (Not Affected)

NAI Call Redirection for 500, 900 and ATP Calls Feature (5460a)

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NAI Call Redirection for 500, 900 and ATP Calls Feature (5460a)

3

1. Feature Description

1.01 This feature is a modification of feature 5460 in the 4E23 Release 2 Generic. This feature provides software capabilities for Network Access Interrupt (NAI) Call Redirection to work with the following:

- 500 number call types, such as *EasyReach** or *True Connections** telecommunications services.
- 900 numbers
- Calls that involve AT&T Trigger Platform (ATP) features, such as Leave-a-Message or 1+Branding.

This feature also redefines the call processing interval to determine where a call will be directed to be consistent with the information implemented. Lastly, this feature addresses Automatic Message Accounting (AMA) recording for calls that initially go to a Consumer Long Distance (CLD) Adjunct, but end up as NAI Call Redirected.

* Registered service marks of AT&T.

1.02 The NAI call redirection interval refers to the call processing interval in the 4ESS™ switch where the call is redirected. The interval begins when the 4ESS switch receives a redirect call instruction from a 2LAC/2NCP in response to an NAI query. The length of the interval depends on whether or not the call involves an AT&T Trigger Platform (ATP) feature:

- For calls without ATP features, the interval ends when the 4ESS switch receives an ISDN User Part (ISUP) answer message for an ISUP signaled outgoing trunk or equivalent.
- For calls that involve ATP features, the interval ends when the 4ESS switch 1B processor informs the ATP node of a P1 leg seizure.

1.03 The NAI Call Redirect instruction at the Originating AT&T Switch (OAS) takes precedence over everything else for a call. Any progress, feature processing and resources associated with the call are halted and cleared or reset. The OAS then redirects the call according to the number supplied by the 2LAC/2NCP. The following are two possible exceptions:

- The call is in a clearing state where the NAI may or may not be handling the call.
- The call is a HiCap 900 or *DIAL-IT** 900 services.

2. Call Flow (Not Affected)

3. Provisioning (Not Affected)

4. Recording (Not Affected)

5. Network Management (Not Affected)

6. Maintenance/Troubleshooting (Not Affected)

* Registered service mark of AT&T.

7. Transition Considerations

Deployment Requirements

- 7.01** It is not necessary for all 4ESS switches in the network to be running the 4E23 Release 3 Generic for this feature to be fully operational.

Feature Activation

- 7.02** This feature is turned on automatically by software deployment.

8. Input/Output Manual Pages (Not Affected)

Enhanced Carrier Identification Code Routing for Operator Services Feature (5822)

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Enhanced Carrier Identification Code Routing for Operator Services Feature (5822)

4

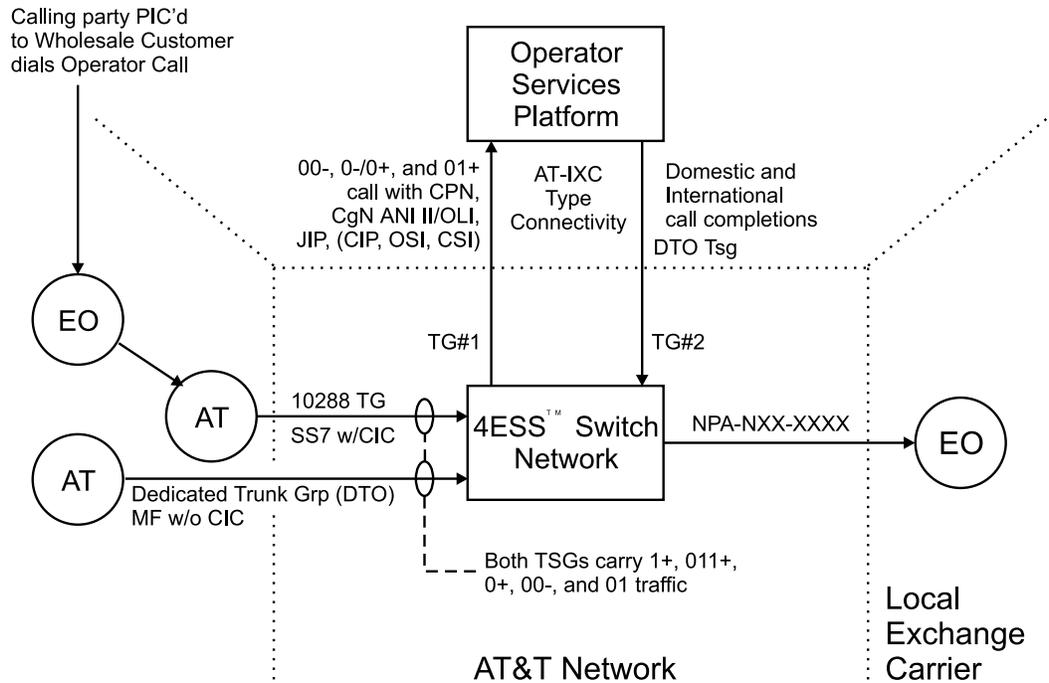
1. Feature Description

1.01 This feature adds the capability to accept both wholesale operator and wholesale long distance traffic on a single trunk group, and route the wholesale operator traffic to a Wholesale Operator Service Platform (WOSP).

1.02 The following is a summary of the new capabilities required by this feature:

- The 4ESS™ switch receives and routes a switched access call that sets both operator and wholesale flags, instead of final handling.
- The 4ESS switch receives and routes a nodal access call that sets both Operator and Wholesale flags, with associated Automatic Message Accounting (AMA) capabilities.
- The 4ESS switch uses the Carrier Identification Code (CIC) value associated with the call to construct a 10-digit number of the format 300-000-4 digit CIC, to be used to enter the Operator Service Position System Access Identification (OAID) table to obtain information for the operator call. This is for an incoming call for which both the Wholesale flag and Operator flag have been set.
- The Originating AT&T Switch (OAS) must do the following:
 - Map (for switched access calls) the value in the received Automatic Number Identification (ANI)/charge number using Network Interrupt (NI) to the Charge Number Parameter (CNP).

- Map (for nodal access calls) the value of the True Billing Number (TBN) to the Charge Number Parameter (CNP) before sending the call to the egress switch or WOSP.
 - Modify Call Detail Recording Platform (CDRP) event requirements, and recording in Module 941 to indicate wholesale operator calls. The 4ESS switch is required to generate (TRNUM) event for the nodal access wholesale calls that use any of the enhanced CIC-routing features introduced in this feature; as well as Feature 6143, *Enhanced Carrier Identification Code Routing for Directory Assistance*, and Feature 6266, *Enhanced Carrier Identification Code Routing for International Phase 1*. This enables the 4E/3B and CDRP to generate Module 941 for nodal access wholesale calls.
 - Include the Carrier Identification Parameter (CIP) and Carrier Solution Indicator (CSI) in the outgoing Initial Address Message (IAM) to the WOSP, according to the parameters set by Feature 5308, *Consolidated Access Traffic (CAT)* Feature introduced in the 4E22 Release 4 Generic.
- The egress switch generates standard Multi-Frequency (MF) signaling sequences associated with operator calls when the terminating trunk is Other Connecting Carriers (OCC) type and outgoing signaling is MF.
 - The IAM at the egress switch includes the optional CIP, CSI and OSI parameters at the egress switch when the terminating trunk is type OCC and the outgoing signaling is Integrated Services Digital Network (ISDN) User Part (ISUP) if allowed by trunk group data.
 - An ISUP exit message at the egress switch forwards to the OAS upon initiation of outgoing signaling to the WOSP if the Terminating AT&T Switch (TAS) is not the OAS.
 - The 4ESS switch uses the Abbreviated 2-Digit Dialing (AD2) value (Carrier ID) for Service Switching Point (SSP) call type re-translation when the new ASCIT question (ASCIT22) introduced for this feature is set. However, it must preserve and deliver the CIC derived at the access switch.
 - The OAS uses the receipt of an ISUP exit message to start the recording of elapsed time if the TAS is not the OAS.



Legend:

- | | |
|--|---|
| ANI = Automatic Number Identification | JIP = Jurisdiction Information Parameter |
| AT = Access Tandem | MF = Multi-Frequency |
| CgN = Calling Number | NPA = Numbering Plan Area |
| CIC = Carrier Identification Code | NXX = Central Office Code |
| CIP = Carrier Identification Parameter | OLI = Originating Line Identifier |
| CPN = Calling Party Number | OSI = Operator Service Indicator |
| CSI = Circuit State Indicator | PIC = Presubscribed Interexchange Carrier |
| DTO = Dedicated Trunk Sub-Group Option | SS7 = Signaling System 7 |
| EO = End Office | TSG = Trunk Sub-Group |
| II = Information Indicator | |

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Figure 4-1. Enhanced Carrier Identification Code (CIC) Routing for Operator Services Network

2. Call Flow

2.01 The call flow and signaling for this feature is shown in Figure 4-1 and is provided in the following information:

1. The calling party is either presubscribed to a wholesale customer or is prefixed to the dialed number with 1+0+CIC (where the CIC value is a wholesale customer code). When the caller dials 0(00)+7/10 digits or 01+CC+NN, the PIC of the Calling Party or the 1+0+CIC dialed by the calling party causes the local exchange office to do one of the following:

- Route the call over a switched access Dedicated Trunk Subgroup Option (DTO)
- Route the call over a switched access 10288 Plain Old Telephone Service (POTS) trunk group using Signaling System 7 (SS7) Network Interconnect (NI) signaling.

2. The call arrives at the OAS.

For switched access wholesale calls, the following occurs:

- **The wholesale flag is set by Feature 5840, (Call Flow Steps 3 to 5.)**
- **The operator flag is set by Feature 5308, (Call Flow Steps 6 and 7.)**

3. The OAS uses Long-Term CIC-Based Network Access Interrupt (NAI) Feature (5791) to derive the CIC in one of the following ways:

- For calls that access the AT&T Switched Network (ASN) via ISUP-NI signaling on a switched access trunk group, the OAS must perform one of the following:
 - Derive CIC from Transit Network Selection (TNS) signaling parameter. *Proceed to Step 4.*
 - Derive CIC from CIP signaling parameter if TNS is not available. *Proceed to Step 4.*
 - Derive CIC from Caller ID (CID) Trunk Sub-Group (TSG) parameter, if CIC Code Trigger Table (CCTT) = Y and CIP is not available. *Proceed to Step 4.*
 - Continue as non-resell POTS call processing if CIC value is not derived. **End of Wholesale Operator Service (WOS) Call Flow.**

- For calls that access ASN via MF on switched access trunk group, the 4ESS switch must perform one of the following:
 - Derive CIC from inband signaling if CCTT = Y. *Proceed to Step 4.*
 - Derive CIC from CID TSG parameter if CCTT = Y and inband is not signaled. *Proceed to Step 4.*
 - Continue as non-resell POTS call processing if CIC value is not derived. **End of WOS Call Flow.**
- 4. The OAS uses the CIC from Step 3 to query CIC Code Table according to Feature 5840. The result of the query is one of the following:
 - "Resell and Non-Featured" or "Resell and Featured", then the 4ESS switch identifies the call as a wholesale customer call. The OAS sets the wholesale flag. *Proceed to Step 5.*
 - If not "Resell and Non-Featured" or not "Resell and Featured", then the 4ESS switch treats the call according to Feature 5840. **End of WOS Call Flow.**
- 5. The OAS uses Feature 5198 for calls identified as a switched access wholesale operator call to perform the following:
 - (1) Set the Signaling Service Type (SST) to (RSLDS).
 - (2) Perform Information Indicator (II)/ Originating Line Information (OLI) value screening.
 - (3) Do not query SD from the 1B.
 - (4) Ignore SD Response.
 - (5) Bypass Adjunct Based Capability (ABC) ANI Trigger Table (ANI-TT).
 - (6) Bypass Destination Number Trigger Table (DN-TT).
 - (7) Do not query USDS.
 - (8) Apply vacant code for data, toll-free 500, 700, 710, and 900 calls.

⇒ NOTE:
Operator calls are not final handled.

 - (9) Avoid AT&T TrueVoice* telecommunications services enhancements.
 - (10) Do not invoke Forced Intertoll Routing (FITR).

* Registered service mark of AT&T.

6. The OAS determines if the call is an operator call based on the Called Party Number (CdPN) parameter, whether SS7 NI signaling or the MF Feature Group D (FGD) signaling is used. In addition, 1 + H/M and 011 + H/M calls with an OLI/II of 06 is considered an operator call.
 - For MF access, the OAS performs a 3-digit type translation on the CdPN, except for 0- calls.
 - For NI signaling the OAS checks the Nature of Address (NOA) Indicator of the CdPN parameter. The coding of NOA Indicator in the CPN parameter indicates an operator call for the following:
 - Subscriber number, operator requested
 - National number, operator requested
 - International number, operator requested
 - No number present, operator requested.

⇒ NOTE:

This does not apply for 1 + H/M and 011 + H/M calls, where NOA is either a national or international number.

7. The OAS performs one of the following:
 - For operator calls, the OAS sets the operator flag.
 - For non-operator calls, the OAS continues with existing call processing.
End of Call Flow.

For nodal access wholesale calls:

- **The wholesale flag is set by Feature 5918. (Call Flow Steps 8 to 10.)**
 - **The operator flag is set by Feature 4570. (Call Flow Steps 11 and 12.)**
8. The call originates on the PBX TSGs with a nodal trunk group parameter, Carrier Solutions Nodal (CSN).
 9. The CSN is set to AIWS or RESELL.
 10. The 4ESS switch OAS derives the CIC from the CID field when the TSG field of CSN is set to AIWS or RESELL. When this happens, one of the following occurs:
 - The CID field is populated. *Proceed to Step 11.*

- The CID field is not populated; continue with existing call processing. **End of Call Flow.**
11. The OAS determines if the call is an operator call based on the dialed digits of MF FGD signaling Dial Pulse (DP), Dual Tone Multi-Frequency (DTMF) are used.
 - (For DP, DTMF and MF access) The OAS performs a 3-digit type translation on the CdPN with the exception of operator calls.
 - (For PRI signaling) The OAS checks the Network Specific Facilities (NSF) IE of the CdPN IE for the following:
 - NSF (Service) = LDS, *MEGACOM** telecommunications services or Software Defined Network (SDN)
 - NSF (Feature) = operator or PCCO.
 12. The OAS performs one of the following to determine the call type:
 - For operator calls, the OAS sets the operator flag.
 - For non-operator calls, the OAS continues with existing call processing. **End of Call Flow.**
 13. The OAS uses Feature 5918 for calls identified as nodal access wholesale operator calls and performs the following:
 - (1) Set the SST to RSLDS or AIWS
 - (2) Apply vacant code for data, toll-free, 500, 700, 710 and 900 calls administered through Far End Network (FEN) block setting
 - (3) Avoid *AT&T TrueVoice* telecommunications services enhancements
 - (4) Not invoke FITR.
 14. At this point, the wholesale operator call processing begins. The OAS prefixes the Numbering Plan Area (NPA) from the incoming TSG to the called number when the called number is seven digits instead of ten.
 15. The OAS does not perform a Network Access Interrupt (NAI) query when the operator flag is set.

*Registered service mark of AT&T.

16. The OAS searches the OAID table for a match using the constructed 10-digit number of the format 300-000-4 digit CIC.
 - If no matches are found, the OAS final handles the call. **End of WOS Call Flow.**
 - If a match is found, the OAS obtains the OSPS ID which is an existing spare value and equates to an Alternate Operator Service (AOS).
17. The OAS routes the call to one of the following routing treatment based on the OAID routing table:
 - Service Switching Point (SSP)
 - Multiple Routing Treatment (MRT)
 - Destination Switch Number (DSN).
18. The OAS sets TDEST = OPR and DNST = DNST15 (international operator call) or Unassigned (UNAS).
19. An Initial Address Message (IAM) is constructed with the following information when the OAS is not the TAS:
 - Called Party Number with Nature of Address (NOA) field containing one of the following:
 - Subscriber number, operator requested
 - National number, operator requested
 - International number, operator requested
 - No number present, operator requested.
 - Calling party number, if available.
 - Charge number parameter containing the received ANI for switched access or TBN for nodal access operator call.
 - OLI digits received.
 - Jurisdiction Information Parameter (JIP), if received.
 - Routing Information Indicator (RII) Parameter with the Access Indicator.
 - Trunk Rating Number (TRN) Generic Operations Parameter (GOP), if TRN is available.
 - Access ID GOP, if Access ID is available.
 - OSPS Identifier GOP, if OSPS ID is available.
 - Operator Systems Indicator (OSI) parameter, if available.

20. The egress switch bypasses translations and checks the OSPS ID to determine routing treatment based upon receipt of the OSPS Identifier GOP in the incoming IAM. The routing treatment must be SSP.
21. The terminating trunk group characteristics determine the signaling information delivered to the WOSP by the following:
 - If the terminating trunk group has TOT=OCC and outgoing signaling is MF, then signaling is in accordance with Table 4-B.
 - If the terminating trunk group has TOT=OCC and outgoing signaling is ISUP, then signaling is in accordance with Table 4-C. In this case, the egress switch is also required to signal the following:
 - Calling Party Number (CPN)
 - Charge Party Number (CHG)
 - OLI (OLI = 06 for 1 + H/M and 01 + H/M calls)
 - JIP, if available
 - TNS, if Send Optional ISUP Parameters (SOIP) TSG Parameter is set to Y and international call
 - CIP, if SOIP TSG Parameter is set to Y and domestic call
 - OSI, if SOIP TSG Parameter is set to Y and OLI/II received equals 06
 - CSI, if SOIP TSG Parameter is set to Y and available.

⇒ NOTE:

The signaling of mandatory parameters (CPN, CHG, and OLI) is controlled by the Number Service Data Block (NDB) Administration. The signaling of optional parameters is controlled by a new TSG Parameter (SOIP) defined on the egress OCC Type of Trunk (TOT) with ISUP signaling to the WOSP.

22. The TAS generates an exit message toward the OAS upon initiating outgoing signaling when the egress switch is not the OAS. When the outgoing trunk type is OCC and the TSG parameter, **Carson is set to Y**. As a result either of the following occurs:
 - An ISUP exit message is sent backward toward the OAS upon sending an IAM to ISUP.
 - An ISUP exit message is sent backward toward the OAS upon seizure of a trunk and receipt of a wink from the WOSP when egress trunk signaling is MF.

23. The OAS commences elapsed time recording in the event of one of the following:
- Sending an IAM to the WOSP when the egress signaling is ISUP, the OAS is the TAS, the egress trunk type is OCC, and the TSG parameter, **Carson is set to Y**.
 - Seizing a trunk upon receipt of a Wink when the egress signaling is MF, the OAS is the TAS, the egress trunk type is OCC and TSG parameter, **Carson is set to Y**.
 - Receiving an exit message when the OAS is not the TAS.
24. The circuit is disconnected and released upon completion of the call in accordance with the existing procedures. **End of WOS Call Flow.**

Table 4-A. 4ESS Switch to WOSP MF Feature Group D Signaling

Operator Flag	Sent by 4ESS Switch FGD
0-	KP + II + ANI + ST KP + 0 + ST
0+	KP + II + ANI + ST KP + 0 + 10d + ST
Int'l 0+	KP + 158 + (CIC) + CCC + ST KP + II + ANI + ST KP + CC + NN + ST
1 + H/M	KP + 06 + ANI + ST KP + 0 + 10d + ST
011 + H/M	KP + 158 + (CIC) + CCC + ST KP + 0 + 06 + ANI + ST KP + CC + NN + ST

Table 4-B. 4ESS Switch to WOSP CCS7 Signaling

Call Type	CCS7 Outgoing Signaling
0-	Address Field = None Nature of Address Ind. = 1110100
0+	Address Field = 10d Nature of Address Ind. = 1110010
Int'l 0+	Address Field = CC + NN Nature of Address Ind. = 1110011
1 + H/M	Address Field = 10d Nature of Address Ind. = 1110010 OLI = 06
011 + H/M	Address Field = CC + NN Nature of Address Ind. = 1110011 OLI = 06

3. Provisioning

- 3.01** The following items have been created and administered through provisioning to ensure successful implementation of this feature:
- A spare SII ASCIT Question Number 22 has been assigned.
 - A new office On/Off feature indicator (PF54) has been provided.
 - Existing feature On/Off indicators (PF23, PF30, PF49, PF50, and PF52) have been modified.
 - Two new Trunk Sub-Group (TSG) indicators/items have been provided.
 - A new keyword was added to input message **VER:MISC:FHT OSPSTBNID** (Verify Form 16de) to obtain a list of all entries that possess a specific Operator Service Position System ID (OSPSID) value.

Recent Change Forms Affected

A. Recent Change Form 809

3.02 The On/Off indicator for this feature is populated (or updated) via RC Form 809. FEATURE ITEM PF54 is used to turn this feature On. The population rules for RC 809 are shown in Table 4-C and as follows:

Table 4-C. On/Off Indicator For Feature 5822

RC Form 809 Entry		Checks
Feature Item	On or Off	
PF54	On	See below: A,B,C,D & E
	Off	None

3.03 The following is an explanation of Table 4-C:

- A. The 1+CIC Wholesale Indicator Feature (5840), PF50, must be activated. The PF50 depends on PF30 (Feature 5198) and PF49 (Feature 5791).
- B. The CIC-Based Determination Indicator Feature (5198), PF30, must be activated.
- C. The Long-Term CIC-Based NAI Indicator Feature (5791), PF49, must be activated.
- D. The Carrier Solution Nodal Indicator Feature (5918), PF52, must be activated.
- E. The Consolidated Access Traffic (CAT) Feature (5308), PF23, must be activated.

3.04 The On/Off flags for this feature are verified on Verify Form 16az and Verify Form 8j.

⇒ NOTE:

There are no changes to Recent Change Forms 100, 101, 102, 107, 108, and 109 as a result of this feature. However, as described below, two new TSG fields are planned for 4E24 Release 1.

B. Recent Change Forms 100, 101, 102, 107, 108, and 109

3.05 The S9 and S10 spare fields on RC Forms 100, 101, 102, 107, 108, and 109 are used temporarily by this feature as TSG fields. In 4E24, Release 1, S9 will be replaced by CARSON and S10 will be replaced by SOIP; and the S9 and S10 fields will become spares again on these forms.

3.06 As previously described, the term CARSON is derived from Carrier Solutions. The S9 (or CARSON) is a TSG parameter that indicates a recording of Answer at Exit (elapsed time), as opposed to Real Answer. Valid entries for S9 (CARSON) are as follows:

- Blank or N—Recording of elapsed time not activated for Carrier Solutions (default)
- Y—Recording of elapsed time activated for Carrier Solutions.

Additional population rules for the S9 (CARSON) field are shown in Table 4-D.

3.07 The term SOIP is derived from Send Optional ISUP Parameters. The S10 (or SOIP) is a trunk sub-group parameter that indicates that the CIP, CSI, and OSI ISUP parameters are allowed to be delivered out of the network. Valid entries for S10 (SOIP) are as follows:

- Blank or N—Send Optional ISUP Parameters not allowed (default)
- Y—Send Optional ISUP Parameters allowed.

Additional population rules for the S10 (SOIP) field are shown in Table 4-D.

Table 4-D. Population Rules for S9 and S10 Fields

TSG Form Entry		Additional Rules
Field	Value	
S9	Blank	No
	N	No
	Y	See below: A, B, & C
S10	Blank	No
	N	No
	Y	See below: A, B, D & E

3.08 The following is an explanation of Table 4-D:

- A. At least one of the following features must be turned on:
 - Wholesale Operator Services Feature (5822)—PF54
 - Enhanced CIC Routing for Directory Assistance (6143)—PF55
 - Enhanced CIC Routing for International, Phase 1 Feature (6266)—PF56.
- B. Type of Trunk (TOT) field on TSG form must be equal to Other Connecting Carriers (OCC) (signaling characteristics are either ISUP or MFWINK).
- C. The TSG International World Zone 1 (IWZ1) indicator must be equal to N.
- D. The TSG Incoming Signaling Characteristics (ISC) indicator must be equal to ISUP (Incoming CCITT7 ISDN User Part).
- E. The Trunk Block Outgoing Signaling Characteristics (OSC) indicator must be equal to ISUP (Outgoing CCITT7 ISDN User Part).

C. Recent Change Form 653

3.09 The ASCIT Question Number 22 on Recent Change Form 653 was changed to support this feature. Previously unused, Question 22 now asks the question: Should the 4ESS switch preserve and deliver the CIC-derived at the Access Switch, but continue to use the AD2 value for SSP call type re-translation for this SII?

3.10 Question Number 22 is set to Y for wholesale SII values.

3.11 Recent Change Form 653 is verified on Verify Form 16au.

⇒ NOTE:

Feature 4753 uses ASCIT Question Number 14 to determine to not report exit wink. Question 14 should not be set to Y for wholesale SII values.

D. 10-Digit Constructed Number to OSPSID Mapping

3.12 This feature requires mapping of the 10-digit constructed number to the OSPSID, which is performed using the following RC command:

RC:MISC;FHT,FTA:OSPSTBNID,a,b,c,d,e!

⇒ NOTE:

An explanation of the variables is as follows:

a = The order number

b = The required action (A for add, C for Change and D for Delete)

c = The digit translator level (10-digit)

d = The 10-digit constructed number

e = The OSPSID.

An example of the completed RC command for this feature is as follows:

RC:MISC;FHT,FTA:OSPSTBNID,107,A,D,3000000377,000123!

E. BN or WATSBN to TBN Mapping

3.13 This feature requires mapping of the BN (for SDN) or the WATSBN (for *MEGACOM* telecommunications services) to the TBN, which is performed using the following RC command:

RC:MISC;FHT,FTA:OSPSBNTBN,a,b,c,d,e!

⇒ NOTE:

An explanation of the variables in the message is as follows:

a = The order number

b = The required action (C for change, A for Add and D for Delete)

c = The numbering plan (P for NANP)

d = The 10-digit BN or WATSBN

e = The TBN value.

An example of the completed RC command for this feature is as follows:

RC:MISC;FHT,FTA:OSPSBNTBN,099,C,P,3123674321,999999999!

Assigning an SSP Call Type

This feature requires that an SSP Call Type is assigned to provide the translation of the OSPSID to an SSP Call Type with a Call Data of NDB. The assignment of an SSP Call Type can be accomplished using Recent Change Forms 302 and 311.

Verify Forms/Messages Affected

A. Verify Output Forms 1a, 1b, and 1c

3.14 The CARSON and SOIP fields (planned for 4E24 Release 1 and later releases) are verified on Verify Output Forms 1a, 1b, and 1c. The valid entries for CARSON and SOIP are blank, N or Y. These forms are also used to verify S9 and S10.

B. Verify Input Message VER:TSGLIST on Verify Form 11d

3.15 The TSG searches for CARSON and SOIP (in 4E24 Release 1 and later releases) are implemented by Verify Input Message VER:TSGLIST.

C. Modified Verify Input Message

3.16 A new keyword was added to the **VER:MISC:FHT OSPSTBNID** verify input message on Verify Form 16de. This input message is used to obtain a list of all entries that possess a specified OSPSID value, including all 3-, 6-, and 10-digit entries that match the input OSPSID. The new input message format is as follows:

VER:MISC:FHT OSPSTBNID, ID x!
[Where x is an OSPSID value (1-255)]

3.17 The existing output Verify Form 6de is used.

Affect on Related Features

3.18 This feature modifies the On/Off indicators in Features 5198, 5308, 5791, 5840, and 5918, as described in the following information.

A. Carrier Information Code-Based Determination Feature (5198)

3.19 The Carrier Information Code-Based Determination Feature (5198) On/Off indicator, PF30, was modified to automatically turn off certain related features whenever Feature 5198 is turned off. The affected features (and their associated On/Off indicators) are listed below:

- 1+Carrier Identification Code (CIC) Wholesale Feature (5840)—PF50
- Wholesale Operator Services Feature (5822)—PF54
- Enhanced CIC Routing for Directory Assistance (6143)—PF55
- Enhanced CIC Routing for International, Phase 1 Feature (6266)—PF56.

B. Long-Term CIC-Based NAI Feature (5791)

3.20 The Long-Term CIC-Based NAI Feature (5791) On/Off indicator, PF49, was modified to automatically turn off certain related features whenever Feature 5791 is turned off. The affected features (and their associated On/Off indicators) are listed below:

- 1+Carrier Identification Code (CIC) Wholesale Feature (5840)—PF50
- Wholesale Operator Services Feature (5822)—PF54
- Enhanced CIC Routing for Directory Assistance Feature (6143)—PF55
- Enhanced CIC Routing for International, Phase 1 Feature (6266)—PF56.

C. 1+CIC Wholesale Feature (5840)

3.21 The 1+CIC Wholesale Feature (5840) On/Off indicator, PF50, was modified to automatically turn off certain related features whenever Feature 5840 is turned off. The affected features (and their associated On/Off indicators) are listed below:

- Wholesale Operator Services Feature (5822)—PF54
- Enhance CIC Routing for Directory Assistance Feature (6143)—PF55
- Enhanced CIC Routing for International, Phase 1 Feature (6266)—PF56.

D. Carrier Solution Nodal Feature (5918)

3.22 The Carrier Solution Nodal Feature (5918) On/Off indicator, PF52, was modified to automatically turn off certain related features whenever Feature 5918 is turned off. The affected features (and their associated On/Off indicators) are listed below:

- Wholesale Operator Services Feature (5822)—PF54
- Enhance CIC Routing for Directory Assistance Feature (6143)—PF55
- Enhanced CIC Routing for International, Phase 1 Feature (6266)—PF56.

4. Recording

4.01 Prior to this feature, AMA recording for switched access and nodal access operator calls was not available to the 4ESS Switch / Call Detail Recording Platform (CDRP). The recording impacts from this feature for switched access wholesale operator calls and nodal access wholesale calls are explained in the following paragraphs.

Switched Access Wholesale Operator Calls

4.02 In order for AMA Recording to take place for switched access operator calls, this feature triggers Plain Old Telephone Service (POTS) by using the following existing POTS structure codes:

- SC 0001
- SC 0101
- SC 1078
- SC 1080
- SC 1500
- SC 1501.

4.03 Code SC 0001 is used when ANI is available for MF-signaled call or the CNP is signaled without the Calling Party Number for ISUP signaled calls. Code SC 0101 is used for Long Duration calls with the same triggers as code SC 0001. Code SC 1078 is used any time the Calling Party Number is available for ISUP signaled calls. Code SC 1080 is used for Long Duration calls with the same triggers as SC 1078. The associated call code is 60 for Station Paid or 306 for Cellular Mobile Carrier.

4.04 The *4ESS* switch/CDRP records the CPN in the terminating number field of the AMA record. The 0+ or 01+ digits that precede the operator access called number are not recorded as part of the terminating number because they are considered prefix digits. In the case that 0- or 00- is used to access the operator, the terminating number is filled with zeroes. The Elapsed Time field in the AMA records contains the Elapsed Time at answer and exit, while the Elapsed Time at Real Answer is captured in Module 132.

4.05 The OAS sets a new bit to indicate operator call in the Expanded Out Complete EOC event. This triggers the *4ESS* switch/CDRP to populate the character 5 of Table 57 to 0 to indicate operator call in module 941.

Nodal Access Wholesale Operator Calls

4.06 The nodal-originated carrier solutions operator calls using SDN as the underlined service initiates a canned dipless SDN AMA record with a call code of 129. The nodal-originated carrier solutions operator calls using *MEGACOM* telecommunications services as the underlined service generates *MEGACOM* telecommunications services structure codes with a call code of 309. The *4ESS* switch/CDRP records the CPN in the terminating number field of the AMA record. The 0+ or 01+ digits that precede the operator access called number are not recorded as part of the terminating number because they are considered prefix digits. In the case that 0- or 00- is used to access the operator, the terminating number is filled with zeroes. The Elapsed Time field in the AMA records contains the Elapsed Time at answer and exit, while the Elapsed Time at Real Answer is captured in Module 132. The *4ESS* switch/CDRP continues to generate Module 908 for the nodal access wholesale calls that do not have enhanced CIC routing features.

4.07 The *4ESS* switch/CDRP generates Module 941 for nodal access resell calls that use enhanced CIC routing features via Feature 5822, 6143 or 6266. The *4ESS* switch also generates the TRNUM event with TRN digits populated with TBN value. The *4ESS*/CDRP copies the TRN digits field to Table 25, Rating Point Billing Number, of Module 941.

4.08 The OAS sets a new bit to indicate operator call in the EOC. This triggers the *4ESS* switch/CDRP to populate the character 5 of table 57 to 0 for operator call indication in Module 941.

5. Network Management (Not Affected)

6. Maintenance/Troubleshooting (Not Affected)

7. Transition Considerations

Deployment Requirement

- 7.01** It is not necessary for all *4ESS* switches in the network to be running the 4E23 Release 3 Generic for this feature to be fully operational.

Planning Considerations

- 7.02** In order to implement this feature for customers, it is required that the following procedures be fulfilled:
1. The trunk group needs to be established between the terminating *4ESS* switch and the WOSP.
 2. The OSPS Access ID table needs to be populated with the customer based 10-digit number.
 3. The network routing is established in accordance with existing procedures.
 4. The customer's operator traffic is channeled to appropriate trunk groups by the local exchange companies.
 5. The following procedures must be completed before the WOS Feature bit is turned on:
 - All the Dedicated Trunk Sub-Group Option (DTO) Trunk Sub-Groups (TSGs) CCTT=Y are provisioned with CIC in the Carrier ID (CID) TSG field.
 - The feature bits for Features 5308, 5840, and 5918 are turned on.
 - The TBN table is provisioned with a TBN value for carrier solutions nodal TSGs provisioned with a CIC, and the OSPS ID is populated with the constructed 10-digit number corresponding to the CIC.
 6. The OSPS ID table must be provisioned before the capabilities of Enhanced CIC Routing is available for switched access carrier solutions customers.
 7. The TBN table must be provisioned before the capabilities of Enhanced CIC Routing is available for nodal access carrier solutions customers.
 8. The feature bit (PF54) for this feature must be turned on before the blocking of OLI/II = 06 is removed.

Feature Activation

- 7.03** This feature is activated or deactivated as described in the "**Provisioning**" section of this chapter.

Absolute Word Change

- 7.04** This feature can also be turned on or off by an absolute word change. Item OD4PF54 in the OD4OFCCOPY2 structure is the office parameter that controls the on/off state of this feature.



CAUTION:

The OD4OFCCOPY2 structure also contains the on/off bits for other features. Be certain that any changes made affect only this feature.

- 7.05** The following information can be used to turn this feature on or off using the absolute word change:
- Structure: OD4OFCCOPY2
 - Core Address in 4E23 Generic: 7126222
 - Size of OD4PF54: 1
 - Displacement: 5
 - On:1
 - Off:0.

Feature Dependencies

7.06 This feature is dependent on the features listed in Table 4-E.

Table 4-E. Dependent Features

Feature Number	Product Release Document	Product Release	Feature Title
5918	234-090-232AC	4E23 Release 2	<i>Inband/Q.931 Signaling for Carrier Solutions Nodal Customers</i>
5308	234-090-224AC	4E22 Release 4	<i>Consolidated Access Traffic</i>
5791	234-090-223AC	4E22 Release 3	<i>CIC Based NAI</i>
5840	234-090-224AC	4E22 Release 4	<i>1+CIC Wholesale</i>

Feature Interactions

7.07 The interactions of this feature with other features are described in the following information:

A. Inband/Q.931 Signaling for Carrier Solutions Nodal Customers Feature (5918)

7.08 This feature supports wholesale operator calls that access the AT&T Switched Network (ASN) via nodal trunk groups when the trunk subgroup parameter, CSN, is set to RESELL or AT&T International Wholesale Service (AIWS). This feature also supports nodal wholesale operator calls when CSN is set to RESELL or AIWS and CIC are provisioned in the trunk subgroup CID field.

B. Enhanced CIC Routing for Directory Assistance Feature (6143)

- 7.09** The Enhanced CIC Routing for Directory Assistance Feature (6143) supports 1+NPA+555+1212 routing to an external platform and 011+CC+NN routing to an external international platform. Where a single external platform services both operator and directory assistance wholesale call, a separate OSPSID is required for each service to route the calls to the same external platform.
- 7.10** This feature takes precedence over Feature 6143 when a wholesale operator Directory Assistance (DA) call is processed.

C. Enhanced CIC Routing for International Calls Feature (6266)

- 7.11** The Enhanced CIC Routing for International Calls Feature (6266) supports routing for 011+CC+NN calls to an external platform. If there is a single external platform that supports both international and operator wholesale calls, a single OSPS ID with two Number Service Data Blocks (NDB) are required for each service to route to the same external platform.
- 7.12** This feature takes precedence over Feature 6266 when an international operator or an international Hotel/Motel call is processed.

8. Input/Output Manual Pages

- 8.01** The **VER:ASCIT** input message was modified to support this feature. The manual page for this message is included at the end of this chapter.

MESSAGE ID	VER:ASCIT
WORK CENTER	MAC, MOC
GENERIC	4E23 Rel. 3 and later
CLASS	VER MESSAGE
APPLICATION	4E - Proprietary
TYPE	Input

1. PURPOSE

Request the verification of the AT&T Service/Call Identification Type (ASCIT).

2. FORMAT

VER:ASCIT: [SII a], [QRYTYPE b]!

3. EXPLANATION OF MESSAGE

- a* Service Identity Index (**SII**) number (0-255).
- b* Question Being Asked (**QRYTYPE**) number (1-48). See TableB for a list of questions that can be asked and the corresponding field input.

NOTE: See TableA for valid input entries.

4. SYSTEM RESPONSE

- ?!,INVKW* Identification field contains an error. An invalid keyword was specified for the **VER:ASCIT** input message.
- PF* Printout Follows.

5. REFERENCES

PIDENTs
 IOCPIMC4
 VRFYCNTL
 VRFYINPT
 VRFYMISC

Output Message
VER:ASCIT-ANSR

TABLE A

SII	QRYTYPE	VALID ENTRIES	COMBINATIONS
Y	N	SII=0-255	(single, range, list)
N	Y	QRYTYPE=1-48	(single, range, list)
Y	Y	SII=0-255	(single, range, list)
Y	Y	QRYTYPE=1-48	(single)

TABLE B

VALUE	MEANING
1	Is this a global Software Defined Network (SDN) call?
2	Can this be a SDN call?
3	Currently not used
4	Should the Universal Services Echo Canceller (USEC) enhancement feature be disabled for this SII?
5	Is this a Remote Adjunct Call Handling (REACH) call for this SII?
6	Should the billing number be sent with this SII?
7	Is this an SDN - Digital Radio Avoidance Routing (DRAR) call?
8	Does Integrated Services Digital Network User Part (ISUP) need to pass routing or Automatic Message Accounting (AMA) data to an AT&T Trigger Platform (ATP) switch or an Network Control Point (NCP) initiated handoff switch?
9	Is this a GETS call?
10	Are End-to-End Class Of Service (ECOS) overflow routes excluded for this SII?
11	Are ECOS alternate routes excluded for this SII?
12	Is this a HIQ call for this SII?
13	Is the terminating recording data set to ON for this SII?
14	Is this a Megacom® 800 call for which we need to check if going to an interexchange carrier?
15	Will a Transmit Negative Rail (TNR) "Start of Call" order be sent for the egress trunk for this SII?
16	Should the access information and/or trunk group rating number be included in the IAM for this SII?
17	Is Forced Via Switch Routing (FVSR) / CSRO to be used to route calls?
18	Can this be an Equal Access (EA) Cellular Positive Call Processing (PCP) Call?
19	Can this be a Segmentation Directory (SD) type call?
20	Can this be an Interexchange Carrier (IXC) originated call?
21	Is the Carrier Completion Rate Feature (CCRF) allowed for this SII?
22	Should 4ESS™ preserve and deliver the Carrier Identification Code (CIC) derived at the access switch, but continue to use the Additional Data Field2 (AD2) value for Service Switching Point (SSP) call type re-translation for this SII?
23-48	Currently not used

2000 A.D. Transition Feature (6130)

5

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2000 A.D. Transition Feature (6130)

5

1. Feature Description

1.01 This feature ensures that domestic and international switching, signaling, database, adjuncts, and Call Detail Recording Platform (CDRP) functions properly and reliably through the year 2000 and beyond.

Background

1.02 Most network elements represent the year with a 2-digit field(that is, mm/dd/yy, where mm=month, dd=day, yy=year). This may cause major problems when the year 2000 and beyond are entered or automatically calculated. The year "00" may not be recognized, or may be interpreted as 1900. Date manipulations, comparisons and sequencing for the year 2000 and beyond may be calculated incorrectly (for example, 01/01/00 may be interpreted as coming before 01/01/99).

1.03 This feature provides the requirements for network elements to function properly and reliably through the year 2000 and beyond. It is necessary for these network elements to be Y2K (year 2000) compatible, and to obtain Y2K Certification. Complete Y2K compliance will be obtained only after all network elements that interface together are certified.

Year 2000 Software Compliance Definition

For 4ESS™ Year 2000 compliance, the following requirements must be met:

- A 2-digit year date representation will not result in any software errors in arithmetic, comparison, sorting and input/output to databases or files when manipulating year date data.
- All leap year software algorithms will correctly recognize years divisible by 400 as leap years.
- No software compliant code will have hardcoded first two digit year information of "19" into software routines or will use the 2-digit year dates "98", "99", or "00" as special reserved values or magic numbers (for example, illegal values used to exit code, or to indicate a demonstration account number).
- System date values will not roll over and cause software failures due to a storage or data register filling up and overflowing.

General Requirements

- 1.04 When the century is not explicitly provided, the century value must be correctly inferred with 100% accuracy from the value of the date provided.
- 1.05 The following is the method for interpreting of 2-digit dates:
 - 00-69 will be interpreted as 2000-2069
 - 70-99 will be interpreted as 1970-1999.

2. Call Flow (Not Affected)

3. Provisioning

Recent Change Forms Affected

A. RC Form 607

3.01 This feature changes the population rules for the following three fields:

- **STRTY** entries: 00-99.
- **STOPY** entries: 00-99.
- **CFPYEAR** entries: 00-99.

⇒ NOTE:

For 4E23 Release 3 Generic and later, values 00-69 signify years 2000-2069, respectively; and values 70-99 signify years 1970-1999, respectively.

B. RC Form 610

3.02 This feature changes the population rules for the following three fields:

- **STRTY** entries: 00-99.
- **STOPY** entries: 00-99.
- **CFPYEAR** entries: 00-99.

⇒ NOTE:

For 4E23 Release 3 Generic and later, value 00-69 signify years 2000-2069, respectively; and values 70-99 signify years 1970-1999, respectively.

C. RC Form 611

3.03 This feature changes the population rules for the following three fields:

- **STRTY** entries: 00-99.
- **STOPY** entries: 00-99.
- **CFPYEAR** entries: 00-99.

⇒ NOTE:

For 4E23 Release 3 Generic and later, value 00-69 signify years 2000-2069, respectively; and values 70-99 signify years 1970-1999, respectively.

D. RC Form 615

3.04 This feature changes the population rules for the following three fields:

- **STRTY** entries: 00-99.
- **STOPY** entries: 00-99.
- **CFPYEAR** entries: 00-99.

⇒ NOTE:

For 4E23 Release 3 Generic and later, value 00-60 signify years 2000-2069, respectively; and values 70-99 signify years 1970-1999, respectively.

4. Recording (Not Affected)

5. Network Management (Not Affected)

6. Maintenance/Troubleshooting (Not Affected)

7. Transition Considerations

Deployment Requirements

- 7.01** It is not necessary for all 4ESS switches in the network to be running the 4E23 Release 3 Generic for this feature to be fully operational.

Feature Activation

- 7.02** This feature is turned on automatically with software deployment.

8. Input/Output Manual Pages

- 8.01** The Input message **SET:CLK** has a new requirement regarding the year digits for the date to be set (q,r); q=tens digit of the year and r=units digit of the year. If the year is less than 70, it refers to years in the 21st century.

Additional Support Capabilities for 4E Local Nodal Customers Phase 2 Feature (6142)

6

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Additional Support Capabilities for 4E Local Nodal Customers Phase 2 Feature (6142)

6

1. Feature Description

- 1.01** This feature enhances the 4E Local Nodal Phase 2 Feature (5371) in the 4E22 Release 4 Generic by providing the following operational support capabilities:
- Add the local Common Language Location Identifier (CLLI) to the output of the verify command for the OFDATA function of the 3B Common Network Interface (CNI) Database Management System (DMS).
 - Add the local CLLI to the output of the Switch Verify Memory and Verify Office messages.
 - Update the On-Site Operations Reports (OSOR) to add Local Access Integrated Services Digital Network (ISDN) User Part (ISUP) trunks as a separate category for incoming seizure measurements.
 - Add a **VER:MISC** message to support a query on FEATURE_INFO = CSCRSDX; DATA = XXXXX, where the value of XXXXX is a number between 1 through 16383. The output of this message is used to identify the multiple treatment—screening table used for routing toll free calls back to a Local Service Provider (LSP) for 8YY portability processing.

1.02 With the introduction of these new capabilities, the following benefits are derived from this feature:

- Provide Dynamic Engineer Mechanical System/Data Acquisition Reports and Integrated Communications System (DEMS/DARICS) with seizure counts for local access trunks.
- Provide the Operations Support System (OSS) with additional provisioned information about the switch.
- Allow the OSS to verify and find subsequent digit index routing information without loading a dummy number.

2. Call Flow (Not Affected)

3. Provisioning

Verify Forms/Messages

3.01 Four verify forms are affected by this feature. Two verify forms are modified for this feature, and two are created for this feature as follows:

- Verify Form 6c
- Verify Form 6t
- Verify Form 16b
- Verify Form 16az.

A. Verify Form 6c

3.02 Verify Form 6c (Figure 6-1) is a modified output form to add the Local CLLI for AT&T offices and is restricted to the AT&T switch. The message format is as follows:

VER:MEMORY:EM

```

INPUT:          VERIFY 16b

                VER:MEMORY:EM! (EOT)

OUTPUT:         VERIFY 6c

                TOLL CIN          LOCAL CIN
VER:MEMORY:OPT(EM):  GENERIC    TOWN ST BL NBS    TOWN ST BL NBS
                -----          -----          -----,

ENGINEERED      NUMBER          NUMBER
  ITEM          SPARE           USED

AIN TRIGGERS    -----,      -----,
AUX RDBI        -----,      -----,
CDBI            -----,      -----,
CRBI            -----,      -----,
DIGSUPP INDEXES -----,      -----,
FENN BLOCKS     -----,      -----,
MCTI            -----,      -----,
MRTI            -----,      -----,
NDBI            -----,      -----,
PRTI            -----,      -----,
RDBI            -----,      -----,
TRUNK BLOCKS    -----,      -----,
TSG BLOCKS      -----,      -----,
TTSI            -----,      -----,
1-DIG BLOCKS    -----,      -----,
PCP-ABCID       -----,      -----,
AUTO SDX INDEXES -----,      -----,
MAN SDX INDEXES -----,      -----,
MAIN_CS BLOCKS  -----,      -----,
DO_TRAN BLOCKS  -----,      -----,
ACI_TRAN BLOCKS -----,      -----,
EXT_CS1 BLOCKS  -----,      -----,
EXT_CS2 BLOCKS  -----,      -----,
EXT_CS3 BLOCKS  -----,      -----,
TSGHC TBS WORDS -----,      -----,
DCLIP           -----,      -----,

LARGEST GROUP IN ADJUNCT DESTINATION TABLES -----,
NUMBER OF PCP2 ANIS ASSIGNED                    -----,
NUMBER OF CPA ANIS ASSIGNED                      -----,
NUMBER OF SPARE PCP ANIS                         -----,
NUMBER OF AIN DNTS ASSIGNED                      -----,
NUMBER OF PAIRS OF NAILED-UP TRUNKS              -----,
NUMBER OF LACIDs ASSIGNED                        -----,

HOME NPA      ASSIGNED SERVED NPAS
  ---,        ---, ---, ---, ---, ---, ---, ---,
            ---, ---, ---, ---, ---, ---, ---,
            ---, ---, ---, ---, ---, ---, ---,
            ---, ---, ---, ---, ---, ---, ---,
            ---, ---, ---, ---, ---, ---, ---,

```

Figure 6-1. Verify Form 6c

B. Verify Form 6t

3.03 Verify Form 6t (Figure 6-2) is a modified output form to add the Local CLLI for AT&T offices and is restricted to the AT&T switch. The message format is as follows:

VER:OFFICE

```

INPUT:      VERIFY 16n

            VER:OFFICE! (EOT)

OUTPUT:     VERIFY 6t

VER:OFFICE:

            TOLL CIN
GENERIC INFO TOWN ST BL NBS   PCF   OPC   NSN
            a             b     c     d     e

            LOCAL CIN
            TOWN ST BL NBS
                   b
  
```

⇒ NOTE:

The information displayed on the form is as follows:
a = Current Generic Program, load, merge, and release
b = CLLI
c = Point Code Format (PCF)
d = Originating Point Code (OPC)
e = Network Switch Number (NSN).

Figure 6-2. Verify Form 6t

C. Verify Form 16az

3.04 Verify Form 16az (Figure 6-3) is a new input message that is used to verify the data populated in OD4CSCR_SDx. The message format is as follows:

VER:MISC CSRSDX!(EOT)

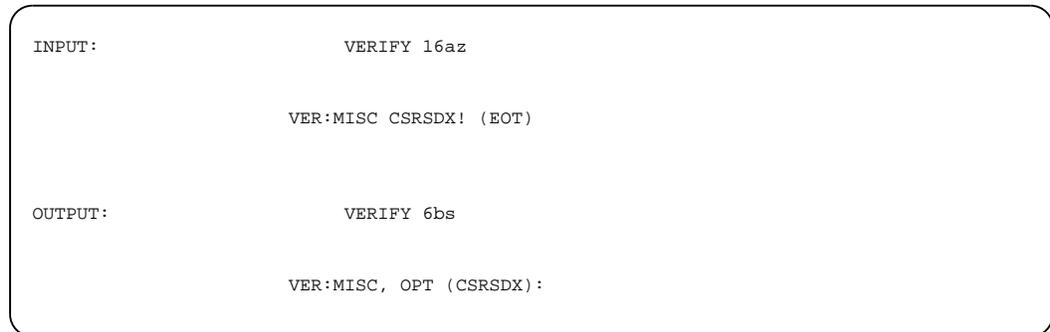


Figure 6-3. Verify Form 16az

D. Verify Form 6bs

3.05 Verify Form 6bs (Figure 6-4) is a new output message that is used to display the data populated in OD4CSCR_SD_X. The message format is as follows:

VER:MISC,OPT(CSCRSDX)

```
INPUT:                VERIFY 16az

                      VER:MISC CSRSDX! (EOT)

OUTPUT:               VERIFY 6bs

VER:MISC,OPT(CSRSDX):

FEATURE INFO         DATA
  CSCRSDX,           ----,

                      RECENT CHANGE INPUT SOURCE-FORM # 810
```

Figure 6-4. Verify Form 6bs

4. Recording (Not Affected)

5. Network Management (Not Affected)

6. Maintenance/Troubleshooting (Not Affected)

7. Transition Considerations

Feature Dependencies

This feature is dependent on Feature 5371, *4E Local for Nodal Customers Phase 2*, (4E22 Release 4 Generic) 234-090-224AC.

Deployment Requirements

- 7.01** It is not necessary for all 4ESS switches in the network to be running the 4E23 Release 3 Generic for this feature to be fully operational.

Feature Activation

- 7.02** This feature is turned on automatically by software deployment.

8. Input/Output Manual Pages

- 8.01** Three new proprietary output messages are included for this feature. They are the following:
- **VER:MEMORY-EM**
 - **VER:MISC-CSRSDX**
 - **VER:OFFICE**

MESSAGE ID VER:MEMORY-EM
 WORK CENTER MAC, MOC
 GENERIC 4E23 Rel. 3 and later
 APPLICATION 4E - Proprietary
 TYPE Output

1. FORMAT

[1] VER:MEMORY;OPT(EM): TOLL CIN LOCAL CIN
 GENERIC TOWN ST BL NBS TOWN ST BL NBS
 a bbbb cc dd eee bbbb cc dd eee,

ENGINEERED ITEM	NUMBER SPARE	NUMBER USED
--------------------	-----------------	----------------

AIN TRIGGERS	f,	g,
AUX RDBI	f,	g,
CDBI	f,	g,
CRBI	f,	g,
DIGSUPP INDEXES	f,	g,
FENN BLOCKS	f	g,
MCTI	f,	g,
MRTI	f,	g,
NDBI	f,	g,
PRTI	f,	g,
RDBI	f,	g,
TRUNK BLOCKS	f,	g,
TSG BLOCKS	f,	g,
TTSI	f,	g,
1-DIG BLOCKS	f,	g,
PCP-ABCID	f,	g,
AUTO SDX INDEXES	f,	g,
MAN SDX INDEXES	f,	g,
MAIN_CS BLOCKS	f,	g,
DO_TRAN BLOCKS	f,	g,
ACL_TRAN BLOCKS	f,	g,
EXT_CS1 BLOCKS	f,	g,
EXT_CS2 BLOCKS	f,	g,
EXT_CS3 BLOCKS	f,	g,
TSGHC TBS WORDS	f,	g,
DCLIP	f,	g,

LARGEST GROUP IN ADJUNCT DESTINATION TABLE h,

NUMBER OF PCP2 ANIS ASSIGNED	i,
NUMBER OF CPA ANIS ASSIGNED	j,
NUMBER OF SPARE PCP ANIS	k,

NUMBER OF AIN DNTS ASSIGNED *l*,
 NUMBER OF PAIRS OF NAILED-UP TRUNKS *m*,
 NUMBER OF LACID_s ASSIGNED *n*,
 HOME NPA ASSIGNED SERVED NPAs
ooo, *p*, [p,] [p,] [p,] [p,] [p,] [p,] [p,]

[2] VER:MEMORY;OPT(EM): TOLL CIN LOCAL CIN
 GENERIC TOWN ST BL NBS TOWN ST BL NBS
a *bbbb cc dd eee bbbb cc dd eee*,

NUMBER OF TRANSLATORS ASSIGNED BY SPACE ADMIN

USE	COUNT	TYPE	SEG
<i>q</i> ,	<i>r</i> ,	<i>s</i> ,	<i>t</i> ,
.	.	.	.
.	.	.	.
.	.	.	.

[3] VER:MEMORY;OPT(EM): TOLL CIN LOCAL CIN
 GENERIC TOWN ST BL NBS TOWN ST BL NBS
a *bbbb cc dd eee bbbb cc dd eee*,

ASSIGNED ROUTING DOMAINS
u, [u,] [u,] [u,] [u,] [u,] [u,] [u,] [u,] [u,]

2. REASON FOR OUTPUT

To list spare and used engineered memory items.

- Format [1] prints once at the beginning of the sequence of the message.
- Format [2] prints once or more depending on how many translators need to be listed.
- Format [3] prints at the end of the sequence of the message.

3. VARIABLE FIELD DEFINITIONS

<i>a</i>	<i>GENERIC</i> Issue and release number of generic program.
<i>b</i>	<i>TOWN</i> The town, city, or location of the office.
<i>c</i>	<i>ST</i> The state, province, or foreign country.
<i>d</i>	<i>BL</i> The building or office identity.
<i>e</i>	<i>NBS</i> Building subdivision.
<i>AINTRIGGERS</i>	Advanced Intelligent Network (<i>AIN</i>).
<i>AUXRDBI</i>	Auxiliary routing indexes.
<i>CDBI</i>	Customer data block indexes.
<i>CRDBI</i>	Customer routing block indexes.
<i>DIGSUPINDEXES</i>	Digit supplemental indexes.
<i>FENNBLOCKS</i>	Far End Network (<i>FENN</i>) blocks.
<i>MCTI</i>	Multiple carrier treatment indexes.
<i>MRTI</i>	Multiple routing treatment indexes.
<i>NDBI</i>	Numbering data block indexes.
<i>PRTI</i>	Proportional routing indexes.
<i>RDBI</i>	Routing data block indexes.
<i>TRUNKBLOCKS</i>	Trunk blocks.
<i>TSGBLOCKS</i>	Trunk Subgroup (<i>TSG</i>) blocks.
<i>TTSI</i>	Terminating toll switch indexes.
<i>1-DIGBLOCKS</i>	1-digit blocks.
<i>PCP-ABCID</i>	Positive Call Processing (<i>PCP</i>) ABC digits identification.
<i>AUTOSDXINDEXES</i>	Automatic subsequent digit indexes.
<i>MANSDXINDEXES</i>	Manual subsequent digit indexes.
<i>MAIN_CSBLOCKS</i>	Main call store translations blocks.
<i>DO_TRANBLOCKS</i>	Disk only store translations blocks.
<i>ACI_TRANBLOCKS</i>	Account Code Information (<i>ACI</i>) translations blocks.

EXT_CS1BLOCKS Extended call store, segment 1 blocks.

EXT_CS2BLOCKS Extended call store, segment 2 blocks.

EXT_CS3BLOCKS Extended call store, segment 3 blocks.

TSGHCTBSWORDS

TSG Head Cell (TSGHC) Trunk Block Status (TBS) words.

DCLIP Destination calling line identification.

f Quantity of spare for corresponding engineered item.

g Quantity of used for corresponding engineered item.

h Largest grouping entry in adjunct destination table where the last four digits of the destination number are the same.

i Number of Automatic Number Identifications (ANIs) used for PCP.

j Number of ANIs used for Calling Party Address (CPA).

k Number of spare PCP ANIs.

l Number of AIN dialed number triggers assigned.

m Number of nailed up trunks (i.e., number of connections).

n Number of Link Access Circuit Identifiers (LACIDs) assigned.

o For AT&T offices, geographical identifier of the switch. For non-AT&T offices, Home Numbering Plan Area (NPA).

p Served NPAs. For AT&T offices, up to 31 may be output. For non-AT&T offices, up to 8 may be output.

q Space administration use number. See Table 1.

r Number of 1024-word blocks assigned.

s Memory type:

ACI_TRAN— Disk memory used to store disk only Office Data Assembler (ODA) structures for the Direct Link Node (DLN).

DO_TRAN— Disk memory used to store disk only ODA structures such as the disk TSG translator.

EXT_CS— Core memory located in Extended Non-Secure Call Store (XS) call stores.

MAIN_CS— Core memory located in the base 1B processor call stores.

- t* Memory segment (0-3).
- u* Assigned routing domains. See Table 2.

4. ACTION TO BE TAKEN

None.

5. REFERENCES

PIDENTs
 IOCPPVR4
 VRFYMISC
 VRFYOUT

Translation Guide, 4ESS™, TG-4, Division 8, Sec. 6c

Table1

Use Number	Description of Translator
2	Trunk Scanner Number - Trunk Block Number (TSN-TBN)
3	Core TBN
4	TBN core packed.
5	Link Access Circuit Identifier (LACID) data translator
6	LACID to trunk block translator
7	Common Channel Interoffice Signaling (CCIS) Terminal Echo Receiver (TER), label-TSN
8	CCIS TSN- Prime (PRIM) Terminal (TERM), label
9	Toll terminal frame to Trunk Appearance Number (TAN)
10	Space administration
11	Core Trunk Subgroup (TSG)
12	Disk TSG
13	Three digit
14	S Digit (DIG) grid table
15	S DIG code group
16	Type Of Origin (TORIG)/ Signaling Service Type (SST)/ Dialed Number Service Type (DNST)/ Type Of Destination (TDEST) to Service Identity Index (SII) translator
17	Routing Data Block (RDB)
18	Auxiliary Routing Data Block (ARDB)
20	Centralized Automatic Message Accounting (CAMA) screening

Table1

Use Number	Description of Translator
21	Originating Local Call Intercept Group (OLCIG)
22	Terminating Local Call Intercept Group (TLCIG)
23	Circuit Identification Number Code (CINC) or Circuit Identification Number (CIN)
24	CIN Length (CINLEN)
25	Miscellaneous Scanner Number (MSN)
26	Miscellaneous Distributor Number (MDN)
30	Unit Type (UT) entry
31	International 1-digit
32	TSN to miscellaneous
33	TSN to miscellaneous supplementary
34	TSN to terminal-label supplementary
35	Terminal-label to TSN supplementary
36	Dedicated Time Slot Interchange (TSI) nail up
37	Mass Announcement Service (MAS) announcement data
38	Backup band data
42	Time Assigned Speech Interpolation - E - Dynamic Load Control (TASI-E-DLC) translator
43	Terminating Toll Switch (TTS) for Dynamic Non Hierarchical Routing (DNHR)
44	Supplementary digit translator
45	Far end network translator
46	TSG translator
47	TAN to TAN assignments table
48	Alternate Number Translations (ANT) record 1024 Routing (RTNG) Synchronized Unsupervised Burst Tone (SUBT)
49	Account Code Information (ACI) subtranslator space Destination Point Code (DPC) subheadtable
50	ACI fixed assigned headtable
51	ACI subtranslator space TSN-to-ALL
52	ACI subtranslator space DPC conflict table
53	ACI subtranslator space Circuit Identification Code (CIC) SUBT headtable
54	ACI subtranslator space CIC subtranslator
55	ACI subtranslator space q.931/ Service Access Data Channel (SADC) SUBT headtable
56	ACI subtranslator space q.931/SADC subtranslator

Table1
(continued)

Use Number	Description of Translator
57	Customer routing block translator
58	Customer data block translator
59	TSN to customer data block translator
60	Number services data block translator
61	Proportional routing translator
62	Grid head table
63	Grid mask head table
64	Codegroup head table
65	Network switch number to DPC translator
66	Network Switch Number (NSN) to TSG list translator
67	Intermediate switches to destination NSN
68	Multiple routing treatment translator
69	SII to Routing Pattern Identity (RPI) subtranslator
70	Positive lookup Automatic Number Identification (ANI)
71	RPI to NSN translator
72	Manual Subsequent Digit Indexes (SDXs) disk subtranslator
73	Safer and alternate destination call redirection
74	GH digits ANI lookup
75	Positive Call Processing (PCP) IJ digits subtranslator - size 256
76	PCP collision subtranslator
77	PCP parallel collision subtranslator
78	PCP customer data block subtranslator
79	Express connect ACI subtranslator
80	Positive Look Up (PLU) record 1024 subtranslator
81	PLU record 64 subtranslator
82	PLU record 128 subtranslator
83	PLU record 256 subtranslator
84	PLU record 1024 bitmap SUBT
85	SII to Service Identity Index Name (SIINAME) translator
86	PLU record 1024 subtranslator
87	PLU record 512 subtranslator
88	Carrier proportioned routing treatment translator
89	Global Title Translation (GTT) 6 digit 1024 Numbering Plan Areas (NPAs) Data Block Indexes (DBI) subtranslator
90	GTT 6 digit 1024 Exchange Number (NXX) subtranslator
91	JK digits ANI lookup
93	Calling Party Address (CPA) terminating table
94	CPA destination trigger table subtranslator

Table1
(continued)

Use Number	Description of Translator
95	Emergency alternate routing assignment translator
96	Emergency alternate routing active translator
97	Multiple Routing Treatment (MRT) final handling announcement translator
98	End-to-End Class Of Service (ECOS) trunk block number translator
99	ECOS switch Identification (ID) name translator
100	ECOS switch ID translator
101	ECOS trunk sub-group list translator
102	ECOS route list index translator
103	Area name translator
104	ECOS alternate route list translator
105	ECOS overflow route list translator
108	Adjunct Logical Address / Operations Support Network (ALA/OSN) to Routing Data Block Indexes (RDBIs) translator
110	Subsystem Number (SSN) topology translator
111	Numbering Plan Type (NPT) / NPA to Universal Global Title Translation (UGTT) subtranslator
112	Advanced intelligent network translator
114	TAN to Universal Services Echo Cancellor (USEC) subtranslator
115	USEC to TAN subtranslator
116	Multiple CINC translator
117	Positive look-up call type - HT4PLUCT
118	Positive look-up called - HT4PLUCLD
119	Positive look-up for 1 to 1023 line numbers - HT4PLULKP
120	Positive look-up for over 1023 line numbers - HT4PLUF2LKP
122	Positive look-up for over 1023 line numbers - HT4PLUL2LKP
123	Satellite connectivity bit map translator
124	International 1-digit annex translator
125	Expanded Time Slot Interchange (XTSI) D3U associated data
126	Originating Carrier And Terminating Country Pair (OCTCP) overflow foreign administration index list
127	TSG carrier identification parameter list
128	Universal T1.5 access subtranslators

Table2

Domain Number	Description of Domain
1	Plain Old Telephone Service (POTS) home Numbering Plan Area (NPA)
2	POTS Home Numbering Plan Area (HNPA) - nonarea code
3	POTS-area code
4	POTS intertoll
5	POTS intertoll-non area code
6	POTS served NPA1
7	POTS served NPA1-non area code
8	POTS served NPA2
9	POTS served NPA2-non area code
10	POTS served NPA3
11	POTS served NPA3-non area code
12	POTS served NPA4
13	POTS served NPA4-non area code
14	POTS served NPA5
15	POTS served NPA5-non area code
16	POTS served NPA6
17	POTS served NPA6-non area code
18	POTS served NPA7
19	POTS served NPA7-non area code
78	Skip network management
79	Long lines overseas use
80	Long line overseas use
81	Non-POTS domain used for international outbound to Intelligent Serial Controller (ISC)
82	Non-POTS domain used for Full Rate Data (FRDATA)
83	Domain 83 used for Taiwan network
84	International traffic TSG
85	International originating
86	International transit
87	Verification network
88	Software defined network
89	Dedicated egress voice
90	Dedicated egress data
91	Dedicated egress clear 64kbps
92	Dedicated egress restricted 64kbps
93	Dedicated egress clear 64kbps H0
94	Dedicated egress restricted 64kbps H0
95	Dedicated egress clear 64kbps H11

Table2
(continued)

Domain Number	Description of Domain
96	Dedicated egress restricted 64kbps H11
99	Number services routing
100	Local Access Transport Area (LATA) / state screening
101	International incoming data
102	International outbound 56k data
103	International outbound 64k clear data
104	International transit data
105	Access tandem transit network selection
106	Clear 64kbps using 10-digit North American Numbering Plan (NANP)
107	Restricted 64kbps using 10-digit NANP
108	International clear 64k data domain
109	International 56k data domain
110	Global software defined network
111	Dial-a-view attendant
112	Action point number
113	NANP 384kbps clear
114	NANP 1536kbps clear
115	International transport 384kbps clear data domain
116	International outbound 384kbps clear data domain
117	Global Software Defined Network (GSDN) outbound international domain
118	Spare international domain
119	International 1536kbps clear data domain
120	International outbound 1536kbps clear data domain

MESSAGE ID	VER:MISC-CSRSDX
WORK CENTER	MAC, MOC
GENERIC	4E23 Rel. 3 and later
APPLICATION	4E - Proprietary
TYPE	Output

1. FORMAT

VER:MISC;OPT(CSRSDX)

FEATURE INFO DATA

CSCRSDX aaaaa,

2. REASON FOR OUTPUT

To display the Carrier Screening Subsequent Digit Index (*CSRSDX*) data.

3. VARIABLE FIELD DEFINITIONS

a CSRSDX number.

4. ACTION TO BE TAKEN

None.

5. REFERENCES

PIDENTs
IOCPPVR4
VRFYCNTL
VRFYINPT
VRFYMISC
VRFYOUT

Input Message
VER:MISC

MESSAGE ID	VER:OFFICE
WORK CENTER	MAC, MOC
GENERIC	4E23 Rel. 3 and later
APPLICATION	4E - Proprietary
TYPE	Output

1. FORMAT

VER:OFFICE:

TOLL CIN
GENERICINFO TOWN ST BL NBS PCF OPC NSN

a bbbb cc dd eee f g [h]

LOCAL CIN
TOWN ST BL NBS

bbbb cc dd eee

2. REASON FOR OUTPUT

To output the generic of an office, its unique Common Language Location Identifier (CLLI) code, Point Code Format (PCF), Origination Point Code (OPC), and Network Switch Number (NSN).

3. VARIABLE FIELD DEFINITIONS

- a* Generic in format of 4E~~474~~A08 R2.
- b* CLLI office code, *TOWN*.
- c* CLLI office code, State (*ST*).
- d* CLLI office code, Building (*BL*).
- e* CLLI office code, Near Building Subdivision (*NBS*).
- f* Point code format.
- g* Origination point code.
- h* Network switch number (blank-191).

ACTION 4.

None.

REFERENCES

PIDENTs VRFYCNTL VRFYINPT VRFYMISC

Input Message *VER:OFFICE*

Enhanced Carrier Identification Code Routing for Directory Assistance Feature (6143)



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Enhanced Carrier Identification Code Routing for Directory Assistance Feature (6143)



1. Feature Description

1.01 This feature provides the routing treatment for Directory Assistance (DA) calls originated by switched access and nodal access wholesale customers to a particular DA platform that is specified by the customer. If a platform is not specified, wholesale DA calls will be routed to the AT&T Unbranded DA platform.

1.02 Prior to this feature, Carrier Solution DA calls were routed to the AT&T Unbranded DA platform. This feature provides the capability to route these calls to different platforms on a per-customer basis, based on customer subscription.

Overview of Feature Capabilities

1.03 The following information is an overview of the capabilities provided by this feature:

- The 4ESS™ switch identifies incoming DA wholesale calls on switched access trunk groups and nodal access trunk groups. If the call requires a data base query, the originating AT&T 4ESS switch will first perform the query and follow the routing instructions returned from the data base. Then, if necessary, the Originating AT&T Switch (OAS) constructs a 10-digit index number using the Carrier Identification Code (CIC).
- The 4ESS switch searches the Operator Services Position System (OSPS) Access ID Table with the constructed 10-digit index number. On a match with this index number, the 4ESS switch obtains the OSPS ID and the corresponding routing termination, and routes the call to the external DA platform.

- When the incoming call is a wholesale DA (NPA+555+1212) call, the 4ESS switch ignores the AD3 values for Directory Link and Project Radar Phase 2.
- The 4ESS switch preserves and delivers the CIC derived at the access switch, but it continues to use the CID [the AD2 value (Carrier ID)] obtained from the Service Switching Point (SSP) Call Type for retranslation when the new ASCIT question is set to On for the applicable Service Identity Index (SII) values for this feature.
- When a match with the the constructed 10-digit index number is not found in the Operator Service Position Access ID (OAID) Table, the 4ESS switch uses the call processing provided by Feature 5840 for switched access wholesale DA calls and Feature 5918 for nodal access wholesale DA calls. Features 5840 and 5918 default to Feature 5754, which routes the call with the unique routing to a 5ESS® switch/OSPS for completion to the AT&T Unbranded DA platform.
- If the terminating trunk group is type OCC and the outgoing signal is MF at the egress switch, the switch will generate the standard MF signaling sequence associated with DA calls.
- If the terminating trunk group type is Integrated Services Digital Network User Part (ISUP) at the egress switch, the Initial Address Message (IAM) includes (if allowed by trunk group data) the optional Carrier Identification Parameter (CIP), OSI and CSI parameters, when available.
- If the egress switch is not the OAS, the egress switch will initiate an ISUP EXIT message to the OAS on initiation of outgoing signaling to the external DA platform.
- The 4ESS switch uses the receipt of an ISUP EXIT message to initiate the recording of elapsed time .
- The 4ESS switch OAS records the dialed number NPA+555+1212 in the Automatic Message Accounting (AMA) record for wholesale calls.
- The OAS records the True Billing Number (TBN) in the TRNUM Event for Enhanced CIC routed nodal access wholesale calls in AMA Module 941.

Overview of Network Component Capabilities

A. Network Systems

- 1.04** The following AT&T network systems are impacted by this feature:
- Service Now-Routing (SNOW-R)
 - Service Now-Trunking (SNOW-T)
 - Recorded Information Collection System (RICS).

B. Routing

1.05 This feature uses the routing capabilities provided by the Universal T1.5 Access Feature (4570) and the Consolidated Access Traffic Feature (5308). As described above, the 4ESS switch constructs a 10-digit number to determine the routing treatment. Currently, an OSPS ID is associated with SSP, MRT or DSN routing.

Service Identity Index (SII) Derivation Rules

1.06 The 4ESS switch continues to derive the SII for switched access wholesale calls, as provided by Feature 5840, and for nodal access wholesale calls, as provided by Feature 5918.

Number Service Data Block (NDB) Administration

1.07 Two translations take place at the egress switch for Number Service Data Block (NDB) administration. In the first, the OSPS ID is translated to an SSP call type, and the associated Re-Translate (RT) call data. The RT translate translation produces a Carrier ID (in the AD2 field) and Type of Service (TOS). These two elements produce the variable data that contains the TOS and CID, and the international indicator.

1.08 The second translation occurs when the variable data produces an SSP call type with a call data of NDB. The NDB points to a Routing Data Block Index (RDBI), which points to an egress switch trunk to the external DA platform.

1.09 The NDB call data administration provisioning provides the necessary functionality to signal some of the mandatory parameters to the external platform. For ISUP-NI signaling, the Calling Party Parameter, Charge Number Parameter, and Originating Line Information (OLI) digits are signaled over the OCC TOT as a function of NDB administration. For MF signaling, the Automatic Number Identification (ANI) and the Information Indicator (II) digits are signaled over the OCC TOT as a function of NDB administration.

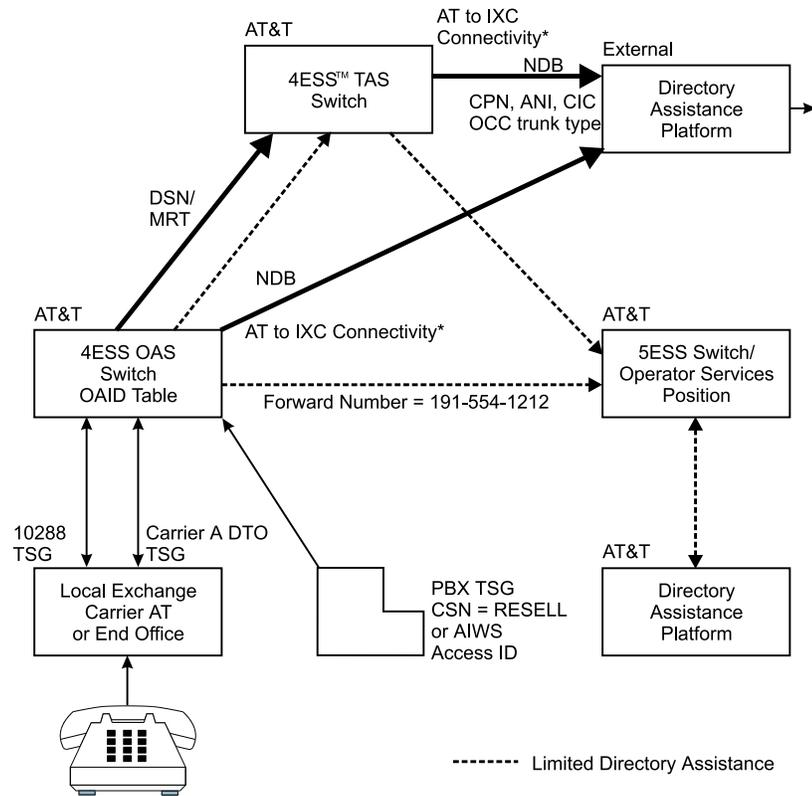
1.10 The NDB call processing provides the following NDB fields, and for OCC TOT, the NDB is administered for domestic DA calls as follows:

- RDBI = Numeric Value
- Feature Group = D
- ANI Delivery = Y
- CPN Delivery (ISUP only) = Y
- Path = Direct
- International Call Indicator = N
- FENID =Matches data from the outgoing Trunk Sub-Group (TSG)

- FENCLASS = Matches data from the outgoing TSG
 - NXZZ = ('00').
- 1.11** Based on the domestic dialed number (NPA+555+1212), the egress *4ESS* switch derives the TOS using the existing domestic routing functionality of an SSP call type.
- 1.12** At least one OSPS ID must be associated with each external platform. Multiple OSPS IDs are required to support the delivery of different services (DA and international versus operator) to the same external platform. The OSPS ID used to identify an external operator platform must be unique, even if the same external platform serves as a DA and international platform.

2. Call Flow

- 2.01** The call flow and signaling for this feature is shown in Figure 7-1 and provided in the following information. In addition to the wholesale DA call flow provided by this feature, Figure 7-1 shows the underlying default routing for the limited DA service for wholesale calls provided by Feature 5754, which provides unbranded 1+NPA+555+1212 DA without Directory Link (DL) Service.
- 2.02** The *4ESS* egress switch shown in Figure 7-1 is servicing as an access tandem, and the external DA platform is the interexchange carrier (IXC).
1. The Calling Party is either pre-subscribed (PICed) to a wholesale CIC or prefixes the dialed number with 1+0+CIC (where CIC is a wholesale Carrier Identification Code). When the caller dials 1+NPA+555+1212 North American Numbering Plan (NANP) number (or 1+0+CIC+NPA+555+1212 NANP number), either one of the following events occurs:
 - The PIC of the Calling Party or the 1+0+CIC dialed by the Calling Party causes the local exchange office to route the call over a switched access Dedicated Trunk Sub-Group Option (DTO) TSG or a switched access 10288 trunk group.
 - The call is routed over the nodal trunk group if the Carrier Solution customer is a nodal customer.



Calling Party Pre-Subscribed to Carrier A (or dials Carrier Identification Code for Carrier A) and dials 1+NPA+555+1212

*Note: AT&T 4ESS Egres Switch acts as an Access Tandem (AT) to the IXC (External DA Platform)

- Legend:
- ANI - Automatic Number Identification
 - AIWS - AT&T International Wholesale Service
 - AT - Access Tandem
 - CIC - Carrier Identification Code
 - CSN - Carrier Solutions Nodal
 - DA - Directory Assistance
 - DSN - Destination Switch Number
 - DTO - Dedicated Trunk Sub-group Option
 - IXC - Interexchange Carrier
 - MRT - Multiple Routing Treatment
 - NDB - Number Service Data Block
 - OAID - OSPS Access ID
 - PBX - Private Branch Exchange

Figure 7-1. Wholesale Enhanced Carrier Identification Code (CIC) Routing DA Service Network

2. The call arrives at the originating AT&T 4ESS switch via the method described above, and the switch derives the CIC for the call.
3. Feature 5791, CIC Based NAI, is used to derive the CIC for switched access calls.

With both ISUP-NI and MF signaling, if the OAS is unable to derive the CIC, the switch will continue using existing call processing procedures. The OAS will always be able to derive the CIC for a DTO TSG, because the CID will always be provisioned CCTT = Y.

4. For wholesale DA calls that access the AT&T Switched Network via a nodal access trunk group, the 4ESS switch OAS derives the CIC from the CID field when the TSG field of CSN is set to RESELL or AT&T International Wholesale Service (AIWS). If CSN is set to AIWS or RESELL and a CIC is not provisioned in the CID field, the 4ESS switch OAS follows the call processing provided by Feature 5918.
5. The 4ESS OAS switch identifies the call as wholesale DA by first identifying the call as switched access or nodal access wholesale, and then identifying the call as DA, based on the dialed number of NPA+555+1212. An incoming wholesale call in the format 0+NPA+555+1212 or a Hotel/Motel 1+DA call (II/OLI = 6) is considered a Wholesale Operator call and receives the processing provided by Feature 5822.
6. The 4ESS OAS switch determines that the incoming call is one of the following:
 - A switched access wholesale call with a non-featured CIC, based on Features 5198, 5791 and 5840. In this case, proceed to Step 9.
 - A switched access wholesale call with a featured CIC, based on Features 5791 and 5840. In this case, proceed to Step 7.
 - A nodal access wholesale call (where CSN = RESELL or AIWS), based on Feature 5918. In this case, proceed to Step 8.
7. For switched access wholesale calls with a featured CIC, if the 4ESS OAS switch receives an optional parameter, Reseller Indicator = Non-Featured, from the SDN 2DSA/2NCP, the OAS continues to apply call processing as provided by Feature 5840. In addition, before routing the call, the OAS applies the new call processing described in Step 9, below. If the OAS receives a Connection Control-Connect operation in the TCAP End Message with no Reseller Indicator parameter, the OAS continues to apply the call processing provided by Feature 5840. If the TCAP End Message indicates a non-DA routing number, the 4ESS switch will not apply the Enhanced CIC Routing DA logic; instead, it will route the call according to the database response. If the TCAP End Message indicates a DA routing number, the 4ESS switch will apply the Enhanced CIC Routing DA logic. In this case, proceed to Step 9.

8. For nodal access wholesale DA calls that do not require a database query, proceed to Step 9.

The *4ESS* switch OAS performs the database query for nodal access DA calls that require one. On receipt of the Transaction Capabilities Application Part (TCAP) End Message from the database, the switch continues to apply the call processing specified by Feature 5918. Before routing the call, the *4ESS* switch applies the new call processing described in Step 9, below. If the TCAP End Message indicates a non-DA routing number, the switch will not apply Enhanced CIC Routing DA procedures. Instead, it will route the call according to the database response.

9. For incoming DA wholesale calls, the *4ESS* switch constructs a 10-digit index number using the CIC. The constructed 10-digit number in the format ABC-DEF-GHIJ consists of the 3- or 4-digit CIC as the least significant digit, a 2 as the most significant digit, and padded Telco BCD zeroes for the remaining 6 or 5 digits.

A equals 2 to identify Enhanced CIC wholesale DA, BCDEF equals padded Telco BCD zeros, GHIJ equals the Derived Carrier Identification Code, prefixed, if necessary with a Telco BCD zero. An example of this number is 2000000377.

The *4ESS* switch searches the OAID Table with this 10-digit constructed number.

10. For incoming wholesale switched access or nodal access DA calls, if a search on the OAID Table results in a match with the 10-digit constructed index number, the *4ESS* switch OAS routes the call, based on the OSPS ID and the corresponding routing treatment specified in the OAID-Routing Table (DSN, MRT, SSP).

If a match with the constructed 10-digit number is not found in the OAID Table, the *4ESS* switch uses Feature 5840 for switched access wholesale DA calls and Feature 5918 for nodal access DA calls. These features default to Feature 5754, which routes wholesale DA calls to an AT&T *5ESS* switch/OSPS switch for completion to the AT&T Unbranded DA platform.

Feature 5754 provides the capability for the *4ESS* switch to retrieve a unique 10-digit routing number, 191-554-1212, which is stored in the switch. This number is used by the switch to route the call to the *5ESS* switch/OSPS.

11. If the OAS is not the Terminating AT&T Switch (TAS) or egress switch, the call is routed to the egress switch with an IAM that contains the following information:
 - Called Party Number (dialed number)
 - Calling Party Number (if available)
 - Charge Number Parameter containing the ANI
 - Received OLI/II digits

- Jurisdiction Information Parameter (JIP), if received
 - CSI (if available)
 - CIP
 - OSI (if available).
12. The 4ESS switch OAS maps the value of the CIC, as derived in the OAS, to the CIP ISUP signaling parameter, when passing the IAM through the AT&T Switched Network, as provided by Feature 5791.
 13. The egress 4ESS switch checks the OSPS ID to determine the routing treatment, which must be a SSP Call Type to identify a terminating trunk group.
 14. The characteristics of the terminating trunk group determine the signaling information to be delivered to the external DA platform over an OCC TOT.
 15. The following mandatory parameters are contained in the ISUP IAM message that is sent from the AT&T egress switch to the external DA platform:
 - Calling Party Number
 - Called Party Number
 - Charge Party Number
 - OLI
 - JIP (if available).

The parameters listed above are controlled by Number Service Data Block (NDB) administration, as described in the Description section of this chapter. If the new TSG field S10 [Send Optional ISUP Parameters (SOIP)] is active (set to Y), the following optional parameters are sent to the external platform for a domestic call:

- OSI (if available)
- CSI (if available)
- CIP.

The equal access MF signaling message from the AT&T egress switch to the external DA platform contains the following (NDB administration-controlled) parameters for a domestic call:

- ANI
- Called Party Number
- II digits
- CIC.

16. If the TAS (egress switch) is not the OAS, the TAS generates an EXIT message to the OAS upon initiating outgoing signaling if the outgoing trunk type is OCC, as follows:
 - If the egress trunk signaling is ISUP, when an IAM is sent to the external DA platform, an ISUP EXIT message is sent in the backward direction toward the OAS.
 - If the egress trunk signaling is MF, when a trunk is seized and Wink is received from the external DA platform, an ISUP EXIT message is sent in the backward direction toward the OAS.
17. The OAS starts recording of elapsed time, as follows:
 - If the OAS is the TAS (egress switch), the egress trunk type is OCC and the egress signaling is ISUP, the recording of elapsed time begins when the IAM message is sent to the external DA platform.
 - If the OAS is the TAS, the egress trunk type is OCC and the egress signaling is MF, the recording of elapsed time begins after the trunk is seized and the receipt of a Wink.
 - If the OAS is not the TAS (egress switch), the OAS begins recording of elapsed time when it receives an EXIT message.

The circuit is disconnected and released per existing procedures upon completion of the call.

18. The OAS initiates an AMA record for the wholesale DA call and appends the Expanded Switched Access Module 941. For nodal access calls, Module 908 is also appended. These AMA modules identify the wholesale call.

The 4ESS switch records the dialed number of NPA+555+1212 in the AMA record for wholesale calls. The existing structure codes of SC 0001, SC 0101, SC 1078, SC 1080, SC 1500, and SC 1501 are used to record the elapsed time. Also, SDN structure codes SC 1063, SC 1065, SC 1067, SC 1069, SC 1430, SC 1431, SC 1432, and SC 1433 are used to record elapsed time. In addition, the structure codes associated with Call Code 309 for *MEGACOM** telecommunications services and Call Code 129 for SDN are used to record elapsed time.

The TBN is populated in Module 941 for enhanced CIC routed nodal access wholesale calls.

* Registered service mark of AT&T.

3. Provisioning

- 3.01** The following items have been created and administered through provisioning to ensure successful implementation of this feature:
- A spare SII ASCIT Question Number 22 has been assigned.
 - A new office On/Off feature indicator (PF55) has been provided.
 - Existing feature On/Off indicators (PF30, PF49, PF50, and PF52) have been modified.
 - Two new Trunk Sub-Group (TSG) indicators/items have been provided.
 - A new keyword was added to input message **VER:MISC:FHT OSPSTBNID** (Verify Form 16de) to obtain a list of all entries that possess a specific Operator Service Position System ID (OSPSID) value.

Recent Change Forms Affected

A. Recent Change Form 809

- 3.02** The On/Off indicator for this feature is populated (or updated) via RC Form 809. FEATURE ITEM PF55 is used to turn this feature On. The population rules for RC 809 are shown in Table 7-A and as follows:

Table 7-A. On/Off Indicator For Feature 6143

RC Form 809 Entry		Checks
Feature Item	On or Off	
PF55	On	See below: A,B,C & D
	Off	None

- A. The 1+CIC Wholesale Feature (5840) indicator, PF50, must be activated. The PF50 depends on PF30 (Feature 5198) and PF49 (Feature 5791).
- B. The CIC-Based Determination Feature (5198) indicator, PF30, must be activated.
- C. The Long Term CIC-Based NAI Feature (5791) indicator, PF49, must be activated.
- D. The Carrier Solution Nodal Feature (5918) indicator, PF52, must be activated.

- 3.03** The On/Off feature indicators for this feature are verified via Verify Form 16az and Verify Form 8j.

⇒ NOTE:

There are no changes to Recent Change Forms 100, 101, 102, 107, 108 and 109 as a result of this feature. However, as described below, two new TSG fields are planned for 4E24 Release 1.

B. Recent Change Forms 100, 101, 102, 107, 108 and 109

- 3.04** The S9 and S10 spare fields on RC Forms 100, 101, 102, 107, 108 and 109 are used temporarily by this feature as TSG fields. In 4E24, Release 1, S9 will be replaced by a new field called CARSON and S10 will be replaced by a new field called SOIP, and the S9 and S10 fields will again become spares on these forms.

- 3.05** As previously described, the term CARSON is derived from Carrier Solutions. The S9 (or CARSON) is a TSG parameter that indicates recording of Answer at Exit elapsed time, as opposed to Real Answer. Valid entries for S9 (CARSON) are as follows:

- Blank or N—Recording of elapsed time not activated for Carrier Solutions (default)
- Y—Recording of elapsed time activated for Carrier Solutions.

Additional population rules for the S9 (CARSON) field are shown in Table 7-B.

- 3.06** The term SOIP is derived from Send Optional ISUP Parameters. S10 (or SOIP) is a Trunk Sub-Group parameter that indicates that the CIP, CSI, and OSI ISUP parameters are allowed to be delivered out of the network. Valid entries for S10 (SOIP) are as follows:

- Blank or N—Send Optional ISUP Parameters Not allowed (default)
- Y—Send Optional ISUP Parameters allowed.

Additional population rules for the S10 (SOIP) field are shown in Table 7-B.

Table 7-B. Population Rules for S9 and S10 Fields

TSG Form Entry		
Field	Value	Additional Rules
S9	Blank	No
	N	No
	Y	See below: A, B, & C
S10	Blank	No
	N	No
	Y	See below: A, B, D & E

- A. At least one of the following features must be turned on:
- Wholesale Operator Services Feature (5822)—PF54
 - Enhanced CIC Routing for Directory Assistance (6143)—PF55
 - Enhanced CIC Routing for International, Phase 1 Feature (6266)—PF56.
- B. Type of Trunk (TOT) field on TSG form must be equal to Other Connecting Carriers (OCC) (signaling characteristics are either ISUP or MFWINK).
- C. The TSG International World Zone 1 (IWZ1) indicator must be equal to N.
- D. The TSG Incoming Signaling Characteristics (ISC) indicator must be equal to ISUP (Incoming CCITT7 ISDN User Part).
- E. The Trunk Block Outgoing Signaling Characteristics (OSC) indicator must be equal to ISUP (Outgoing CCITT7 ISDN User Part).

C. Recent Change Form 653

NOTE:

Feature 4753 uses ASCIT Question Number 14 to determine to not report exit wink. Question 14 should not be set to Y for wholesale SII values.

3.07 The ASCIT Question Number 22 on Recent Change Form 653 was changed to support this feature. Previously unused, Question 22 now asks the following question:

Should 4ESS preserve and deliver the CIC derived at the Access Switch, but continue to use the AD2 value for SSP call type re-translation for this SII?

Question Number 22 is set to Y for wholesale SII values.

Recent Change Form 653 is verified via Verify Form 16au.

D. 10-Digit Constructed Number to OSPSID Mapping

3.08 This feature requires mapping of the 10-digit constructed number to the OSPSID, which is performed using the following RC command:

RC:MISC;FHT,FTA:OSPSTBNID,a,b,c,d,e!, where

- a = The order number
- b = The required action (A for add)
- c = The digit translator level (10-digit)
- d = The 10-digit constructed number
- e = The OSPSID.

An example of the completed RC command for this feature is:

RC:MISC;FHT,FTA:OSPSTBNID,106,A,D,2000000377,000123!

E. BN or WATSBN to TBN Mapping

3.09 This feature requires mapping of the BN (for SDN) or the WATSBN (for *MEGACOM* telecommunications services) to the TBN, which is performed using the following RC command:

RC:MISC;FHT,FTA:OSPSBNTBN,a,b,c,d,e!, where

- a = The order number
- b = The required action (C for change)
- c = The numbering plan (P for NANP)
- d = The 10-digit BN or WATSBN
- e = The TBN value.

An example of the completed RC command for this feature is:

RC:MISC;FHT,FTA:OSPSBNTBN,099,C,P,3123674321,9999999999!

Assigning an SSP Call Type

This feature requires that an SSP Call Type be assigned to provide the translation of the OSPSID to an SSP Call Type with a Call Data of NDB. The assignment of an SSP Call Type can be accomplished using Recent Change Forms 302 and 311.

Verify Forms/Messages Affected

A. Verify Output Forms 1a, 1b, and 1c

3.10 The CARSON and SOIP fields (planned for 4E24 Release 1 and later releases) are verified on Verify Output Forms 1a, 1b, and 1c. The valid entries for CARSON and SOIP are blank, N or Y. These forms are also used to verify S9 and S10.

B. Verify Input Message VER:TSGLIST - Verify Form 11d

3.11 The TSG searches for CARSON and SOIP (in 4E24 Release 1 and later releases), and are implemented by Verify Input Message **VER:TSGLIST**.

C. Modified Verify Input Message

3.12 A new keyword was added to the **VER:MISC:FHT OSPSTBNID** verify input message on Verify Form 16de. This input message is used to obtain a list of all entries that possess a specified OSPSID value, including all 3-, 6-, and 10-digit entries that match the input OSPSID. The new input message format is as follows:

VER:MISC:FHT OSPSTBNID, ID x!

where x is an OSPSID value (1-255).

3.13 The existing output Verify Form 6de is used.

Effect on Related Features

3.14 This feature modifies the feature On/Off indicators in Features 5198, 5791, 5840, and 5918, as described below.

A. Carrier Information Code-Based Determination Feature (5198)

3.15 The Carrier Information Code-Based Determination Feature (5198) On/Off indicator, PF30, was modified to automatically turn off certain related features whenever Feature 5198 is turned off.

3.16 The affected features (and their associated On/Off indicators) are listed below:

- 1+Carrier Identification Code (CIC) Wholesale Feature (5840)—PF50
- Wholesale Operator Services Feature (5822)—PF54

- Enhanced CIC Routing for Directory Assistance (6143)—PF55
- Enhanced CIC Routing for International, Phase 1 Feature (6266)—PF56.

B. Long-Term CIC-Based NAI Feature (5791)

3.17 The Long Term CIC Based NAI Feature (5791) On/Off indicator, PF49, was modified to automatically turn off certain related features whenever Feature 5791 is turned off. The affected features (and their associated On/Off indicators) are listed below:

- 1+Carrier Identification Code (CIC) Wholesale Feature (5840)—PF50
- Wholesale Operator Services Feature (5822)—PF54
- Enhanced CIC Routing for Directory Assistance Feature (6143)—PF55
- Enhanced CIC Routing for International, Phase 1 Feature (6266)—PF56.

C. 1+CIC Wholesale Feature (5840)

3.18 The 1+CIC Wholesale Feature (5840) On/Off indicator, PF50, was modified to automatically turn off certain related features whenever Feature 5840 is turned off. The affected features (and their associated On/Off indicators) are listed below:

- Wholesale Operator Services Feature (5822)—PF54
- Enhance CIC Routing for Directory Assistance Feature (6143)—PF55
- Enhanced CIC Routing for International, Phase 1 Feature (6266)—PF56.

D. Carrier Solution Nodal Feature (5918)

3.19 The Carrier Solution Nodal Feature (5918) On/Off indicator, PF52, was modified to automatically turn off certain related features whenever Feature 5918 is turned off. The affected features (and their associated On/Off indicators) are listed below:

- Wholesale Operator Services Feature (5822)—PF54
- Enhance CIC Routing for Directory Assistance Feature (6143)—PF55
- Enhanced CIC Routing for International, Phase 1 Feature (6266)—PF56.

4. Recording

Overview

4.01 The 4ESS switch appends existing AMA Modules 132, 908 and 941 for nodal access wholesale calls. This is the first time that Modules 132 and 941 are used for nodal access wholesale calls.

4.02 The 4ESS switch appends existing AMA Modules 132 and 941 for switched access wholesale calls. This is the first time that Module 132 is used for switched access wholesale calls.

4.03 Module 941 contains the TBN for nodal wholesale calls.

Call Recording and Billing

4.04 The 4ESS OAS switch generates the AMA record for Carrier Solution DA Service features. For Carrier Solution limited DA calls and for this feature, the OAS records the DN=NPA+555+1212 and populates the dialed number of NPA+555+1212 in the corresponding Call Detail Recording Platform (CDRP) Event.

4.05 The recording procedures provided by Feature 5754 support this feature by recording of the dialed number NPA+555+1212 and appending the Expanded Switched Access Module 941 to the switched access wholesale call, as also provided by Feature 5198. Feature 5918 appends Module 908 for nodal access wholesale calls.

4.06 If the trunk group from the egress switch to the external platform is type OCC, elapsed time recording begins when the call exits the egress switch. The 4ESS switch generates structure codes (SC) as follows:

- For MF signaling, SC 0001 or SC 0101 (for Long Duration) if only the ANI is available
- For ISUP-NI signaling, SC 0001 or SC 0101 (for Long Duration) if the Charge Party Number is received and the Calling Party Number (CPN) is not received
- SC 1078 or SC 1080 (for Long Duration) if only the CPN is available
- SC 1500 or SC 1501 (for Long Duration) if neither the ANI nor the CPN is available
- As provided by Feature 5840, structure codes SC 1063, SC 1065, SC 1067, SC 1069, SC 1430, SC 1431, SC 1432 and SC 1433.
- As provided by Feature 5918, the structure codes associated with the Call Code 309 (for MEGACOM telecommunications services) and Call Code 129 (for SDN service).

Module 132 is appended to all of the structure codes listed above.

4.07 The TBN is sent in the TRNUM Event and copied to in Table 25 of Module 941 for Enhanced CIC Routed nodal access wholesale calls.

4.08 Carrier Solution nodal calls using SDN as the underlying service are routed by the SDN Customer Outage Protection Feature (4673). Feature 4673 allows an SDN call to be routed in the POTS domain under certain failure conditions and the inability to obtain appropriate routing instructions from the 2DSA/2NCP. Calls routed by

Feature 4673 are recorded using a "canned AMA" record for the basic structure code contents. This AMA record, SC 1063/1065 or SC 1067/1069, as applicable, has the following characteristics:

- Table 46, RPC/RAO Number, contains value 046.
- Table 347, TT/USFI, contains value 2 in Character 3 (rather than the value of 0 used for nodal origination).

4.09 Modules are appended to a "canned AMA" recording by individual module triggers. As a result, module recording is identical, whether the basic structure code recording is triggered by normal call processing or by Feature 4673.

4.10 Elapsed timing for AMA recording starts when the call is answered. The Answer at Exit concept introduced by Feature 4506 applies to this feature. Answer at Exit as opposed to Real Answer is controlled through the presence of the optional trunk group data element, S9 (CARSON), on the OCC trunk type for the terminating trunk group to the external DA platform. The elapsed time at Real Answer is contained in Module 132.

4.11 The following applies when the OAS and the TAS are the same switch:

- If a call involves only a single 4ESS switch and the egress signaling is SS7 ISUP, the egress trunk type is OCC, with the new trunk group parameter S9 (CARSON) set to Y, the recording of elapsed time is activated on sending of the IAM.

⇒ NOTE:

The trunk group parameter S9 (CARSON) is set to Y only if the office parameter for either this feature, Feature 5822, or Feature 6266 is set to On.

- If a call involves only a single 4ESS switch and the egress signaling is MF, the egress trunk type is OCC with the S9 (CARSON) trunk group parameter set to Y, the recording of elapsed time is activated after seizure of the trunk and a Wink is received.

4.12 When the OAS and the TAS are not the same switch, the recording of elapsed time is activated at the recording 4ESS switch when it receives an EXIT message.

4.13 An existing 4ESS switch trigger generates Module 941 for wholesale calls. Module 941 is now generated for those nodal originated wholesale calls that are routed by the Enhanced CIC Routing (Resell) features.

5. Network Management (Not Affected)

6. Maintenance/Troubleshooting (Not Affected)

7. Transition Considerations

Deployment Requirement

- 7.01** It is not necessary for all *4ESS* switches in the network to be running the 4E23 Release 3 Generic for this feature to be fully operational.

Planning Considerations

- 7.02** The following information describes the transition plan for this feature:
- For switched access wholesale calls, all DTO trunk groups that support wholesale customers need to be provisioned with the customer's CIC in the Trunk Sub-Group data CID field.
 - The OCC TOT trunks must be provisioned between the egress switch and the external platform with new S9 (CARSON) and S10 (SOIP) trunk group parameters.
 - For customers subscribed to this feature, the *4ESS* switch OSPS Access ID (OAID) Table must be populated with the constructed 10-digit number.
 - If the Carrier Solutions platform supports CSN nodal customers prior to the deployment and activation of this feature, and if a wholesale customer subscribes to ECR Directory Assistance, the TBN Table must be provisioned with an entry for that wholesale customer's nodal location. This must be done before the 10-digit constructed number is provisioned in the OIAD Table.
 - The office turn on/off feature indicator for this feature (PF55) must be set to on before the TBN Table is provisioned with entries for nodal locations of a wholesale customer subscribed to this feature.
 - The office turn on/off feature indicator for this feature (PF55) must be linked to the office parameters that apply to Features 5840 and 5918. These feature bits must be on before this feature is turned on in the ASN.
 - Feature 5822 must be turned on before the blocking of OLI/II = 06 is removed.

Feature Activation

7.03 This feature is activated or deactivated as described in the Provisioning section of this chapter.

7.04 This feature can also be turned on or off by an absolute word change. Item OD4PF55 in the OD4OFCCOPY2 structure is the office parameter that controls the on/off state of this feature.



CAUTION:

The OD4OFCCOPY2 structure also contains the on/off bits for many other features. Be certain that any changes you make affect only this feature.

7.05 The following information can be used to turn this feature on or off using the absolute word change:

- Structure: OD4OFCCOPY2
- Core address in 4E23 Generic: 7126222
- Size of OD4PF55: 1
- Displacement: 6
- On: 1
- Off: 0.

Feature Dependencies

7.06 This feature is dependent on the following features being deployed in the network:

- Carrier Information Based Determination Feature (5198)
- Carrier Solutions CIC Based Determination, NAI and DA Support for Resell Calls Feature (5754)
- Carrier Identification Code Based Network Access Interrupt Feature (5791)
- Carrier Solution 1+Carrier Identification Code Wholesale Phase 1 Feature (5840)
- Inband/Q.931 Signaling for Carrier Solution Nodal Customers Feature (5918).

Feature Interactions

7.07 The interactions of this feature with other features are described in the following information.

A. Project Radar Phase 2 and Directory Link

7.08 Service NOW-Routing (SNOW-R) supports 10-digit routing for NPA 555+1212 and sets the AD3 value on the Positive Lookup table recent change to a value of D (for Directory Link) and a value of H (for Project Radar).

7.09 The 4ESS switch uses these values to determine if a code is Directory Link or Project Radar eligible. With an AD3 value of D, the switch looks for a Directory Link Adjunct Logical Address (ALA) which it uses to route the call to a CLD Adjunct. The call is then routed to a DA position.

7.10 With an AD3 value of H, the switch sets a parameter in the signaling to indicate that redirection is possible at any time during the call.

7.11 The 4ESS switch gets the AD3 value after it translates the dialed number and determines that the call is DA and that routing treatment is valid (not vacant coded). The switch ignores the AD3 values for incoming wholesale DA calls.

B. Inband/Q.931 Signaling for Carrier Solution Nodal Customers Feature (5918)

7.12 This feature supports wholesale DA calls that access the AT&T Switched Network via nodal trunk groups when the trunk subgroup parameter, CSN, is set to RESELL or AIWS.

C. Enhanced CIC Routing for Operator Services Feature (5822)

7.13 This feature does not specifically support incoming switched access or nodal access Wholesale Operator DA calls (dialed number of 0+NPA+555+1212 or H/M 1+NPA+555+1212, where the Information Indicator (II) or the Originating Line Information (OLI) digits equal 06). For a dialed number of either format, the call is considered a wholesale call that requires operator assistance, Feature 5822 takes precedence, and the call is processed as a Wholesale Operator call.

7.14 As part of transition planning, Feature 5822 must be turned on before the blocking of OLI/II equals 06 is removed.

D. Enhanced CIC Routing for International Calls Feature (6266)

7.15 The Enhanced CIC Routing for International Calls Feature (6266) supports routing for 011+CC+NN calls to an external platform. If there is a single external platform that supports both international and DA wholesale calls, a single Operator Service Position System (OSPS) ID with two Number Service Data Blocks (NDB) are required for each service to route to the same external platform.

E. Circuit Selection Capabilities Indicator Recording Feature (5816)

7.16 Feature 5816 requires the *4ESS* switch to pass the Circuit Selection Capability Indicator (CSCI) value and the Service Identity Index (SII), which are assigned to each call, to the AMA record.

7.17 The *4ESS* switch generates an AMA record for each outbound wholesale call. These records are passed from RICS to CBIS, the outsourced billing system that is used for Carrier Solution. The CBIS passes the SII and the CSCI value, unchanged, to ITLF. The ITLF can use this data for trunking forecasting purposes.

8. Input/Output Manual Pages

8.01 The **VER:ASCIT** input message was modified to support this feature. The manual page for this message is included at the end of the chapter for Feature 5822 in this document.

Enhanced Carrier Identification Code Routing for International Phase 1 Feature (6266)

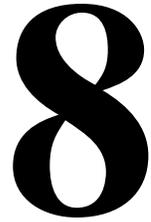
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Enhanced Carrier Identification Code Routing for International Phase 1 Feature (6266)



1. Feature Description

- 1.01** This feature provides the capability to route calls on a per-customer basis for each terminating country code and Carrier Identification Code (CIC), to different external platforms, based on AT&T wholesale international customer subscription. Also provided is the required routing treatment for AT&T wholesale international calls to a particular international platform, as specified by the wholesale customer for each terminating country code and CIC.
- 1.02** If the wholesale customer does not specify a platform for a given terminating country code, the international call is routed (service level) by an AT&T International Switching Center (ISC) or AT&T Gateway 4ESS™ switch. In this case, routing is determined by the 1+Carrier Identification Code (CIC) Wholesale Feature (5840) for switched access, or the Inband/Q.931 Signaling for Carrier Solutions Nodal Customers Feature 5918 for nodal access.
- 1.03** This feature supports switched or nodal access to the AT&T Switched Network (ASN) in one of the following ways:
- Switched Access—Via an integrated trunk group or a Dedicated TSG Option (DTO) trunk group
 - Nodal Access—Via a Carrier Solutions Nodal (CSN) trunk group (when the CSN parameter is set to RESELL or AIWS).
- 1.04** As previously mentioned, this feature is subscription-based, which means that the wholesale customer must specify the exception routing of their international traffic

to external platforms. Service level routing is applied to wholesale customers that do not subscribe to the enhanced CIC routing service.

Service Level Routing

1.05 Service level routing for wholesale international calls is provided by the Carrier Solutions Carrier Identification Code Based Determination Feature (5198), which provides a unique Service Identity Index (SII) for wholesale international calls. The SII allows wholesale international calls to be routed differently from AT&T's International Long Distance Service traffic using AT&T International Switching Centers or AT&T Gateway switches to foreign carriers in each country. The service level routing provided by Feature 5198 will continue to coexist with this feature.

Feature Operation

1.06 This feature is invoked when the 4ESS switch identifies the incoming call as a wholesale international call and when the wholesale customer has specified exception routing to an external platform. The switch uses the Carrier Identification Code (CIC) and terminating Country Code (CC) to construct a new 10-digit number. This number is used to index the switch Operator Services Position Access ID (OAID) Table to determine if the wholesale customer has specified an external international platform for international call completion.

1.07 The OAID Table is provisioned by the Service Now-Routing (SNOW-R). The routing treatment specifies a call type of Multiple Routing Treatment (MRT), Destination Switch Number (DSN), or Service Switching Point (SSP) for call completion.

1.08 If a match with the constructed 10-digit number is found in the OAID Table, the 4ESS switch obtains the OSPS ID and corresponding routing treatment to terminate the call to the external platform. If invalid or no routing is provisioned for the corresponding OSPS ID, the switch applies final handling and vacant code treatment for the call.

1.09 Because this is a subscription feature, the customer must specify an external platform. If one is not specified, a match will not be found in the OAID Table. The switch will then apply service level routing and route the call as provided by Feature 5198, using an AT&T International Service Center or AT&T Gateway switch to the foreign country.

1.10 The external platform is directly connected to the 4ESS switch via Signaling System 7 (SS7) Network Interconnect (NI) or Equal Access MF (EAMF) signaling on an Other Connecting Carriers (OCC) Type of Trunk (TOT). When egressing the call to the external platform, the egress switch follows Network Interconnect Access Standards, and acts as an Access Tandem (AT), while the external platform acts as an Interexchange Carrier (IXC).

1.11 The Integrated Services Digital Network-User Part (ISUP) signaling to the external platform includes the following information in the ISUP Initial Address Message (IAM):

- Calling Party Number
- Called Party Number
- Originating Line Information (OLI)
- Jurisdiction Information Parameter (JIP) if available
- Transit Network Selection (TNS) (CIC of the wholesale customer).

1.12 The new trunk group parameter Send Optional ISUP Parameters (SOIP) controls the delivery of OSI and CSI when international calls are delivered to the external platform. The SOIP parameter does not control CIP delivery to the external platform for international calls. This means that whatever the setting of SOIP, the egress *4ESS* switch delivers the mandatory TNS parameter to the external platform and will not deliver the CIP for international calls. The call is delivered to the external international platform on an OCC TOT.

1.13 The EAMF signaling to the external international platform contains the following information:

- Automatic Number Identification (ANI)
- Called Party Number
- CIC
- Information Indicator (II) Digits.

Overview of Feature Capabilities

1.14 The following information is an overview of the capabilities provided by this feature:

- The *4ESS* switch identifies incoming switched access and nodal access wholesale international calls, performs a database query if necessary, and constructs a 10-digit number using the CIC and the terminating country code.
- The *4ESS* switch searches the Operator Services Position (OSPS) Access ID (OAID) Table with the constructed 10-digit index number. On a match with this index number, the *4ESS* switch obtains the OSPS ID and the corresponding routing termination, and routes the call on an Other Connecting Carriers (OCC) Type of Trunk (TOT).
- The *4ESS* switch defers to the call processing specified in the routing instructions from the database, if one was queried, or as per the existing call processing provided by Features 5918 and 5840 when a match with the constructed 10-digit number is not found in the OAID Table. The *4ESS* switch routes the wholesale

international call using an AT&T International Switching Center (ISC) or AT&T Gateway switch.

- If the terminating trunk group is type OCC and the outgoing signal is MF at the egress switch, the switch generates the standard MF signaling sequence associated with international calls.
- If the terminating trunk group is type OCC and the outgoing signal is ISUP, the Initial Address Message (IAM) includes (if allowed by the new trunk group item SOIP) the optional OSI and CSI parameters, when available for wholesale international calls.
- At the Terminating AT&T Switch (TAS), if it is not the OAS, an ISUP Exit message is initiated toward the OAS when outgoing signaling starts on an Other Connecting Carriers (OCC) Type of Trunk (TOT) with CARSON (the new TSG item) set to Y.
- The 4ESS switch uses the receipt of an ISUP EXIT message to initiate the recording of elapsed time .
- The 4ESS egress switch ignores the AD2 value (Carrier ID) derived from the SSP Call Type when the new ASCIT Question 22 (introduced by this feature) is set. Refer to the Provisioning section of this chapter (Recent Change Form 653) for additional information.
- The 4ESS OAS switch generates the TRNUM Event and sets the AT Toll/Reseller Indicator (Word 22, bit 1) in the EOC Event for enhanced CIC routed nodal access wholesale calls.

Network Systems

1.15 The following AT&T Network Systems are impacted by this feature:

- Service Now-Routing (SNOW-R)
- Service Now-Trunking (SNOW-T)
- Recorded Information Collection System (RICS).

Routing

1.16 This feature uses the routing capabilities provided by the Universal T1.5 Access Feature (4570) and the Consolidated Access Traffic Feature (5308). As described above, the 4ESS switch constructs a 10-digit number to determine the routing treatment. Currently, an OSPS ID is associated with SSP, MRT, or DSN routing.

A. Service Identity Index (SII) Derivation Rules

1.17 The 4ESS switch will continue to derive the SII for switched access wholesale

calls as provided by Feature 5840, and for nodal access wholesale calls as provided by Feature 5918.

B. Number Service Data Block (NDB)

Administration

1.18 Two translations take place at the egress switch for Number Service Data Block (NDB) administration. In the first, the OSPS ID is translated to an SSP call type, and the associated RT call data. The Re-Translate (RT) translation produces a Carrier ID (AD2) and Type of Service (TOS). These two elements produce the variable data that contains the TOS and CID, and the international indicator.

1.19 The second translation occurs when the variable data produces an SSP call type with a call data of NDB. The NDB points to a Routing Data Block Index (RDBI), which points to an egress switch trunk to the external platform.

1.20 The NDB call data administration provisioning provides the necessary functionality to signal some of the mandatory parameters to the external platform. For ISUP-NI signaling, the Calling Party Parameter, Charge Number Parameter, and Originating Line Information (OLI) digits are signaled over the OCC TOT as a function of NDB administration. For MF signaling, the Automatic Number Identification (ANI) and the Information Indicator (II) digits are signaled over the OCC TOT as a function of NDB administration.

1.21 The NDB call processing provides the following NDB fields, and for OCC TOT, the NDB is administered for international wholesale calls as follows:

- RDBI = Numeric Value
- Feature Group = D
- ANI Delivery = Y
- CPN Delivery (ISUP only) = Y
- Path = Direct
- International Call Indicator = Y
- FENID = Matches data from the outgoing TSG
- FENCLASS = Matches data from the outgoing TSG
- NX'ZZ = 38 (Administered and used by the 4ESS switch to deliver the circuit code information in the Transit Network Selection (TNS) parameter on an OCC TOT with ISUP-NI signaling.

1.22 Based on the internationally dialed number (011+CC+NN), the egress 4ESS switch derives the TOS using the existing NDB routing administration functionality of an SSP call type.

1.23 At least one OSPS ID must be associated with each external platform. Multiple OSPS IDs are required to support the delivery of different services. A separate OSPS ID is required to support the delivery of operator and non-operator calls to the same external platform. Also, for a single OSPS ID, 1 NDB is required to deliver domestic calls and another NDB is required to deliver international calls to the same external platform.

2. Call Flow

2.01 The call flow for this feature is shown in Figure 8-1 and is provided in the information that follows. Figure 8-1 shows the network call flow for Wholesale International calls using Enhanced CIC Routing and the underlying service level routing for Wholesale International calls without enhanced CIC routing specified by the wholesale customer on a per-country code basis.

2.02 The 4ESS egress switch shown in Figure 8-1 is servicing as an access tandem, and the external platform is the interexchange carrier (IXC).

1. The Calling Party accesses the wholesale service via switched access or nodal access to the AT&T Switched Network (ASN), as follows:
 - For Carrier Solutions switched access customers, the Calling Party is either pre-subscribed (PICed) to a wholesale CIC or prefixes the dialed number with 1+0+CIC (where CIC is a wholesale Carrier Identification Code). The caller dials 011+CC+NN (or 1+0+CIC+011+CC+NN). Either the PIC of the Calling Party or the 1+0+CIC dialed by the Calling Party causes the local exchange office to route the call over a switched access Dedicated Trunk Sub-Group Option (DTO) or a switched access 10288 trunk group.
 - For Carrier Solutions nodal access customers, the caller dials 011+CC+NN and the call is routed over the nodal trunk group. The 4ESS switch does not receive the CIC in the signaling for nodal access calls.
2. The call arrives at the originating AT&T 4ESS switch (OAS) via a switched access DTO TSG, a switched access 10288 trunk group, or a nodal access trunk group.
3. The 4ESS OAS switch identifies the call as a direct-dialed international call, based on the dialed number of 011+CC+NN. If the OAS does not identify the call as international, the 4ESS OAS switch continues the call processing per existing procedures. **Call Flow Ends.**

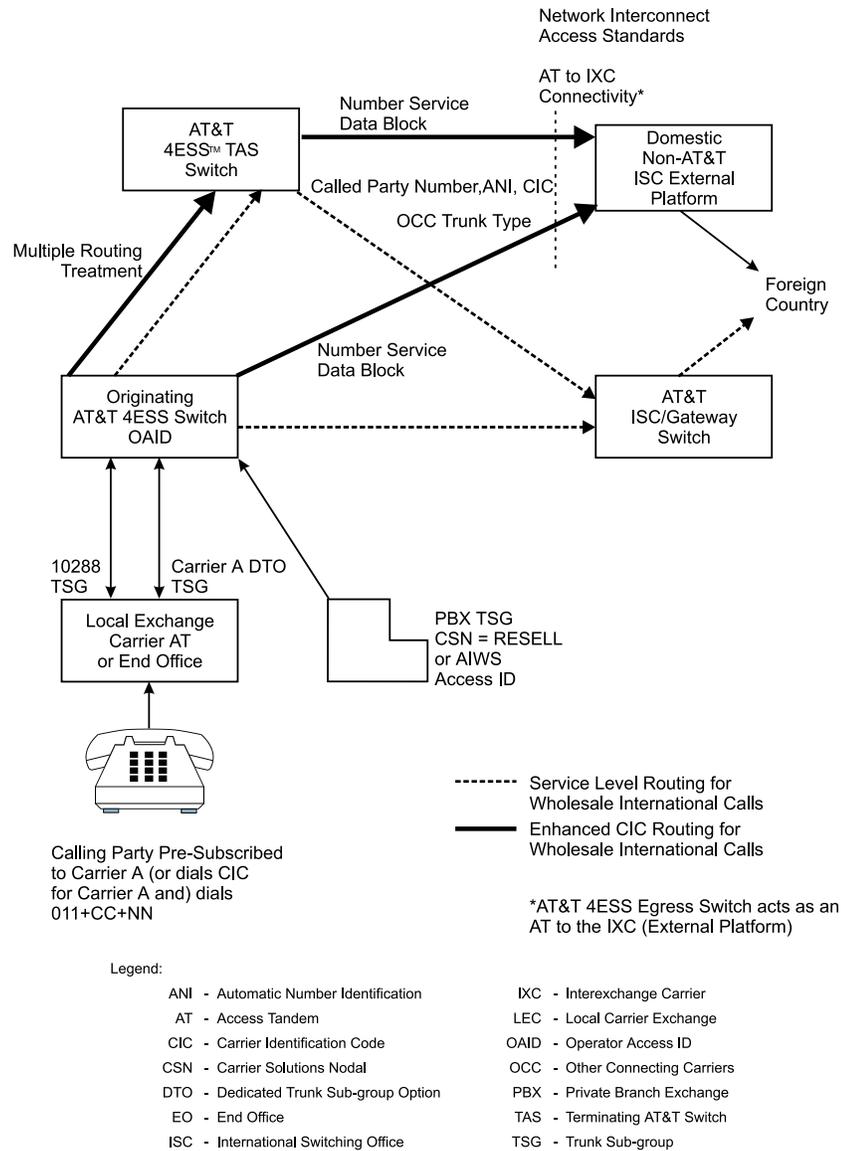


Figure 8-1. Wholesale Enhanced Carrier Identification Code (CIC) Routing International Service Network

4. The 4ESS OAS switch derives the CIC for the incoming call. If the OAS is unable to derive the CIC for the incoming call, the enhanced CIC routing provided by this feature does not apply, and this call flow ends here. The CIC for the incoming call is derived as follows:

- For switched access calls, the CIC is derived by Feature 5791, CIC Based NAI.

With both ISUP-NI and MF signaling, if the OAS is unable to derive the CIC, the switch continues using existing call processing procedures. The OAS can always derive the CIC for a DTO TSG because the CID is always be provisioned CCTT = Y.

For wholesale international calls that access the ASN via a nodal access trunk group, the 4ESS switch OAS derives the CIC from the CID field when the TSG field of CSN is set to RESELL or AIWS. If the CSN is set to AIWS or RESELL and a CIC is not provisioned in the CID field, the 4ESS OAS switch follows the call processing provided by Feature 5918.

5. The 4ESS OAS switch identifies the incoming call as either a switched access or nodal access wholesale international call by one of the following:
 - The OAS identifies the call as a switched access wholesale call with a non-featured CIC, based on Feature 5840. In this case, proceed to Step 8.
 - The OAS identifies the call as a switched access wholesale call with a featured CIC, based on Feature 5840. In this case, proceed to Step 7.
 - The OAS identifies the call as a nodal access wholesale call, based on Feature 5918 (where CSN is set to RESELL or AIWS). Proceed to Step 6.

If the call was not identified as a switched access or nodal access wholesale international call, the 4ESS continues with call processing per existing procedures. **Call Flow Ends.**

6. For nodal access wholesale international calls that do not require a database query, proceed to Step 8.

The 4ESS switch performs a data base query for nodal access wholesale calls that require a query. On receipt of the Transaction Capabilities Application Part (TCAP) End Message from the database, the switch continues to apply the call processing. If the database returns a Foreign Administration Identification (FAI) in the Connection Control - Connect operation in the TCAP End Message, the 4ESS switch routes the call per the FAI value specified. **Call Flow Ends.**

Before routing the call, the 4ESS switch applies the call processing specified in Step 8 below if a non-zero FAI value was not specified in the database query response. Proceed to Step 8.

7. For switched access wholesale calls with a featured CIC, if the *4ESS* OAS switch receives the Reseller-Indicator Non - Featured parameter from the Software Defined Network (SDN) 2DSA/2NCP, the OAS continues to apply call processing as provided by Feature 5840. Before routing the call, the *4ESS* OAS switch applies the call processing described in Step 8, below. Proceed to Step 8.

The OAS applies the call processing provided by Feature 5840 when it receives a Connection Control - Connect operation in the TCAP End Message with no Reseller Indicator parameter. If the database returns an FAI in the Connection Control - Connect in the TCAP End Message, the *4ESS* switch routes the wholesale international call per the FAI value specified. **Call Flow Ends**

If a non-zero FAI value was not specified in the Connection Control - Connect operation of the TCAP End Message, the *4ESS* switch applies the call processing described in Step 8, below. Proceed to Step 8.

8. At this point, the *4ESS* switch has identified the call as either switched access or nodal access wholesale international (as described in Steps 3 and 5), and a CIC has been derived for the incoming call (as described in Step 4).

The *4ESS* switch has performed a database query for the incoming call (if one was required), received a response from the database, which was not a non-zero FAI value in the Connection Control - Connect operation of the TCAP End Message.

The *4ESS* switch now constructs a 10-digit index number using the CIC and the terminating Country Code (CC) values. With the constructed 10-digit number in the format ABC-DEF-GHIJ, the ABC digits contain 100, the DEF digits contain the 2- or 3-digit CC, and the GHIJ digits contain the 3- or 4-digit CIC. For example, in the constructed 10-digit number 1009100377, 100 identifies wholesale international, 910 identifies the country as India, and 0377 identifies the long distance carrier of the wholesale customer.

The *4ESS* switch searches the OSPS Access ID (OAID) Table with the 10-digit constructed number.

9. For incoming wholesale international calls, if a search on the OAID Table results in a match with the 10-digit constructed index number, the *4ESS* OAS switch routes the call based on the OSPS ID and the corresponding routing treatment specified in the OAID-Routing Table (DSN, MRT, SSP).

If a match is found in the OAID Table with the constructed 10-digit number, but invalid or no routing is provisioned for the corresponding OSPS ID, the *4ESS* switch applies both final handling and vacant code treatment for the call.

If a match with the constructed 10-digit number is not found in the OAID Table, the *4ESS* switch uses the Carrier Solutions CIC Based Determinations Feature (5198) for call processing, and routes the call (using an AT&T ISC or AT&T Gateway *4ESS* switch) to a foreign carrier in the destination country.

10. If the OAS is not the Terminating AT&T Switch (TAS), the call is routed to the TAS with an IAM that contains the following information:
 - Called Party Number (dialed number)
 - Calling Party Number (if available)
 - Charge Number Parameter containing the ANI
 - Received OLI/II digits
 - Jurisdiction Information Parameter (JIP), if received
 - CSI (if available)
 - CIP (CIC as derived at the OAS from signaling or the CID TSG parameter)
 - OSI (if available).
11. For switched access calls, the *4ESS* OAS switch maps the value of the CIC, as derived in the OAS, to the CIP ISUP signaling parameter, when passing the IAM through the ASN, as provided by Feature 5791.
12. For nodal access wholesale enhanced CIC routed international calls, the *4ESS* OAS switch maps the value of the CIC, as derived in the OAS from the CID field, to the CIP ISUP signaling parameter, when passing the IAM through the ASN.
13. The egress *4ESS* switch checks the OSPS ID to determine the routing treatment, which must be NDB and identify a terminating trunk group.
14. The characteristics of the terminating trunk group determine the signaling information to be delivered to the external platform over an OCC TOT. The ISUP IAM message to the external international platform contains the following data:
 - Calling Party Number
 - Called Party Number
 - OLI
 - JIP (if available).
 - CIC in the TNS parameter.

The OSI and CSI (if available) will be delivered if the new TSG field S10 [Send Optional ISUP Parameters (SOIP)] is active (set to Y). The TNS parameter is constructed using the CIC derived by the Access Switch and the circuit code provisioned by Number Service Data Block (NDB) administration.

The equal access MF signaling to the external international platform contains the ANI, dialed number, CIC and II digits.

⇒ NOTE:

Refer to the Provisioning section of this chapter for additional information on S9 (CARSON) and S10 (SOIP).

15. The TAS, if it is not the OAS, generates an EXIT message toward the OAS upon initiating outgoing signaling, if the outgoing trunk type is OCC, and S9 (CARSON) is set to Y, as follows:
 - If the egress trunk signaling is ISUP, when an IAM is sent to the external international platform, an ISUP EXIT message is sent in the backward direction toward the OAS.
 - If the egress trunk signaling is MF, when a trunk is seized and Wink is received from the external international platform, an ISUP EXIT message is sent in the backward message toward the OAS.
16. The OAS starts recording of elapsed time, as follows:
 - If the OAS is the TAS, the egress trunk type is OCC, S9 (CARSON) is set to Y, and the egress signaling is ISUP, the recording of elapsed time begins when the IAM message is sent to the external platform.
 - If the OAS is the TAS, the egress trunk type is OCC, S9 (CARSON) is set to Y, and the egress signaling is MF, the recording of elapsed time begins when a trunk is seized and a Wink is received.
 - If the OAS is not the TAS, the OAS begins recording of elapsed time when it receives an EXIT message.
17. The OAS initiates an AMA record per Feature 5840 for switched access wholesale calls or Feature 5918 for nodal access wholesale calls. The OAS appends the Expanded Switched Access Module 941 to the AMA record for enhanced CIC nodal access and switched access wholesale international calls that are routed to an external platform. The TBN is populated in Module 941 for enhanced CIC routed nodal access wholesale calls.

3. Provisioning

⇒ NOTE:

Refer to the Planning Considerations in this chapter for additional provisioning information.

3.01 The following items have been created and administered through provisioning to ensure successful implementation of this feature:

- A spare SII ASCIT Question Number 22 has been assigned.
- A new office On/Off feature indicator (PF56) has been provided.
- Existing feature On/Off indicators (PF30, PF49, PF50, and PF52) have been modified.
- Two new Trunk Sub-Group (TSG) indicators/items have been provided.
- A new keyword was added to input message **VER:MISC:FHT OSPSTBNID** (Verify Form 16de) to obtain a list of all entries that possess a specific Operator Service Position System ID (OSPSID) value.

Recent Change Forms Affected

A. Recent Change Form 809

3.02 The On/Off indicator for this feature is populated (or updated) via RC Form 809. FEATURE ITEM PF56 is used to turn this feature On. The population rules for RC 809 are shown in Table 8-A and as follows:

Table 8-A. On/Off Indicator For Feature 6266

RC Form 809 Entry		
Feature Item	On or Off	Checks
PF56	On	See below: A,B,C & D
	Off	none

- A. The 1+CIC Wholesale Feature (5840) indicator, PF50, must be activated. The PF50 depends on PF30 (Feature 5198) and PF49 (Feature 5791).
- B. The CIC Based Determination Feature (5198) indicator, PF30, must be activated.
- C. The Long Term CIC Based NAI Feature (5791) indicator, PF49, must be activated.
- D. The Carrier Solution Nodal Feature (5918) indicator, PF52, must be activated.

3.03 The On/Off feature indicators for this feature are verified via Verify Form 16az and Verify Form 8j.

⇒ NOTE:

There are no changes to Recent Change Forms 100, 101, 102, 107, 108 and 109 as a result of this feature. However, as described below, two new TSG fields are planned for 4E24 Release 1.

B. Recent Change Forms 100, 101, 102, 107, 108 and 109

3.04 The S9 and S10 spare fields on RC Forms 100, 101, 102, 107, 108 and 109 are used temporarily by this feature as TSG fields. In 4E24, Release 1, S9 will be replaced by a new field called CARSON and S10 will be replaced by a new field called SOIP, and the S9 and S10 fields will again become spares on these forms.

3.05 As previously described, the term CARSON is derived from Carrier Solutions. The S9 (or CARSON) is a TSG parameter that indicates recording of Answer at Exit elapsed time, as opposed to Real Answer. Valid entries for S9 (CARSON) are as follows:

- Blank or N—Recording of elapsed time not activated for Carrier Solutions (default)
- Y—Recording of elapsed time activated for Carrier Solutions.

Additional population rules for the S9 (CARSON) field are shown in Table 8-B.

3.06 The term SOIP is derived from Send Optional ISUP Parameters. S10 (or SOIP) is a Trunk Sub-Group parameter that indicates that the TNS, CSI, and OSI ISUP parameters are allowed to be delivered out of the network. Valid entries for S10 (SOIP) are as follows:

- Blank or N—Send Optional ISUP Parameters Not allowed (default)
- Y—Send Optional ISUP Parameters allowed.

Additional population rules for the S10 (SOIP) field are shown in Table 8-B.

Table 8-B. Population Rules for S9 and S10 Fields

TSG Form Entry		
Field	Value	Additional Rules
S9	Blank	No
	N	No
	Y	See below: A, B, & C
S10	Blank	No
	N	No
	Y	See below: A, B, D & E

- A. At least one of the following features must be turned on:
- Wholesale Operator Services Feature (5822)—PF54
 - Enhanced CIC Routing for Directory Assistance (6143)—PF55
 - Enhanced CIC Routing for International, Phase 1 Feature (6266)—PF56.
- B. Type of Trunk (TOT) field on TSG form must be equal to Other Connecting Carriers (OCC) (signaling characteristics are either ISUP or MFWINK).
- C. The Trunk Sub-Group (TSG) International World Zone 1 (IWZ1) indicator must be equal to N.
- D. The TSG Incoming Signaling Characteristics (ISC) indicator must be equal to ISUP (Incoming CCITT7 ISDN User Part).
- E. The Trunk Block Outgoing Signaling Characteristics (OSC) indicator must be equal to ISUP (Outgoing CCITT7 ISDN User Part).

C. Recent Change Form 653

NOTE:

Feature 4753 uses ASCIT Question Number 14 to determine to not report exit wink. Question 14 should not be set to Y for wholesale SII values.

3.07 The ASCIT Question Number 22 on Recent Change Form 653 was changed to support this feature. Previously unused, Question 22 now asks the following question:

Should 4ESS preserve and deliver the CIC derived at the Access Switch, but continue to use the AD2 value for SSP call type re-translation for this SII?

Question Number 22 is set to Y for wholesale SII values.

Recent Change Form 653 is verified via Verify Form 16au.

D. 10-Digit Constructed Number to OSPSID Mapping

3.08 This feature requires mapping of the 10-digit constructed number to the Operator Service Position Identification (OSPSID), which is performed using the following RC command:

RC:MISC;FHT,FTA:OSPSTBNID,a,b,c,d,e!, where

a = The order number
b = The required action (A for add)
c = The digit translator level (10-digit)
d = The 10-digit constructed number
e = The OSPSID.

An example of the completed RC command for this feature is:

RC:MISC;FHT,FTA:OSPSTBNID,106,A,D,2000000377,000123!

E. BN or WATSBN to TBN Mapping

3.09 This feature requires mapping of the BN (for SDN) or the WATSBN (for *MEGACOM* * telecommunications services) to the TBN, which is performed using the following RC command:

RC:MISC;FHT,FTA:OSPSBNTBN,a,b,c,d,e!, where

a = The order number
b = The required action (C for change)
c = The numbering plan (P for NANP)
d = The 10-digit BN or WATSBN
e = The TBN value.

An example of the completed RC command for this feature is:

RC:MISC;FHT,FTA:OSPSBNTBN,099,C,P,3123674321,9999999999!

Assigning an SSP Call Type

This feature requires that an SSP Call Type be assigned to provide the translation of the OSPSID to an SSP Call Type with a Call Data of NDB. The assignment of an SSP Call Type can be accomplished using Recent Change Forms 302 and 311.

* Registered service mark of AT&T.

Verify Forms/Messages Affected

A. Verify Output Forms 1a, 1b, and 1c

3.10 The CARSON and SOIP fields (planned for 4E24 Release 1 and later releases) are verified by Verify Output Forms 1a, 1b, and 1c. The valid entries for CARSON and SOIP are blank, N or Y. These forms are also used to verify S9 and S10.

B. Verify Input Message VER:TSGLIST - Verify Form 11d

3.11 The TSG searches for CARSON and SOIP (in 4E24 Release 1 and later releases) are implemented by Verify Input Message VER:TSGLIST.

C. Modified Verify Input Message

3.12 A new keyword was added to the **VER:MISC:FHT OSPSTBNID** verify input message on Verify Form 16de. This input message is used to obtain a list of all entries that possess a specified OSPSID value, including all 3-, 6-, and 10-digit entries that match the input OSPSID. The new input message format is as follows:

VER:MISC:FHT OSPSTBNID, ID x!

where x is an OSPSID value (1-255).

3.13 The existing output Verify Form 6de is used.

Affect on Related Features

3.14 This feature modifies the feature On/Off indicators in Features 5198, 5791, 5840, and 5918, as described below.

A. Carrier Information Code-Based Determination Feature (5198)

3.15 The Carrier Information Code-Based Determination Feature (5198) On/Off indicator, PF30, was modified to automatically turn off certain related features whenever Feature 5198 is turned off. The affected features (and their associated On/Off indicators) are listed below:

- 1+Carrier Identification Code (CIC) Wholesale Feature (5840)—PF50
- Wholesale Operator Services Feature (5822)—PF54

- Enhanced CIC Routing for Directory Assistance (6143)—PF55
- Enhanced CIC Routing for International Feature (6266)—PF56.

B. Long-Term CIC-Based NAI Feature (5791)

3.16 The Long Term CIC Based NAI Feature (5791) On/Off indicator, PF49, was modified to automatically turn off certain related features whenever Feature 5791 is turned off. The affected features (and their associated On/Off indicators) are listed below:

- 1+Carrier Identification Code (CIC) Wholesale Feature (5840)—PF50
- Wholesale Operator Services Feature (5822)—PF54
- Enhanced CIC Routing for Directory Assistance Feature (6143)—PF55
- Enhanced CIC Routing for International Feature (6266)—PF56.

C. 1+CIC Wholesale Feature (5840)

3.17 The 1+CIC Wholesale Feature (5840) On/Off indicator, PF50, was modified to automatically turn off certain related features whenever Feature 5840 is turned off. The affected features (and their associated On/Off indicators) are listed below:

- Wholesale Operator Services Feature (5822)—PF54
- Enhance CIC Routing for Directory Assistance Feature (6143)—PF55
- Enhanced CIC Routing for International Feature (6266)—PF56.

D. Carrier Solution Nodal Feature (5918)

3.18 The Carrier Solution Nodal Feature (5918) On/Off indicator, PF52, was modified to automatically turn off certain related features whenever Feature 5918 is turned off. The affected features (and their associated On/Off indicators) are listed below:

- Wholesale Operator Services Feature (5822)—PF54
- Enhance CIC Routing for Directory Assistance Feature (6143)—PF55
- Enhanced CIC Routing for International Feature (6266)—PF56.

4. Recording

Overview

4.01 The 4ESS switch appends existing AMA Modules 132, 908 and 941 for nodal access wholesale calls. This is the first time that Modules 132 and 941 are used for nodal access wholesale calls.

4.02 The 4ESS switch appends existing AMA Modules 132 and 941 for switched access wholesale calls. This is the first time that Module 132 is used for switched access wholesale calls.

4.03 Module 941 contains the TBN for nodal wholesale calls.

4.04 The 4ESS switch and the Call Detail Recording Platform (CDRP) record the Called Party Number in the Terminating Number field of the AMA records. The 011 digits that precede an international called party number are considered prefix digits and are not recorded as part of the number.

4.05 If the trunk group from the egress switch to the external platform is type OCC, elapsed time recording begins when the call exits the egress switch. The 4ESS switch generates Structure Codes (SC) as follows:

- For MF signaling, SC 0001 or SC 0101 (for Long Duration) if only the ANI is available
- For ISUP-NI signaling, SC 0001 or SC 0101 (for Long Duration) if the Charge Party Number is received and the Calling Party Number (CPN) is not received
- SC 1078 or SC 1080 (for Long Duration) if only the CPN is available
- SC 1500 or SC 1501 (for Long Duration) if neither the ANI nor the CPN is available
- As provided by Feature 5840, structure codes SC 1063, SC 1065, SC 1067, SC 1069, SC 1430, SC 1431, SC 1432 and SC 1433.
- As provided by Feature 5918, the structure codes associated with the Call Code 309 (for MEGACOM telecommunications services) and Call Code 129 (for SDN service).

Module 132 is appended to all of the structure codes listed above.

4.06 The TBN is sent in the TRNUM Event and copied to Table 25 of Module 941 for Enhanced CIC Routed nodal access wholesale calls.

4.07 This feature provides, for the first time, that the 4ESS switch and the CDRP generate Module 941 for enhanced CIC routed nodal access wholesale calls. The switch generates the TRNUM Event for enhanced CIC routed nodal access wholesale calls. Module 941 is shown in Table 8-C.

Table 8-C. Module 941

Information	Table Number	Number of Characters
Module Code	88	4
Incoming Trunk Group Number	83	6
OLI Value/II Digits	421	4
Rating Point Billing Number	25	12
IC/INC Indicator	923	2
IC/INC (CIC Code)	57	6
JIP	25	12.

4.08 Elapsed timing for AMA recording starts when the call is answered. The Answer at Exit concept introduced by Feature 4506 applies to this feature. Answer at Exit as opposed to Real Answer is controlled through the presence of the optional trunk group data element, S9 (CARSON), on the OCC trunk type for the terminating trunk group to the external DA platform. The elapsed time at Real Answer is contained in Module 132.

4.09 The following applies when the OAS and the TAS are the same switch:

- If a call involves only a single 4ESS switch and the egress signaling is SS7 ISUP, the egress trunk type is OCC, with the new trunk group parameter S9 (CARSON) set to Y, the recording of elapsed time is activated on sending of the IAM.

⇒ NOTE:

The trunk group parameter S9 (CARSON) is set to Y only if the office parameter for either this feature, Feature 5822, or Feature 6143 is set to ON.

The 4ESS switch allows S9 (CARSON) to be used for any service except MEGACOM 800-IXC telecommunications services with ANI. This means that the 4ESS switch appends the Answer at Exit Module 132 to the AMA record for any type of call delivered over an OCC TOT with S9 (CARSON) set to Y.

- If a call involves only a single 4ESS switch and the egress signaling is MF, the egress trunk type is OCC with the S9 (CARSON) trunk group parameter set to Y, the recording of elapsed time is activated after seizure of the trunk and a Wink is received.

4.10 When the OAS and the TAS are not the same switch and a call involves multiple 4ESS switches, the recording of elapsed time is activated at the recording 4ESS switch.

4.11 An existing *4ESS* switch trigger generates Module 941 for switched access wholesale calls, which now includes nodal originated wholesale calls. The *4ESS* switch triggers the TRNUM Event for enhanced CIC routed nodal access wholesale calls, populates the TBN digits in the TRNUM Event, and sets the AT Toll Resale/Reseller Indicator in the EOC Event.

4.12 If a match is found in the TBN Table for wholesale nodal access calls, the *4ESS* switch causes the following events to occur:

- The TRNUM Event is generated.
- Bit T (Word 3, bit 0) in the TRNUM Event is set to 1.
- The TRN fields (Word 2, bits 23-0 and Word 3, 23-8) of the TRNUM Event are populated with the TBN value from the TBN Table.
- The T (Word 4, bit 11) of EOC is set to 1. This indicates that the TRNUM Event was sent.
- The AT Toll Resale/Reseller Indicator field E (Word 22, bit 1) in the EOC Event is set to 1.

4.13 When the *4ESS* switch sets bit T in the TRNUM Event to 1 and generates the TRNUM Event, the switch copies the contents of the TRNUM digits field (Word 2, bits 23-0 and Word 3, bits 23-8) to the Table 25 (Characters 2-11). If bit T is set to 0, the switch executes the existing rules associated with the receipt of the TRNUM Event.

4.14 When the *4ESS* switch sets the AT Toll Resale/Reseller Indicator Field E (Word 22, bit 1) to 1 (the existing Reseller Indicator) in the EOC Event, Character 5 of Table 57 is populated with a value of 1.

5. Network Management (Not Affected)

6. Maintenance/Troubleshooting (Not Affected)

7. Transition Considerations

Deployment Requirement

7.01 It is not necessary for all *4ESS* switches in the network to be running the 4E23 Release 3 Generic for this feature to be fully operational.

Planning Considerations

- 7.02** The following information describes the transition plan for this feature:
- For switched access wholesale calls, all DTO trunk groups that support wholesale customers need to be provisioned with the customer's CIC in the Trunk Sub-Group data CID field.
 - The OCC TOT trunks must be provisioned between the egress switch and the external platform with new S9 (CARSON) and S10 (SOIP) trunk group parameters.
 - For customers subscribed to this feature, the 4ESS switch OSPS Access ID (OAID) Table must be populated with the constructed 10-digit number.
 - If the Carrier Solutions platform supports CSN nodal customers prior to the deployment and activation of this feature, and if a wholesale customer subscribes to ECR International Phase 1, the TBN Table must be provisioned with an entry for that wholesale customer's nodal location. This must be done before the 10-digit constructed number is provisioned in the OIAD Table.
 - The office turn on/off feature indicator for this feature (PF56) must be set to on before the TBN Table is provisioned with entries for nodal locations of a wholesale customer subscribed to this feature.
 - The office turn on/off feature indicator for this feature (PF56) must be linked to the office parameters that apply to Features 5840 and 5918. These feature bits must be on before this feature is turned on in the ASN.
 - Feature 5822 must be turned on before the blocking of OLI/II = 06 is removed.

Feature Activation

- 7.03** This feature is activated or deactivated as described in the Provisioning section of this chapter.
- 7.04** This feature can also be turned on or off by an absolute word change. Item OD4PF56 in the OD4OFCCOPY2 structure is the office parameter that controls the on/off state of this feature.



CAUTION:

The OD4OFCCOPY2 structure also contains the on/off bits for many other features. Be certain that any changes you make affect only this feature.

7.05 The following information can be used to turn this feature on or off using the absolute word change:

- Structure: OD4OFCCOPY2
- Core address in 4E23 Generic: 7126222
- Size of OD4PF56: 1
- Displacement: 7
- On: 1
- Off: 0.

Feature Dependencies

7.06 This feature is dependent on the following features being deployed in the network:

- Carrier Solutions Carrier Identification Code Based Determination Feature (5198)
- Carrier Identification Code Based Network Access Interrupt Feature (5791)
- Carrier Solution 1+Carrier Identification Code Wholesale Phase 1 Feature (5840)
- Inband/Q.931 Signaling for Carrier Solution Nodal Customers Feature (5918).

Feature Interactions

7.07 The interactions of this feature with other features and services are described in the following information:

A. Local Number Portability (LNP)

7.08 Local number portability queries are not generated for calls with an international destination.

B. Enhanced CIC Routing for Directory Assistance Feature (6143)

7.09 The Enhanced CIC Routing for Directory Assistance Feature (6143) supports 1+NPA+555+1212 routing to an external platform; this feature supports 011+CC+NN routing to an external international platform. Where a single external platform services both international and directory assistance wholesale call, a separate OSPSID is required for each service to route the calls to the same external platform.

C. Inband/Q.931 Signaling for Carrier Solution Nodal Customers Feature (5918)

7.10 This feature supports wholesale calls that access the AT&T Switched Network via nodal trunk groups when the Trunk Sub-Group parameter, CSN, is set to RESELL or AIWS when a CIC is provisioned in the CID TSG field.

D. Universal International Freephone Number Feature (5353)

7.11 The Universal International Freephone Number (UIFN) Feature (5353) allows the calling party to dial a toll free international number in the format 011+800+8 digits, where 800 is the terminating country code of the international call. Although Feature 5918 provides the administrative capability to block UIFN for RESELL calls, Feature 5353 is used to process both switched access and nodal access wholesale calls. A non-enhanced CIC routed wholesale international call is recorded for call code 326 and structure codes 905/906. However, this feature (6266) is not invoked for UIFN calls that are originated by switched access or nodal access wholesale customers.

E. MEGACOM 800 - Interexchange Carrier with Automatic Number Identification Feature (4401)

7.12 The new Trunk Sub-Group parameter S9 (CARSON), that is provided by this feature, is not provisioned for OCC Type of Trunks that are used for the MEGACOM 800 - Interexchange Carrier with Automatic Number Identification Feature (4401), as well as the related Features 4388 and 4506.

F. Call Redirection Feature (5460)

7.13 Call Redirection is invoked by the TCAP response message from the 2LAC/2NCP to the 4ESS switch. When it uses redirection call processing for wholesale calls, the 4ESS switch derives the new SST value of NAI Redirect and the associated Service Identity Index (SSI) of LDS or NAI-Nodal for the redirected call.

G. Enhanced CIC Routing for Operator Services Feature (5822)

7.14 This feature does not specifically support incoming operator requested international calls (dialed number of 01+CC+NN) and hotel/motel international calls (dialed number of 011+CC+NN) with an II/OLI value of 6. In these cases, this feature defers to the Enhanced CIC Routing for Operator Services Feature (5822), and the calls are treated as wholesale operator calls.

7.15 Feature 5822 provides routing support to an external operator services platform for 0, 00-, 0+, 01+CC+NN, 0+NPA+555+1212, 011+CC+NN where II/OLI equals 6, and 1+NPA+555+1212 where II/OLI equals 6. This feature (6266) provides routing

support for 011+CC+NN calls to an external international platform. If a single external platform serves both international and operator wholesale calls, a separate OSPSID is required for each service to route calls to the same external platform.

7.16 If the office turn on/turn off parameter for Feature 5822 is turned off, the *4ESS* switch applies vacant code treatment for switched access wholesale operator requested international calls, as provided by Feature 5198. For nodal access wholesale operator requested international calls (with Feature 5822 turned off), the *4ESS* switch applies UTA treatment, as provided by Feature 4570.

7.17 This feature (6266) excludes operator requested international calls and international calls with II/OLI values of 6 from treatment as wholesale international calls. Feature 5822 must be turned on before the administrative blocking of II/OLI = 6 is removed.

H. Circuit Selection Capabilities Indicator Recording Feature (5816)

7.18 Feature 5816 requires the *4ESS* switch to pass the Circuit Selection Capability Indicator (CSCI) value assigned to each call to the AMA record.

7.19 The *4ESS* switch generates an AMA record, which includes the CSCI and the SII, for each outbound wholesale call. These records are passed from RICS to CBIS, the outsourced billing system that is used for Carrier Solution. CBIS passes the SII and the CSCI value, unchanged, to ITLF. The ITLF can use this data for trunking forecasting purposes.

8. Input/Output Manual Pages

8.01 The **VER:ASCIT** input message was modified to support this feature. A copy of this message is shown at the end of the chapter for Feature 5822 in this document.

Switch Performance Enhancement for SD Feature (6272)

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Switch Performance Enhancement for SD Feature (6272)

9

1. Feature Description

Background

1.01 The Network Operations Center (NOC) and Network Performance consider turning off Initial Address Message (IAM) intercept for all calls when a pre-SDQuery Manual Control or Directory Function Server Application Overload Control (DFSIOC) Protective Mode Control is in force. Instead, by changing the 4ESS™ switch response to a DFSIOC Protective Mode Control not to turn off IAM intercept, and changing the pre-SDQuery Manual Control so that when a pre-SDQuery Manual Control is in place for one or more specific codes, IAM intercept is turned off only for those codes. If a pre-SDQuery is in place for Hard To Reach codes, IAM intercept is turned off for all calls.

1.02 The location and operation of the actual control is not affected by this change; the pre-SDQuery Manual Control alone is still performed by the 1B processor per existing requirements.

1.03 The counts that are involved with the 4ESS pre-SDQuery control are now broken down so that the counts are specific to the codes that are under control. In addition, there is a new count that specifies the number of calls that are attempted for each code under control.

Description

1.04 This document provides the *4ESS* switch and NEMOS requirements for the *4ESS* switch Performance Enhancements for Segmentation Directory (SD). This feature performs the following:

- Modifies *4ESS* switch behavior in response to a DFSAOC Protective Mode Rate Based Control, so it does not turn off IAM.
- Adds a screening table in the DLN to allow IAM intercept to be turned off only for those specific codes specified by a pre-SDQuery Manual control.
- Adds enhanced measurements for the pre-SDQuery Manual control.

2. Call Flow

Access Call Flow Segments

2.01 This call flow was originally documented in the SD Phase 2 Product Release Document (PRD), Feature 4880, 4E23 Release 1 Generic (234-090-231).

 **NOTE:**

Steps 3 and 4 are being revised per this feature from the original call flow.

1. The originating *4ESS* switch receives one of the following:
 - An Integrated Services Digital Network User Part (ISUP) Initial Address Message (IAM) from an interconnecting Signaling System Number 7 (SS7) network
 - An ISUP IAM from a Direct Connect ISUP Trunk Sub-Group (TSG)
 - An ISUP IAM from an AT&T Operator Service Position System (OSPS) *5ESS*® switch
 - An ISUP IAM from an interconnecting SS7 network via an Alternate Signaling Transport Network - Network Interconnect (ASTN-NI) Gateway switch Interconnect.
 - A Consultative Committee International Telegraph and Telephone (CCITT) SS7 ISUP (INUP) IAM from an interconnecting foreign administration
 - A CCITT SS7 Telephony User Part (TUP) IAM from an interconnecting foreign connection
 - A CCITT6 IAM from an interconnecting foreign administration

- An inband-sigaled incoming international call from an interconnecting foreign administration
 - A Multi-Frequency (MF)—sigaled call from an interconnecting Local Exchange Carrier (LEC)
 - A Q.931 SETUP message on an incoming ISDN TSG
 - A Dual Tone Multi-Frequency/Dial Pulse (DTMF/DP)-sigaled call on an incoming direct-connect TSG.
2. If the incoming call is not using domestic SS7 ISUP signaling, IAM intercept in the Direct Link Node (DLN) does not apply. *Proceed to Step 8.*
 3. The DLN checks to see if the IAM should be intercepted and a query sent to the SD. *Proceed to Step 8*, if any of the following are true:
 - IAM intercept or SD querying is turned off in the originating 4ESS switch.
 - Intercept is disabled due to abnormal conditions.
 - Pre-SDQuery Manual Controls for Hard to Reach codes are in place for the originating switch, the originating 4ESS switch DLN does not examine the message content nor send an SDQuery message, but continues processing the call. The DLN forwards the IAM to the 1B processor and indicates to the 1B processor that the IAM was not intercepted. The switch may send an SDQuery message from the 4ESS switch 1B processor.
 4. The originating switch DLN examines the Network Identification (NID) field of the Originating Point Code (OPC) of the incoming IAM and the presence or absence, length, or content of several parameters of the incoming IAM to determine if it should intercept this particular IAM. If any of the following statements are true, then the originating 4ESS switch DLN does not send an SDQuery message and continues processing the call. The DLN forwards the IAM to the 1B processor and indicates to the 1B processor that the IAM was not intercepted, and the switch may send an SDQuery message from the 1B processor. *Proceed to Step 8.*
 - IAM intercept is turned off for the NID indicated in the OPC of the incoming.
 - The NID indicated in the OPC of the incoming IAM is that of the AT&T network.
 - Both the Calling Party Number and Charge Number parameters are absent from the incoming IAM.
 - The Called Party Number parameter of the incoming IAM matches a code under a pre-SDQuery manual control.
 - The Originating Line Information (OLI) parameter matches one of the values in a provisionable OLI Screening table.

The originating 4ESS switch DLN does not send an SDQuery message and continues processing the call. The DLN forwards the IAM to the 1B processor and indicate to the 1B processor that the IAM was not intercepted, and the switch may send an SDQuery message from the 1B processor. *Proceed to Step 8.*

⇒ NOTE:

If none of the conditions in Steps 3 or 4 are met, the DLN generates a Transaction ID for this call and generates the SDQuery (TCAP BEGIN) message. The DLN then selects an SD, routes the SDQuery and passes the IAM and other information to the 4ESS 1B processor.

If any of the conditions in Step 3 or 4 are met, the DLN does not generate an SDQuery, but passes the IAM to the 4ESS 1B processor which may or not generate an SDQuery.

5. The 4ESS switch DLN generates a Transaction ID for this call.
6. The 4ESS switch DLN generates a SDQuery (TCAP BEGIN) message.
7. The 4ESS switch DLN generates an SD to which to route the SDQuery (TCAP BEGIN) message based on a round-robin routing scheme among the SDs deployed in the network, applying Directory Function Server (DFS) Application Overload controls if in place. The switch starts an SDQuery Timer, start an SDQuery Guard Timer (if turned on), and send the SDQuery message. Then the DLN delivers the IAM and other information to the 4ESS switch 1B processor.
8. The 4ESS switch marks the incoming trunk as "busy".
9. The 4ESS switch performs all existing screening and digit analysis on the call up to, and including, searching the ANI Trigger Table.

If any of the screening results in an indication to kill a call for a reason other than a Network Call Denial (NCD) indication, the 4ESS switch final-handle the call. If an SDQuery message had been sent by IAM intercept, the 4ESS switch also discards the Transaction ID.

10. The originating switch attempts to derive an "SD Transition Type". Examples of SD Transition Types include "BLDS_PCP", "SDN", "USDS", and "POTS". Each SD Transition Type has an SD Transition Status of either PMO (discard SDRresponse message and proceed with existing call processing) or SMO (proceed based on contents of SDRresponse message).

If the call does not fit the conditions for any defined SD Transition Type and is not defined to always derive an SD Transition Status of SMO, the SD Transition Status of the call is PMO.

11. The 4ESS switch proceeds according to the following rules:

- If the call fits one of a set of call types (such as calls incoming from AT&T Trigger Platform (ATP) or network adjuncts), the 4ESS switch handles the call. It does not send an SDQuery message. If an SDQuery message was previously sent due to IAM intercept, the switch ignores any SDResponse message which may be received. **End of SD Call Flow.**
- If the call is not one of the types referred to in the previous step, and:
 - An SDQuery message was sent by IAM intercept, *proceed to Step 14.*
 - An SDQuery message was not sent by IAM intercept and SD querying is turned off in the originating 4ESS switch, the following occurs:
 - 1 If the SD Transition Status of the call is SMO, default-handle the call. *Proceed to the "Default Handling" section in the Call Flow.*
 - 1 If the SD Transition Status of the call is PMO, proceed with existing call processing. **End of SD Call Flow.**
 - An SDQuery message was not sent by IAM intercept due to failure to route the SDQuery message, the switch :
 - 1 If the SD Transition Status of the call is SMO, default-handle the call. *Proceed to the "Default Handling" section in the Call Flow.*
 - 1 If the SD Transition Status of the call is PMO, proceed with existing call processing. **End of SD Call Flow.**
 - An SDQuery message was not sent by IAM intercept for a reason other than failure to route the SDQuery message, and SD querying is turned on in the originating 4ESS switch, the switch attempts to send an SDQuery message from the 1B Processor. *Proceed with Step 12.*

12. Because no SD query was sent from the DLN, the 4ESS switch 1B processor generates an SDQuery (TCAP BEGIN) message.

13. The 4ESS switch applies any Pre-SDQuery manual controls which may be in place. If the controls result in the SDQuery not being sent, the switch determines the following:
 - If the SD Transition Status derived from the call is SMO, depending on the control type installed, and will either do one of the following:
 - Final-handles the call. **End of SD Call Flow**, or
 - Default-handles the call. *Proceed to the "Default Handling" section of the Call Flow.*
14. The 4ESS switch selects an SD to which to route the SDQuery (**TCAP BEGIN**) message based on a round-robin routing scheme among the SDs deployed in the network (incorporating the SD Skip Control) applies DFS Application Overload controls if in place, starts an SD Query Timer, starts an SD Query Guard Timer (if turned on), and sends the SDQuery message.
15. If the incoming call is cleared for any reason, the 4ESS switch discards the Transaction ID associated with the call and SDQuery.
16. The originating 4ESS switch only waits for the SDResponse message if the SD transition status derived for the call is SMO. If the SD Transition Status derived for the call is;
 - PMO, the 4ESS switch closes the SD transaction and proceeds with existing call processing, ignoring any SDResponse message or SPResponse message. **End of SD Call Flow.**
 - SMO, the 4ESS switch waits for the SDResponse message and continues processing the call based on the SDResponse message content. *Proceed to "SD Initial Processing and Response Call Flow Segments" in the Section 2 Call Flow.*

3. Provisioning (Not Affected)

4. Recording (Not Affected)

5. Network Management

Measurements

- 5.01** This feature collects measurements for pre-SDQuery code controls on a per code basis and for Hard-to-Reach codes. The measurements include the following:
- **Pre-SDQ_Blocked_FHT.** This is an hourly count, generated for access by DEMS/DARICS. The 5-minute count for NEMOS is removed.
 - **Pre-SDQ_Blocked_Def.** This is an hourly count, generated for access by DEMS/DARICS. The 5-minute count for NEMOS is removed.
 - **Pre-SDQ_Code_Attempts.** A separate counter is maintained for every code that is under a 4ESS Pre_SDQuery control. If the control is also active for HTR traffic, then a single counter for calls that are labeled HTR are also maintained. This is a 5-minute count, sent every 5 minutes to NEMOS; the code (or HTR) associated with each counter is indicated with each counter.
 - **Pre-SDQ_Code_Blocked_FHT.** A separate counter is maintained for every code that is under the 4ESS Pre_SDQuery control, with the Handling Treatment option set to HTR. If the control is also active for HTR traffic, then a single counter for calls tht are labeled HTR is also maintained. This is a 5-minute count, sent every 5 minutes to NEMOS; the code (or HTR associated with each counter is indicated with each counter.
 - **Pre-SDQ_Code_Blocked_Def.** A separate counter is maintained for every code that is under the 4ESS Pre_SDQuery control with the Handling Treatment option set to Default. If the control is also active for HTR traffic, then a single counter for calls that are labeled HTR are also maintained. This counter is a 5-minute count, sent every 5 minutes to NEMOS; the code (or HTR) associated with each counter is indicated with each counter.

6. Maintenance/Troubleshooting (Not Affected)

7. Transition Considerations

Feature Dependencies

- 7.01** This feature is dependent on the deployment of the following features:
- SD Phase 1 (Feature 4564) - 4E22 Release 2 Generic (234-090-222AC)
 - SD Phase 2 (Feature 4880) - 4E23 Release 1 (234-090-231AC).

Deployment Requirements

- 7.02** It is not necessary for all 4ESS switches in the network to be running the 4E23 Release 3 Generic for this feature to be fully operational.

Feature Activation

- 7.03** This feature is turned on automatically with software deployment.

8. Input/Output Manual Pages (Not Affected)

Segmentation Directory CIC Based Processing and Software Defined Network Default Handling (6426)

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Segmentation Directory CIC Based Processing and Software Defined Network Default Handling (6426)

10

1. Feature Description

1.01 This feature defines two new capabilities that support the migration of the Software Defined Network (SDN) service to the Segmentation Directory (SD) architecture in the SD Phase 2 time frame. The two new capabilities are the SD Carrier Identification Code (CIC) Based Processing and the SDN default handling for 10288 SDN Automatic Number Identification (ANI). This feature assumes that Feature 4564, *SD Phase 1* (4E22 Release 2 Generic), and Feature 4880, *SD Phase 2* (4E23 Release 1 Generic), have previously been deployed.

Segmentation Directory Carrier Identification Code Based Processing

1.02 The SD CIC based processing capability enables the 4ESS™ switch to send the CIC in the SDQuery message to the SD, which uses the CIC as part of the key for Key Service Type (KST) determination. The CIC is received either from the Local Exchange Carrier (LEC) or it is derived based on trunk information. The KST is used as part of the ANI key for ANI match in the SD. For SD Phase 1 and Phase 2, the only key field used to determine the KST value was the Service Type. With this feature, the new key fields used for KST mapping include CIC, Voice/Data indicators, and Service Type.

Software Defined Network Default Handling

1.03 The SDN default handling capability enables the *4ESS* switch to generate a "canned" SDN Automatic Message Accounting (AMA) record when default handling a 10288 switched access SDN call in the SD Mode of Operation (SMO). When this occurs, the call is routed in the Plain Old Telephone Service (POTS) domain, and a call irregularity report is issued.

1.04 The general approach for fault handling, first specified in SD Phase 1 and extended to SD Phase 2, was to use generic processing for default handled calls as much as possible, and to avoid service specific processing. However, the Business Markets Division (BMD) had the need to provide the appropriate billing for SDN customers. This meant that downstream billing and operations systems needed the capability to identify default-handled POTS AMA records that belonged to SDN customers and to process them accordingly. The assessment was that by the time of SDN migration, downstream billing and operations systems would not have the capability to identify default-handled AMA records from SDN ANIs.

1.05 Prior to migrating SDN service from the Present Mode of Operation (PMO) to SMO, BMD Network Implementation Systems (NIS) will start dual-provisioning SDN customer data in the SD, the Universal Global Title (UGT) Number 1 Network Control Point (1NCP), and the *4ESS* switch ANI Trigger Table. After all the *4ESS* switches have completed migrating the SDN service to SMO, the BMD NIS will stop dual provisioning. As long as the ANI Trigger Table exists in the *4ESS* switch, existing SDN ANIs provisioned in the ANI Trigger Table continue receiving SDN default handling specified by this feature.

1.06 New SDN ANIs will be provisioned in the SD only, but are not provisioned in the *4ESS* switch ANI Trigger Table and UGT 1NCP. These new SDN ANIs are not recognized as SDN ANIs by the *4ESS* switch and, therefore, do not receive SDN default handling specified by this feature. However, it is recognized that dual provisioning SDN service may continue for a period of time.

Feature Capabilities Summary

- 1.07** The following capabilities have been developed for this feature. These items are a summary of the capabilities provided for this feature by the *4ESS* switch, the SD, and the Key Service Mapping Table.
- 1.08** The *4ESS* switch does the following:
- Generates a Digits (CIC) parameter in the SDQuery message
 - Supports the use of an office parameter to determine whether to send the digits (CIC) parameter in the SDQuery message
 - Generates a canned SDN AMA record when default handling an SDN call originated from a 10288 switched access SDN ANI
 - Initiates a modified Test Query to support the CIC as an optional input parameter.
- 1.09** The SD is affected by this feature as follows:
- Recognizes a new optional TCAP parameter, Digits (CIC), to support the reception of the CIC code
 - Has an updated SD/SOP-P network data provisioning interface that supports this feature
 - Has a modified SD/AS initiated Test Query that supports the CIC as an input parameter.
- 1.10** The Key Service Mapping Table has been expanded to include both the CIC and the Voice/Data indicator as components of the key. The key components are the Service Type, the CIC, and the Voice/Data indicators. There is no change in the way the service type is derived.

2. Call Flow

Call Flow for 4ESS™ Switch

2.01 The call flow for this feature is presented in this section. The differences between this call flow and the original call flow that occurred for Segmentation Directory (SD) Phase 2, occur in Step 4, Step 6, and Step 12.

1. The originating 4ESS switch receives one of the following:
 - An Integrated Services Digital Network (ISDN) ISDN User Part (ISUP) Initial Address Message (IAM) from an Interconnecting Signaling System 7 (SS7) network
 - An ISUP IAM from a Direct Connect ISUP Trunk Sub-Group (TSG)
 - An ISUP IAM from an AT&T Operator Service Position System (OSPS) 5ESS®-2000 switch
 - An ISUP IAM from an interconnecting SS7 network by way of an Alternate Signaling Transport Network (ASTN) Network Interconnect (NI) Gateway switch
 - A Consultative Committee International Telegraph and Telephone (CCITT) SS7 ISUP IAM from an interconnecting foreign administration
 - A CCITT SS7 Telephony User Part (TUP) IAM from an interconnecting foreign administration
 - A CCITT6 IAM from an interconnecting foreign administration

⇒ NOTE:

The CCITT6 signaling is not expected to be supported in the SD Phase 2 time frame; however, CCITT6 is capable of being supported in the SD Phase 1 time frame and there are no plans to discontinue this support in SD Phase 2.

- An inband-signaled incoming international call from an interconnecting foreign administration
- A Multi-Frequency (MF) signaled call from an interconnecting Local Exchange Carrier (LEC)
- A Q.931 SETUP message on an incoming ISDN TSG
- An MF Dual Tone Multi-Frequency (DTMF) Dial Pulse (DP) signaled call on an incoming direct connect TSG.

2. If the incoming call is not domestic SS7 ISUP signaling, IAM intercept in the Direct Link Node (DLN) does not apply. *Proceed to Step 8.*
3. The DLN checks to see if the IAM should be intercepted and a query sent to the SD. The originating 4ESS switch DLN does not examine the message content send an SDQuery message, but it continues to process the call if any of the following occur:
 - An IAM intercept or SD querying is turned off in the originating 4ESS switch.
 - An intercept is disabled due to abnormal conditions.
 - Pre-SDQuery Manual controls for Hard-To-Reach (HTR) codes are in place at the originating switch.

Under any of these conditions, the DLN forwards the IAM to the 1B Processor and indicates to the Processor that the IAM was not intercepted. The switch may send an SDQuery message from the 4ESS switch 1B Processor. *Proceed to Step 8.*

4. The originating switch DLN examines the Network Identification (NID) field of the Originating Point Code (OPC) of the incoming IAM. It checks the presence or absence, length, and content of several parameters of the incoming IAM to determine if it should intercept this particular IAM. The originating 4ESS switch will not send an SDQuery message and will continue processing the call if any of the following occur:
 - An IAM intercept is turned off for the NID indicated in the OPC of the incoming IAM.
 - The NID indicated in the OPC of the incoming IAM is that of the AT&T network.
 - Both the calling party number and the charge number parameters are absent from the incoming IAM.
 - The called party number parameter of the incoming IAM contains a 7-digit North American Numbering Plan (NANP) number.
 - The called party number parameter of the incoming IAM matches a code under a pre-SDQuery manual control.
 - The called party number parameter of the incoming IAM has the nature of address indicator set to "operator requested."
 - A ported number Generic Address Parameter (GAP) is received from the incoming IAM.

- The Carrier Identification Parameter (CIP) or Transit Network Selection (TNS) parameter is not present in the IAM, and the call is not an 8YY call.
- The Originating Line Information (OLI) parameter matches one of the values in a provisionable OLI Screening Table.

In this case, the DLN forwards the IAM to the 1B Processor and indicates to the 1B Processor that an IAM was not intercepted, and that the switch may send an SDQuery message from the 1B Processor. *Proceed to Step 8.*

5. The 4ESS switch DLN generates a Transaction ID for this call.
6. The 4ESS switch DLN generates an SDQuery (TCAP BEGIN) message. The Digits (CIC) parameter is included if the CIP or TNS parameter is available.
7. The 4ESS switch DLN selects an SD to route the SDQuery (TCAP BEGIN) message to, based on the round-robin routing scheme among the SDs deployed in the network. The 4ESS switch starts an SD Query Timer, starts an SD Query Guard timer (if turned on), and sends the SDQuery message. The DLN delivers the IAM and other information to the 4ESS switch 1B Processor.
8. The 4ESS switch marks the incoming trunk as busy.
9. The 4ESS switch performs all existing incoming call screening and digit analysis on the call up to and including searching the ANI Trigger Table. The ANI Trigger Table search is required to derive the SD Transition type for the call.

⇒ NOTE:

If any of the screening results require that the call be killed for something other than an NCD indication, the 4ESS switch final handles the call. If an SDQuery message had been sent by IAM intercept, the 4ESS switch also discards the Transaction ID.

10. The originating switch attempts to derive an "SD Transition Type".
 - Examples of Transition Types include the following:
 - Business Long Distance (BLDS)
 - Positive Call Processing (PCP)
 - Software Defined Network (SDN)
 - Universal Subscriber Data Structure (USDS)
 - Plain Old Telephone Service (POTS).

- Each SD Transition type has an SD Transition Status of one of the following:
 - Present Mode of Operation (PMO) = Discard SD Response message and proceed with existing call processing.
 - SD Mode of Operation (SMO) = Proceed based on contents of SDResponse message.

⇒ **NOTE:**

Instead of having an SD Transition Type, the call may be defined to always derive an SD Transition Status of either PMO or SMO. This derivation would override an SD Transition Status identified based on an SD Transition Type. If the call does not fit the conditions for any defined Transition Type and is not defined to always derive an SD Transition Status of SMO, the SD Transition Status of the call will be PMO.

11. The 4ESS switch proceeds according to the following rules:

- If the call fits one of a set of call types [such as calls incoming from an AT&T Trigger Platform (ATP) or network adjuncts], the 4ESS switch handles the call per current procedures. It does not send an SDQuery message. If an SDQuery message was previously sent due to IAM intercept, it ignores any SDResponse message that may be received. **End of SD Call Flow.**
- If the call is not one of the type previously listed, actions associated with specific conditions are as follows:
 - An SDQuery message was sent by an IAM intercept. *Proceed to Step 15.*
 - An SDQuery message was not sent by IAM intercept and SD querying is turned off in the originating 4ESS switch. Under this condition the switch does the following:
 - a. If the SD Transition Status of the call is SMO, the call is default-handled.
 - b. If the SD Transition Status of the call is PMO, the call proceeds with existing call processing. **End of SD Call Flow.**

- An SDQuery message was not sent by IAM intercept due to failure to route the SDQuery message. Under this condition, the switch does the following:
 - a. If the SD Transition Status of the call is SMO, the call is default-handled.
 - b. If the SD Transition Status of the call is PMO, the call proceeds with existing call processing. **End of SD Call Flow.**
 - An SD query message was not sent by IAM intercept for a reason other than failure to route the SDQuery message, and SD querying is turned on in the originating 4ESS switch, or the switch attempts to send an SDQuery message from the 1B Processor. *Proceed to Step 12.*
12. Because no SDQuery message was sent from the DLN, the 4ESS switch 1B Processor generates an SDQuery (TCAP BEGIN) message. The 1B Processor derives the CIC [information is contained in the Digits (CIC) parameter] for Switched Access–ISUP NI and Switched Access–Inband.
- For the Switched Access–ISUP NI, the CIC is obtained as follows:
 - If the TNS parameter is present, the CIC is mapped from the TNS parameter.
 - If the TNS is not present, but the CIP is present, the CIC is mapped from the CIP parameter.
 - If both TNS and CIP parameters are not present, but the CIC code Trigger Table (CCTT) TSG parameter is set to YES, the CIC is obtained from the CID TSG parameter. (This item will not take effect until SDQuery messages are sent on Carrier Solutions calls. That change is targeted for the SD Phase 3 time frame.)
 - If both TNS and CIP parameters are not present, the CCTT TSG parameter has been set to NO, and the call arrived in the Software Defined Network Access (SDNA) domain, the CIC is set to 0732.
 - For other calls not meeting any of the above conditions, the CIC is set to 0288.
 - For Switched Access–Inband, the CIC is obtained as follows:
 - If the CCTT TSG is set to YES, and the CIC is inband signaled, the CIC is obtained from inband signaling. (This item will not take effect until SDQuery messages are sent on Carrier Solutions calls. That change is targeted for the SD Phase 3 time frame.)

- If the CCTT TSG parameter is set to YES, but the CIC is not signaled, the CIC is obtained from the CID TSG parameter. (This item will not take effect until SDQuery messages are sent on Carrier Solutions calls. That change is targeted for the SD Phase 3 time frame.)
 - If the CCTT parameter is set to NO, and the call arrived in the SDNA domain, the CIC is set to 0732.
 - For other calls not meeting any of the last three conditions, the call is set to 0288.
- For Incoming International calls [excluding International World Zone 1 (IWZ1)], the CIC is not derived and the Digits CIC parameter is not sent.
 - For Private Branch Exchange (PBX) types of trunks (direct connect), dedicated or by Call TSG, the CIC is obtained as follows:
 - If the call arrived on a nodal TSG with the Carrier Solutions Nodal (CSN) TSG parameter set to AT&T International Wholesale Service (AIWS) or RESELL, the CIC is mapped from the CID TSG parameter if it exists. (This item will not take effect until SDQuery messages are sent on Carrier Solutions calls. That change is targeted for the SD Phase 3 time frame.)
 - If the call arrived in the SDNA domain, the CIC is set to 0732.
 - If the call arrived in non-SDNA domain, the CIC is set to 0288.

⇒ NOTE:

For ISDN Network Specific Facilities (NSF) Information Element (IE) = SDN, there is no need to set the CIC to 0732 because the SD can determine the right Key Service Type value based on the combination of CIC, Voice/Data Indicator, and Service Type.

13. The 4ESS switch applies any pre-SDQuery manual controls that may be in place. If the controls result in the SDQuery not being sent, the switch does the following:
- If the SD Transition Status derived for the call is SMO, depending on the control type installed, the call is handled in one of the following two ways:
 - Final handle the call. **End of SD Call Flow.**
 - Default handle the call.
 - If the SD transition status for the call is PMO, the existing call processing continues. **End of SD Call Flow.**

14. The 4ESS switch selects an SD to route the SDQuery (TCAP BEGIN) message to based on a round-robin routing scheme among the SDs deployed in the network as follows:
 - Incorporating the DS skip control
 - Applying DFS Application Overload controls if in place
 - Starting an SD Query Timer
 - Starting an SD Query Guard Timer (if turned on)
 - Sending the SDQuery message.
15. If the incoming call is cleared for any reason, the 4ESS switch discards the Transaction ID associated with the call and SD query.
16. The originating 4ESS switch waits for the SDResponse message only if the SD Transition Status derived for the call is SMO as follows:
 - If the SD Transition Status derived for the call is PMO, the 4ESS switch closes the SD transaction and proceeds with existing call processing, ignoring any SDResponse message or SPResponse message. **End of SD Call Flow.**
 - If the SD Transition Status derived for the call is SMO, the 4ESS switch waits for the SDResponse message and continues processing the call based on the SDResponse message content. Refer to *Call Flow for Segmentation Directory Complex*.

Call Flow for Segmentation Directory Complex

2.02 Because of the modification of the Key Service type to include CIC and Voice/Data indicators, the SD complex call flow has been affected by this feature. Steps 1 through 7 are presented to show the call flow changes that have occurred since SD Phase 2. At the end of Step 7, the call flow continues as it did in SD Phase 2.

1. Processing by the SD begins with the receipt of an SDQuery message from the 4ESS switch. This message is received by the Signaling Interface System (SIS) by way of the SS7 network.
2. The SIS processes the message up through the SS7 Signal Connection Control Part (SCCP) layer and encapsulates the TCAP layer information, along with SCCP primitives, within a lower layer packet to be forwarded to a Directory Function Server (DFS).
3. When the DFS receives the incoming packet, it first processes and strips off the lower layer protocol headers. Next, the DFS derives the Service Type, Key Service Type, and Voice/Data Indicator values from information received in the SDQuery.

The Service Type is derived according to the following rules:

- If the TSG Service Type is present and is not equal to "LDS", then Service Type is derived according to the TSG Service Type Mapping Table.
- If Originating Station Type (OST) is present, but TSG Service Type is not present or is present but equal to LDS, then Service Type is derived according to the Service Type Mapping Table.
- If neither OST or TSG Service Type are present, the Service Type defaults to LDS.
- If TSG Service Type equals LDS and the OST is not present, then Service Type equals LDS.

The Key Service Type is part of the key for the Line Number Directory Table and is derived from the Service Type, CIC, and Voice/Data Indicator according to the information in the Key Service Type Mapping Table. The default value of CIC equals 288 by the DFS if no value is received.

The Voice/Data Indicator is set to either Voice or Data based on the contents of the Bearer Capability Requested parameter. The default value is to Voice.

4. The DFS must provide default values for parameters not received in the SDQuery. These parameters and their associated default values are set by the DFS as follows:
 - TSG Service Type = LDS
 - Match Restriction Indicator = No restrictions
 - Carrier Selection = Selected carrier code presubscribed and not input by the calling party
 - ASTN Indicator = ASTN not active
 - CIC = 288.
5. The DFS must construct an ANI key to be used to search the data base. This consists of the following fields:
 - ANI = Digits field of Digits ANI parameter
 - ANI Numbering Plan Type = Numbering Plan field of the parameter used to assign the ANI digits in the previous bullet item
 - Key Service Type = derived as in Step 3 above
 - Voice/Data Indicator = derived as in Step 3 above.

6. The DFS next constructs a DN key. This consists of the following fields:
 - DN = Digits field of the Digits Dialed Called Party Number parameter
 - DN Numbering Plan Type = Numbering Plan field of this parameter
 - Voice/Data Indicator = voice
 - Key Service Type = other.

Call flow for Business Unit Services

- 2.03 The call flow for the Business Unit Services has not changed since the original Phase 2 time frame for this feature.

3. Provisioning

Recent Change Forms Affected

- 3.01 The *4ESS* switch provides the recent change capability to turn the office wide SDQUERY_SEND_CIC indicator ON or OFF. The default value is OFF.
- 3.02 If the SDQUERY_SEND_CIC office parameter is OFF, the *4ESS* switch does not send the Digits (CIC) parameter in the SDQuery. If the SDQUERY_SEND_CIC office parameter is ON, the *4ESS* switch sends the Digits (CIC) parameter.

4ESS Switch Direct Link Node

- 3.03 One new condition is checked that affects whether or not the *4ESS* switch generates an SDQuery message: Screening of the Presence of CIC in the CIP or the TNS parameter.

Segmentation Directory Architecture and Data Handling Distributed Computing Platform

- 3.04 The Signaling Message Trapping tool has been modified to accommodate the Transaction Capabilities Application Part (TCAP) parameter containing the CIC code.

Segmentation Directory Architecture and Message Handling

3.05 The Business Unit (BU) data is not impacted by this feature and remains unchanged from that specified for the Phase 2 Segmentation Directory (SD). The Key Service Type (KST) Mapping Table has been modified to include the CIC and Voice/Data Indicator as part of the key. This is in addition to the Service Type previously required. The KST Mapping Table is shown in Table 10-A. In this table, the CIC field is derived from the Digits (CIC) parameter of the SDQuery or is provided as default by the SD application. The Voice/Data and the Service Type indicators are both derived. Voice equals 0 and data equals 1. The Key Service Type is the service type associated with an ANI number or an ANI range. It is used as part of the key for the Domestic ANI Directory Table and for the ANI Range Table.

Table 10-A. Key Service Mapping Table Definitions

Field	Data Class	Source
CIC	Numbers 0-9999	Provisioned
Voice (0)/Data (1) Indicator	Bitmap (1)	Provisioned
Service type	Numbers 0-255	Provisioned
Key Service type	Numbers 0-255	Provisioned

Table 10-B. Key Service Mapping Table Initially Loaded

CIC	Voice/Data Indicator	Service Type	Key Service Type
288	Voice (0)	LDS (00)	Other (00)
288	Voice (0)	WATS/MEGACOM* (52)	WATS/MEGACOM (52)
288	Voice (0)	Cellular (61)	Other (00)
288	Voice (0)	Cellular (62)	Other (00)
288	Voice (0)	Cellular (63)	Other (00)
288	Voice (0)	SDN (93)	SDN (93)
288	Data (1)	SDN (93)	SDN (93)
288	Data (1)	LDS (00)	SDN (93)
288	Data (1)	SDS (254)	SDN (254)
732	Voice (0)	SDN (93)	SDN (93)
732	Data (1)	SDN (93)	SDN (93)
732	Voice (0)	LDS (00)	SDN (93)
732	Data (1)	LDS (00)	SDN (93)

Table Abbreviations

CIC: Carrier Identification Code
 LDS: Long Distance Service
 SDN: Software Defined Network
 SDS: Switched Digital Service
 WATS: Wide Area Telecommunications Service

* MEGACOM telecommunications services is a registered service mark of AT&T.

4. Recording

4.01 The 10288 switched access Software Defined Network (SDN) calls that receive Segmentation Directory (SD) default treatment result in a canned SDN Automatic Message Accounting (AMA) record being generated.

5. Network Management (Not Affected)

6. Maintenance/Troubleshooting

Maintenance Commands

6.01 The 4ESS switch allows the maintenance technician to initiate an SDQuery Test (SDQTST) command via the switch maintenance channel. The Digits (CIC) parameter is an optional parameter in the SDQTST input message. If the technician enters a CIC value, the 4ESS switch sends it to the Segmentation Directory (SD) in the Digits (CIC) parameter. If, however, the CIC value is not entered, the Digits (CIC) parameter is not sent to the SD.

7. Transition Considerations

Updated Software

7.01 This feature introduces a new optional parameter, Digits (CIC), in the SDQuery message. If the Segmentation Directory (SD) has not received the generic update with the capabilities defined by this feature, the SD will not recognize the Digits (CIC) parameter. If this occurs, the SD would discard the unrecognized parameter, peg a measurement count, generate an exception report, and continue with normal query processing. This action would mean that all SDQuery messages with the Digits (CIC) parameter would have a measurement count pegged and an exception report generated. To prevent this from happening, a new office parameter, SDQUERY_SEND_CIC, is introduced at the 4ESS switch to determine whether the Digits (CIC) parameter should be sent in the SDQuery message. The introduction of this parameter removes the dependency between the deployment of the SD generic update and the 4ESS switch release schedule.

7.02 Initially, the SDQUERY_SEND_CIC office parameter should be set to OFF at the 4ESS switch. After all the SDs receive the generic update, the SDQUERY_SEND_CIC office parameter can then be turned on sequentially at each

4ESS switch. Note that even if the SDQUERY_SEND_CIC office parameter is on, not every SDQuery message will contain the Digits (CIC) parameter. If the SD does not receive the Digits (CIC) parameter in the SDQuery, the SD will default the CIC to 288 and determine the Key Service type (KST) using the newly modified KST Mapping Table.

7.03 The Positive Call Processing (PCP), Plain Old Telephone Service (POTS), and Business Long Distance Service (BLDS) are the only services transitioned from Present Mode of Operation (PMO) to SD Mode of Operation (SMO). All of these services have a CIC value of 288. The new KST value for these services (based on the combination of CIC, Voice/Data Indicator, and Service Type) remains the same as the old KST value previously defined in SD Phase 2. There is no negative impact to the SMO call processing nor are there any changes to the general procedures for transition of services.

Data base Retrofit

7.04 The only table structure in the SD changed by this feature is the KST Mapping Table. See Table 10-A. The old KST Mapping Table from SD Phase 2 is deleted and is replaced with the new KST Mapping Table. The SD directory tables are not modified and do not require any data base conversion.

7.05 By deploying this feature between SD Phase 2 and Phase 3, the task is simplified for retrofitting the data base for SD Phase 3. If SDN service is transitioned to SMO under the original SD Phase 2 plan without deployment of this feature, there is no mechanized method to automatically convert SDN customer data from Phase 2 to Phase 3. Under the original SD Phase 3 plan, the KST value of some, but not all, SDN ANIs are changed from "other" to SDN. This action implies that Business Markets Division (BMD) Network Implementation Systems (NIS) has to reprovision customer data, and that the time required for data base retrofit will be increased significantly.

Deployment Requirement

7.06 It is not necessary for all 4ESS switches to be running the 4E23 Release 3 Generic for this feature to be fully operational.

Feature Activation

7.07 Feature 5791 must also be activated to turn on this feature. Use Recent Change Form 809 and turn on bit PF49 to activate feature 5791. Use the same form and turn on bit PF39 to activate this feature.

7.08 This feature can also be turned on or off by an absolute word change. Item OD4PF39 in the OD4OFCCOPY2 structure is the office parameter that controls the on/off state of this feature.



CAUTION:

The OD4OFCCOPY2 structure also contains the on/off bits for many other features. Be certain that any changes you make affect only this feature.

7.09 The following information can be used to turn this feature on or off using the absolute word change:

- Structure: OD4OFCCOPY2
- Core address in 4E23 Generic: 7126221
- Size of OD4PF55: 1
- Displacement: 16 (octal)
- On: 1
- Off: 0.

Impact on Other Systems

A. Network Implementation System Impact

7.10 With the introduction of CIC and the modification of KST Mapping Table, the NIS initiated Test Query and related test commands are impacted. When CIC and Voice/Data Indicator are introduced as part of KST determination, a 10732 switched access call has SDN as its KST value.

B. Network and Computing Services Impact

7.11 The following NCS operational processes are impacted:

- Network Capacity Planning and Delivery—Operation Systems impact is in the DEMS/DARICS, where there is an increased TCAP message size. In the Work Centers, additional NSD net bandwidth is provided for the NSDnet Planning and Provisioning, and additional traffic planning is provided for the Signaling Path Work Center.
- Network Provisioning—Operation Systems impact is in the Signaling Operations Platform—Provisioning, where provisioning of the Key Service Type Mapping Table and 4ESS switch ON/OFF Switch are added. The SDQTST and SDTSTQRY are also modified with this feature. In the Work Centers, the impact is on the expanded Test Query tools and the investigated failures.

- Network Maintenance—Operation Systems impact is in NEMOS where the new 5-minute measurement SDKSTERR is collected and stored. In the Work Centers, the impact is on the Network Operations Center, where additional Call Irregularity Data is gathered and analyzed by the Signaling Network Analysis System.

C. Operating Support System Impact

7.12 The Network Attempt Module of the Dynamic Engineering Mechanized System/ Data Acquisition, Report, and Integrated Communications System (DEMS/DARICS) is enhanced to generate service forecasts for existing SD Phase 1 and Phase 2 services.

7.13 The Link Requirement Module of DEMS/DARICS performs the link requirement calculations to support the increased SDQuery message size by receiving service forecast and total number of attempts from Network Attempt Module of DEMS/DARICS.

8. Input/Output Manual Pages

8.01 One input message, **TEST:SD**, is modified with this feature.

MESSAGE ID	TEST:SD
WORK CENTER	MAC,MOC,NMOC,TOC
GENERIC	4E23 Rel. 3 and later
CLASS	ALL MESSAGE
APPLICATION	4E - Proprietary
TYPE	Input

1. PURPOSE

Requests a test query to be sent to the Segmentation Directory (**SD**) database from the 4ESS™ Switch serving as an Originating AT&T Switch (OAS). This test query verifies Triangular Call Flow between the 4ESS™(OAS), **SD**, and Service Processor (**SP**) (NCP database) utilizing the Common Channel Signaling Version 7 (CCS7) Transaction Capability Application Part (TCAP) protocol. It also will enable office personnel, via input messages, to initiate queries to verify the interactions between the 4E and **SD**, and the **SP** and the 4E. The contents of specific responses sent by the **SD** complex to the 4ESS™, and the responses sent by the **SP** will be displayed. The **SP** response will only be printed if the **SD** response indicates to "wait for instructions". This query is designed to be used as a testing vehicle for data associated with a particular customer.

2. FORMAT

TEST:SD;DIG a: [QRYTYPE *b* [,]] [DPC *c* [,]] [ANI *d* [,]|ANI *d*,APN [,]] [SP *e* [,]]
 [TOS *f* [,]] [NMTCH *g* [,]] [CAR *h* [,]] [SID *i* [,]] [TYP *j* [,]]
 [REF *k* [,]] [TMSD *l* [,]] [TMSP *m* [,]] [AUTHCODE *n* [,]] [CCF *o* [,]]
 [DIGITS *p* [,]] [LANI *q* [,]] [CD [,]] [LIST]!

3. EXPLANATION OF MESSAGE

- a* Called party number. A North American Numbering Plan (NANP) 10 digit number or 011 + International 5-15 digit number is required.
- b* **SD**-Query type:
- 1— Specific destination.
 - 2— Any destination. Default.
 - 3— All.
- c* **SD** destination. **SD** point code is only entered if the **SD** query type is equal to specific destination.
- d* Automatic Number Identification (**ANI**) digits. A 10 digit **ANI** is required.
- APN** Action Point Numbering Plan (**APN**) indicates **ANI** is **APN**.

- e* **SP** destination:
- 0— Any available **SP**. Default.
 - 1— **SP** address 1.
 - 2— **SP** address 2.
 - 3— **SP** address 3.
 - 2— **SP** address 4.
 - 5— **SP** address 3.
 - 6— **SP** address 6.
 - 7— **SP** address 7.
 - 8— **SP** address 8.
- f* Trunk Subgroup (TSG) service type:
- 1— Software Defined Network (SDN)
 - 3— Megacom®
 - 6— Switched Digital Service (SDS)
 - 7— Long Distance Service (LDS) Default.
- g* Match restriction indicator. For **SD** Phase I, the default is always sent by the switch.
- 0— No restrictions. Default.
 - 1— Match on **ANI** only.
 - 2— Match on Dialed Number (DN) only.
- h* Carrier selection:
- 0— No Indication
 - 1— Selected carrier identification code presubscribed and not input by the call party.. Default.
 - 2— Selected carrier identification code presubscribed and input by the calling party
 - 3— Selected carrier identification code presubscribed, no indication of whether input by the calling party
 - 2— Selected carrier identification code not presubscribed and input by the calling party

<i>i</i>	10 digit calling directory number.
<i>j</i>	Origination station type. Format is two ANI II digits.
<i>k</i>	Bearer capability requested. <i>0</i> — Voice call, default. <i>1</i> — 1.536 Megabits Per Second (MBPS) clear. <i>2</i> — 1.536 MBPS restricted. <i>3</i> — 384 MBPS clear. <i>2</i> — 384 MBPS restricted. <i>5</i> — 64 Kilobits Per Second (KBPS) clear. <i>6</i> — 56 KBPS. <i>7</i> — 64 KBPS restricted.
<i>l</i>	SD query test timer (<i>3-120</i>). Each number is an increment of 100 ms. Default value is the provisioned value.
<i>m</i>	SP response test timer (<i>3-120</i>). Each number is an increment of 100 ms. Default value is the provisioned value.
<i>n</i>	Authorization code (15 digits). Parameter is accepted but the value is not sent in the TCAP message.
<i>o</i>	Concentrated Calling Feature (CCF) override code (8 digits). Parameter is accepted but the value is not sent in the TCAP message.
<i>p</i>	Carrier Identification Code (CIC) digits parameter. Three or four digits accepted.
<i>q</i>	Local ANI (LANI) . This parameter consists of 10 digits.
CD	Continue Data (CD) is used when there is too much data for one-line a second test query has to be entered with the remaining data. (Example: TEST:SD;DIG 3128231200:CD! followed by TEST:SD;DIG 3128231200:QRYTYPE 1,DPC 234233101!)
LIST	Performs raw dump of TCAP messages sent to and received from SD or SP database.

4. SYSTEM RESPONSE

<i>?D</i>	Data field contains an error. Invalid or out-of-range data was received in the input message.
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<i>?D,CODE1</i>	Data field contains an error. A keyword was entered twice.
<i>?D,CODE2</i>	Data field contains an error. Invalid SD destination detected, or illegal combination of SD destination and QRYTYPE .
<i>?D,CODE3</i>	Data field contains an error. Invalid SD query type detected.
<i>?D,CODE4</i>	Data field contains an error. Invalid called party number digit count detected.
<i>?D,CODE8</i>	Data field contains an error. Invalid ANI digit count detected.
<i>?D,CODE9</i>	Data field contains an error. Invalid SP destination detected.
<i>?D,CODE10</i>	Data field contains an error. Invalid TSG service type detected.
<i>?D,CODE11</i>	Data field contains an error. Invalid Match Restriction Indicator detected.
<i>?D,CODE12</i>	Data field contains an error. Invalid Carrier Selection detected.
<i>?D,CODE13</i>	Data field contains an error. Invalid Called Directory digit count detected.
<i>?D,CODE15</i>	Data field contains an error. Invalid Inbound Supplemental Origination Information detected.
<i>?D,CODE16</i>	Data field contains an error. Invalid Station Group Designator detected.
<i>?D,CODE17</i>	Data field contains an error. Invalid Bearer Capability detected.
<i>?D,CODE18</i>	Data field contains an error. Invalid SD Query Test timer value detected.
<i>?D,CODE19</i>	Data field contains an error. Invalid SD Response timer value detected.
<i>?D,CODE20</i>	Data field contains an error. Invalid Authorization Code detected.
<i>?D,CODE21</i>	Data field contains an error. Invalid Concentrated Calling Feature override code detected.
<i>?D,CODE22</i>	Data field contains an error. Unrecognized keyword.
<i>?D,CODE23</i>	Data field contains an error. The TMAD0005 PIDENT found errors.
<i>?D,CODE24</i>	Data field contains an error. Missing mandatory parameters.
<i>?D,CODE25</i>	Data field contains an error. Illegal keyword combination.

<i>?D,CODE26</i>	Data field contains an error. Invalid Local ANI digits.
<i>?D,INVKW</i>	Data field contains an error. Unrecognized keyword.
<i>?D,XTRAKW</i>	Data field contains an error. Duplicate keywords have been entered.
<i>?E</i>	Error exists in the message but cannot be resolved to the proper field. Required parameters are missing, or some duplicate keywords or errors in data was detected.
<i>PF</i>	Printout Follows. The test query has been initiated and the results will be printed.
<i>RL</i>	Retry Later. No Teletypewriter (TTY) output buffer or trunk query register available.

5. REFERENCES

PIDENT
IOCPIMC4
TESTSEGD
TMAD0005

Output Message
TEST:SD

International Toll Free Service— TEST:TCAPDSD Support FSIT Routing Feature (6487)

11

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International Toll Free Service— TEST:TCAPDSD Support FSIT Routing Feature (6487)

11

1. Feature Description

1.01 This feature modifies the **TEST:TCAPDSD** message to allow the country or carrier of origin information to be included in a test Transaction Capabilities Application Part (TCAP) message. This new capability allows National Electronic Switching Assistance Center (NESAC) technicians to test the Foreign Subscriber Identifying Telephone (FSIT) number format and all other formats of International Toll Free Service (ITFS) inbound calls.

1.02 Before the introduction of this feature, the Country Code (CC) and Foreign Administration Identifier (FAI) could not be specified in the **TEST:TCAPDSD** message. With the introduction of this feature, the following two keywords have been added for this purpose:

- Digits
- II.

1.03 The test message, **TEST:TCAPDSD** is used in all customer troubles for dialed number-based services. The purpose of this test is to determine if the routing is correct for the response received from Direct Services Dialing (DSD).

1.04 This test message is updated to handle ITFS testing and sectionalizing the AT&T network from that of the foreign Telecommunication Administration when the FSIT format of the Network Routing Number (NRN) is used.

2. Call Flow (Not Affected)

3. Provisioning (Not Affected)

4. Recording (Not Affected)

5. Network Management (Not Affected)

6. Maintenance/Troubleshooting (Not Affected)

7. Transition Considerations

Feature Dependencies

This feature is dependent on the following features deployed in the network:

- Feature 3973, *Inbound 1800 Separation of Country Code from Network Routing Number (4E 18 Release 3 Generic)*, 234-090-183.
- Feature 4785, *Inbound 1800 Carrier Specific Routing and Enhanced Call Origination (4E 21 Release 4 Generic)*, 234-090-214.

⇒ NOTE:

Customers must have purchased the previous features before Feature 6487 can be activated.

Deployment Requirements

- 7.01** It is not necessary for all 4ESS™ switches in the network to be running the 4E23 Release 3 Generic for this feature to be fully operational.

Feature Activation

- 7.02** This feature is turned on automatically by software deployment.

8. Input/Output Manual Pages

8.01 Two new keywords, Digits and II, are added to the **TEST:TCAPDSD** Input Manual Page to support this feature. The new keywords are used to input the FAI and to enter the country code.

MESSAGE ID	TEST:TCAPDSD
WORK CENTER	MAC, MOC, NMOC, TOC
GENERIC	4E23 Rel. 3 and later
CLASS	ALL MESSAGE
APPLICATION	4E - Proprietary
TYPE	Input

1. PURPOSE

Requests a test query to be sent to the Network Control Point (NCP) from the 4ESS™ Switch serving as an Action Control Point (ACP). This test query tests the integrity of the Common Channel Signaling Version 7 (CCS7) network between the two end points utilizing the Consultative Committee on International Telephone & Telegraph (CCITT) based Transaction Capability Application Part (TCAP) protocol. It also serves as a tool to test the data for a particular Direct Services Dialing (DSD) customer. The types of queries sent to the NCP can be for Automatic Number Identification (ANI) - based services (Switched Digital Network [SDN]), dialed number-based services (A800 types) or Universal Subscriber Data Structure (USDS).

Format [1] is used to request an ANI-based test query (SDN services).

Format [2] is used to request a dialed number-based test query (A800 type services).

Format [3] is used to request a Universal Global Title Translation (UGTT) test query.

Format [4] is used to request a Network Access Interruption (NAI) test query.

Format [5] is used to request a Universal Subscriber Data Structure (USDS) test query.

Format [6] is used to request a destination-only query.

Format [7] is used to request a ANI-only query.

Format [8] is used to request both a destination and ANI query.

Format [9] is used to request the Local ANI digits in an SDN query.

Format [10] is used to request the Local ANI digits in a Positive Call Processing (PCP) query.

Format [11] is used to request the Carrier Identification Code in the NAI query.

Format [12] is used to request Local Nodal 8YY screening test query.

Format [13] is used to request dialed number based pay phone test queries.

Format [14] is used to request End Office Local Nodal (EOLN) digital link phase IV test queries.

Format [15] is used to request dialed number based queries using Foreign Subscriber Identifying Telephone (FSIT) routing.

2. FORMAT

[1] **TEST:TCAPDSD;QRYTYPE a:DIG b,ANI c [,APN] [,AUTHCODE d] [,RATE e] [,SGD f] [,RID g [,RID1 h [,RID2 i]]] [,CAR j] [,LIST] [,CD]!**

- [2] **TEST:TCAPDSD;QRYTYPE a:DIG b,ANI c [,RATE e] [,APN] [,RID g [,RID1 h [,RID2 i]]] [,LIST] [,CD]!**
- [3] **TEST:TCAPDSD;QRYTYPE a:{ANI c/ANI c,APN} [,SD]!**
- [4] **TEST:TCAPDSD;QRYTYPE 3:DIG b,ANI c [,RATE e] [,IIDIGITS k/,OLI l/,CID m/,OLI l,CID m]!**
- [5] **TEST:TCAPDSD;QRYTYPE 8:DIG b,ANI c [,IIDIGITS k/,OLI l] [,RATE e] [,TYP n] [,LIST] [INSEPR o]!**
- [6] **TEST:TCAPDSD;QRYTYPE 11:DIG b,RATE 1!**
- [7] **TEST:TCAPDSD;QRYTYPE 11:DIG b,ANI c,RATE 2!**
- [8] **TEST:TCAPDSD;QRYTYPE 11:DIG b,ANI c,RATE 3!**
- [9] **TEST:TCAPDSD;QRYTYPE 1:DIG b,ANI c [,APN] [,AUTHCODE d] [,RATE e] [,SGD f] [,LANI p] [,RID g [,RID1 h [,RID2 i]]] [,LIST] [,CD]!**
- [10] **TEST:TCAPDSD;QRYTYPE 10:DIG b,ANI c [,APN] [,AUTHCODE d] [,RATE e] [,SGD f] [,LANI p] [,RID g [,RID1 h [,RID2 i]]] [,LIST] [,CD]!**
- [11] **TEST:TCAPDSD;QRYTYPE 3:DIG b,ANI c [,RATE e] [,IIDIGITS k/,OLI l/,CID m/,OLI l,CID m] [,CAR j]!**
- [12] **TEST:TCAPDSD;QRYTYPE 13:DIG b,LANI p [,RATE e]!**
- [13] **TEST:TCAPDSD;QRYTYPE a:DIG b,ANI c [,RATE q] [,APN] [,RID g [,RID1 h [,RID2 i]]] [,LIST] [,CD]!**
- [14] **TEST:TCAPDSD;QRYTYPE 12:DIG b,ANI c [,OLI l] [,SID r] [,LIST]!**
- [15] **TEST:TCAPDSD;QRYTYPE 3:DIG b [,ANI c] [,DIGITS s] [,II t] [,LIST]!**

3. EXPLANATION OF MESSAGE

- a* The type of query to be sent:
- 1— ANI-based query
 - 2— Non Call Associated Temporary Signaling Connection (NCAT) ANI-based query
 - 3— Dialed number-based query
 - 4— NCAT dialed number-based query

- 5— NAI query
- 6— UGTT query
- 7— NCAT UGTT query
- 8— USDS query.
- 9— EasyReach® query.
- 10— PCP query.
- 11— Local Number Portability (LNP).
- 12— Universal International Freephone Number (UIFN) query.
- 13— Local Nodal 8YY screening query.
- 14— End office local nodal (Digital Link Phase IV).

- b* Customer specific digits that are required for the particular type of DSD call. Digits for the ^ANI-based queries can be either 7 digits or 10 digits. For the dialed ^number-based query, 10 digits must be specified. For international SDN and USDS queries, a "011" must prefix the dialed number, this is only valid for Format [1], Format [4], and Format [5]. 11 digits may be specified for Universal International Freephone Number (UIFN) calls.
- c* A required variable for the ^ANI-based and USDS test queries. Customer's ^10-digit automatic number identification. For USDS, a 3 digit ANI is permitted.
- d* A customer's authorization code number. It is an optional variable. There can be a maximum of 12 digits. For EasyReach® query type this is the echo data that should be sent in the requery to the Quantum Routing Data System (QRDS). This can be a maximum of 10 bytes (20 digits).
- e* An optional variable used to specify a data rate for a DSD call. Not valid for LNP queries.
 - 0— Non data (voice call) For USDS, this is the only valid value of data rate.
 - 1— 1.536 Megabits Per Second (MBPS) clear
 - 2— 1.536 MBPS restricted
 - 3— 384 Kilobits Per Second (KBPS) clear
 - 4— 384 KBPS restricted

5—	64 KBPS clear
6—	56 KBPS
7—	64 KBPS restricted
<i>f</i>	Station group designator number. An optional variable for ^ANI-based queries. The value specified as input depends on the individual customer.
<i>g</i>	First set of Caller Interaction (CI) digits. Maximum number of digits is 15.
<i>h</i>	Second set of CI digits. The second set is not accepted unless the first set of CI digits have been entered. Maximum number of digits is 15.
<i>i</i>	Third set of CI digits. The third set is not accepted unless the first and second set of CI digits have been entered. Maximum number of digits is 15.
<i>j</i>	Carrier Identification Code. This must be a 4-digit number. These digits are used by the Number 2 Line Number Application For Consumers (2LAC)/ Network Control Point (NCP) databases for fraud detection. (Format [11]) These digits are used by the Number 2 Direct Services ANI Base (2DSA)/ Network Control Point (NCP), refer to Format [1].
LIST	If this keyword is present in the input message, then the dump of the message received from the NCP database is printed.
CD	Continuation Data (CD) indicates that this is one of two input messages. This is only valid if the RID keyword is used with the CD keyword on the first of two input messages. The QRYTYPE and DIG parameters are required in the second message.
APN	If this keyword is used to define the ANI variable, then the ANI must be an Action Point Numbering Plan (APN) ANI. If this keyword is not used to define the variable, then the ANI must be a North American Numbering Plan (NANP) ANI.
SD	Only valid with a UGTT query. If present then the secondary UGTT database will be queried. Default is to query the primary database.
<i>k</i>	Information digits, also called the originating station type. Identifies characteristics of the calling station (0-99).
<i>l</i>	Originating line identity, also called the originating station type (0-99). For EOLN test queries the valid OLI values are: 40 - PCP transition type and 41 - SDN transition type.

<i>m</i>	Carrier selection information: 1— Presubscribed, no input. 2— Presubscribed, input. 3— Presubscribed, input or not. 4— Not presubscribed, input.
<i>n</i>	Access type: 1— Switched access.
<i>o</i>	Input Service Provider (INSEPR) message Identification (ID) (1-9).
<i>p</i>	Local ANI digits. This should be 10 digits. These digits identify a Local Nodal customer.
<i>q</i>	II/OLI digits: 5— II/OLI of 27. 6— II/OLI of 29. 7— II/OLI of 70.
<i>r</i>	Calling directory number. The calling directory number is sent to the SDN database for EOLN test queries. This parameter consists of 10 digits.
<i>s</i>	Foreign Administration Identity (FAI) (0-7). Identifier of the foreign administration that routed the call to the AT&T network.
<i>t</i>	Country code (1-3 digits in length). This parameter identifies the country of origin of an inbound 8YY call.

4. SYSTEM RESPONSE

<i>?D</i>	Data field contains an error. Invalid or out-of-range data was received in the input message.
<i>?E</i>	Syntax Error exists in the message but cannot be resolved to the proper field. An invalid keyword combination was discovered.
<i>PF</i>	Printout Follows. The test query has been initiated and the results will be printed.
<i>RL</i>	Retry Later. No Teletypewriter (TTY) output buffer or trunk maintenance register available.

5. **REFERENCES**

PIDENTs

DSDCMESS

IOCPIMC4

TCAPTEST

TMAD0005

Output Message

TEST:TCAPDSD

Terminating Traffic Architecture Feature (6745)

12

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Terminating Traffic Architecture Feature (6745)

12

1. Feature Description

1.01 This feature describes the *4ESS*[™] switch function involved in routing Terminating Traffic Architecture (TTA) eligible calls on High Usage (HU) trunk routes to a switch owned by AT&T that is not a *4ESS* switch.

1.02 The TTA relieves *4ESS* switches of traffic that terminates through them from other *4ESS* switches. Only switched-egress traffic [traffic routed to Local Exchange Carriers (LECs) or Certified Local Exchange Carriers (CLECs)] can be routed under the TTA. Therefore, originating traffic and traffic nodal customers cannot be routed using the TTA.

1.03 Under TTA, terminating traffic is removed by the Originating AT&T Switch (OAS). The OAS sends the traffic on a route that bypasses the exhausting Terminating AT&T Switch (TAS). First, the OAS identifies the eligible terminating traffic. It then offers the traffic to one or more HU trunk groups, bypassing the TAS. The overflow from these HU trunks is routed through the TAS using Real Time Non-Hierarchical Routing (RTNR).

1.04 The following three scenarios apply to TTA:

- Sending eligible terminating traffic on the HU trunk group to a switch owned by AT&T that is not a *4ESS* switch (TTA switch)
- Sending eligible traffic on HU trunk groups directly to a LEC Access Tandem (AT) or End Office (EO)
- Sending eligible terminating traffic to a CLEC-owned switch.

The decision to deploy one of the three scenarios is made on an office-by-office basis.

1.05 In routing a call on the RTNR route to a (AT&T) TTA, if the facilities from that switch are not available to route the call to a particular (LEC or CLEC) AT or EO, the TTA switch releases the call to the OAS with a specific cause value instead of defining those facilities as final and playing busy tone. The OAS overflows the call on the RTNR route for call completion.

Network Architecture

1.06 The termination relief at the exhausting 4ESS switch is achieved by provisioning Multiple Routing Treatment (MRT) tables at the OASs. The MRT tables include some or all of the NPA-NXXs terminating to the switched-egress facilities from the TASs. When a call received at the OAS is routed to an NPA-NXX as part of the Destination Number (DN), the MRT table directs the HU trunk route to the alternate egress switch as the first choice route from the OAS (bypassing the exhausting TAS), and the RTNR intertoll route as the overflow route. See Figure 12-1.

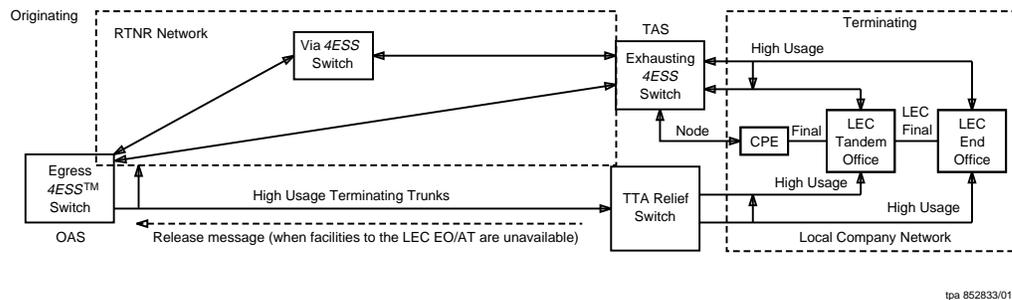


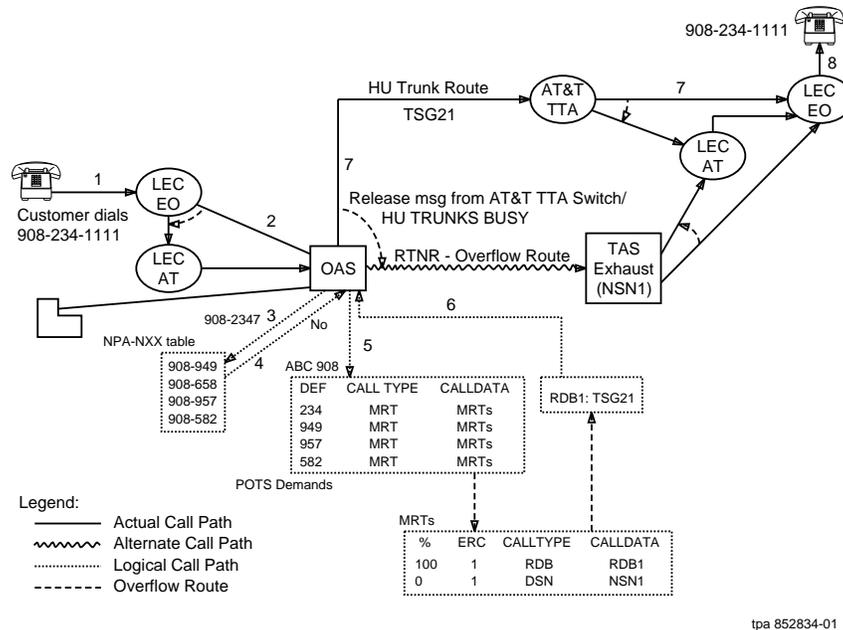
Figure 12-1. Exhausting Relief for a 4ESS™ Switch (AT&T-owned)

Terminating Traffic Architecture

1.07 For calls eligible to take the HU trunk route (based on the MRT tables), the HU trunks from the OAS to the TTA switch are provisioned with a new TTA Trunk Sub-Group (TSG) characteristic set to **YES**. When an Integrated Services Digital Network (ISDN) User Part (UP) **REL message** with a Cause Value of 34 is received from a (AT&T) TTA switch, the OAS routes the call on the overflow route in the RTNR network according to information contained in the MRT table.

2. Call Flow

Call Flow Diagram



tpa 852834-01

Figure 12-2. Call Routed Via an AT&T TTA Switch

Call Flow Narrative

2.01 The following steps describe the call flow (illustrated in Figure 12-2) for a call routed by an AT&T TTA switch:

1. The caller dials 908-234-1111.
2. The call arrives at the OAS via a LEC End Office/Access Tandem or via a direct connect facility.
3. The OAS completes all the service processing for the call and determines the call routing based on the DN/ Routing Number (RN).
4. The OAS performs 6-digit translation on the DN/RN.

5. The 6-digit translation points the OAS to an MRT table (the 4ESS switch serving this NPA-NXX is reaching termination exhaust).
6. The MRT table indicates that the call should be routed on the HU trunk route that connects to a TTA switch (in this case, an AT&T TTA switch).
7. The OAS attempts to route the call on the HU Trunk route.

If the...	And the...	Then the...
Route is busy	—	MRT table indicates the overflow RTNR route to the exhausting TAS. The OAS routes the call on this route and the call completes. End of call flow.
Route is not busy	—	OAS waits to determine if the AT&T TTA switch has a facility available to route the call [based on the TTA indicator (set to YES)] on the trunk connecting the TTA switch to the appropriate LEC End Office/Access Tandem.
	AT&T TTA switch does not have facilities available	TTA switch returns an ISUP REL Message with Cause Value 34, indicating that all trunks are busy. The OAS (based on the MRT table) routes the call on the overflow RTNR route to the exhausting TAS. The TAS completes the call. End of call flow.
	AT&T TTA switch has facilities available	OAS successfully routes the call on the HU trunk route to the AT&T TTA switch. No Terminating Access Charge Verification (TACV) record is created at the OAS since the SINDEXT parameter for the trunk is zero/blank.

8. The AT&T TTA switch then completes the call to the called party, bypassing the exhausting 4ESS switch. The TTA switch also creates a terminating access Automatic Message Accounting (AMA) record for the call. **End of call flow.**

3. Provisioning

Structures Affected

A. HT4BNCORE

- 3.01** One existing spare TSG field and one item is used for this feature in the 4E23 Release 3 Generic, HT4TBNCORE spare item **XL4TB_S4** (1 bit) and TSG field **S4**.

- 3.02** The existing forms are not changing for this Generic Release. Table 12-A defines the valid states for XL4TB_S4.

Table 12-A. XL4TB_S4 Assigned States

Form Entry	Symbol	Value
Blank or N	4XLTB_SPARN	0
Y	4XLTB_SPARY	1

⇒ NOTE:

Blank is allowed only if the field has not been previously populated with **Y**. Otherwise, this field is populated with **N**.

B. HT4TSG

- 3.03** For the 4E24 Generic Release, a new TSG item is required for this feature. Table 12-B defines the valid states.

Table 12-B. TSG Assigned States

State or Value	Description
XL4TS_TTA	Terminating Traffic Architecture indicator
4XLTS_TTA_N (=0)	Blank or N = Not involved with TTA
4XLTS_TTA_Y (=1)	Y = Involved with TTA

Recent Change Forms Affected

- 3.04** For the 4E23 Release 3 Generic, no changes are being made to Recent Change (RC) Forms 100, 101, 102, 107, 108, and 109. Spare item **XL4TB_S4** and TSG field **S4** are used for this feature. Valid entries for the **TTA** field are **Blank**, **N**, or **Y**. If the TTA field is populated with either **N** or **Y**, a check is performed to ensure that the office is an AT&T switch (OD4OPTENH equals 4ODOPT_YES).
- 3.05** For the 4E24 and later generic releases, the new TSG field **TTA** will be added to these forms. Field S4 will become a spare field again.

Verify Forms Affected

- 3.06** For the 4E24 and later generic releases, the new field **TTA** will be added to Output Forms 1a, 1b, and 1c. The valid output entries are **Blank, N, or Y**.

4. Recording (Not Affected)

5. Network Management (Not Affected)

6. Maintenance/Troubleshooting (Not Affected)

7. Transition Considerations

Generic Retrofit

A. 4E23 Release 3 Generic

- 7.01** There are no changes to the existing forms and no population rules are needed. The associated memory item **XL4TB_S4** and spare TSG field **S4** are used for this feature.

B. 4E24 Generic Release

- 7.02** For the 4E23 to 4E24 Generic retrofit, the spare trunk block item **XL4TB_S4** is mapped to the associated TSG item and initialized to zero. The new TSG field **TTA** replaces the temporary use of the spare field S4. See Section 3, **Provisioning**.

Deployment Requirements

- 7.03** It is not necessary for the 4E23 Release 3 Generic to be deployed in all *4ESS* switches for this feature to be fully operational.

Feature Activation

7.04 This feature is activated by a 1B Recent Change to set the TSG indicator.

8. Input/Output Manual Pages

8.01 For the 4E24 and later generic releases, a new TSG search for the TTA field is implemented using the Input Message **VER:TSGLIST**. There are no I/O Message impacts on the 4E23 Generic.

Network Access Interrupt Call Redirection with AT&T Trigger Platform Feature (6757)

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Network Access Interrupt Call Redirection with AT&T Trigger Platform Feature (6757)

13

1. Feature Description

1.01 This feature is a modification of Feature 5460a located in this same release. It extends the time interval for calls involving AT&T Trigger Platform (ATP) features to be Network Access Interrupt (NAI) call redirected.

Background

1.02 Prior to this feature, any call involving an ATP feature was unable to redirect because the interval ends when a P1 leg is seized to an ATP-controlled Service Circuit Unit (SCU). With this feature, the interval ends when an ISUP Address Complete Message (ACM) is received with respect to an outgoing trunk from the switch or equivalent with other signaling types.

1.03 This feature redefines the interval during which calls are redirected by NAI Phase 3A to include redirection of calls involving ATP. For calls that involve ATP features, the interval ends when the 4ESS™ switch receives an ISUP ACM with respect to the outgoing trunk.

2. Call Flow (Not Affected)

3. Provisioning (Not Affected)

4. Recording (Not Affected)

5. Network Management (Not Affected)

6. Maintenance/Troubleshooting (Not Affected)

7. Transition Considerations

Feature Dependencies

- 7.01** This feature is dependent on Feature 5460a, *NAI Call Redirection for 500, 900 and ATP Calls*, which is included in this release.

Deployment Requirements

- 7.02** It is necessary for all 4ESS switches in the network to be running the 4E23 Release 3 Generic for this feature to be fully operational.

Feature Activation

- 7.03** This feature is turned on automatically by software deployment.

8. Input/Output Manual Pages (Not Affected)

Release Summary—4E23 Release 3 Generic

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Release Summary—4E23 Release 3 Generic

14

1. Growth and Retrofit Documents

1.01 The *4ESS* switch Growth and Retrofit Planning Group reports that the new features in the 4E23 Release 3 have no impact on the Growth and Retrofit documents.

2. Input/Output Messages

2.01 The following lists include the input and output messages for the 4E23 Release 3 Generic. A notation is included indicating whether each message is new, revised, or deleted. If the change is related to a specific feature, the feature number is included in parentheses.

■ 4E23R3 Input Messages (IM-4B000-01)

— alw:macli	REV (535)
— dump:xtsi-spu	NEW (4043)
— inh:macli	REV (535)
— rst:xtsi-all	NEW (4043)
— set:clk	REV (476)
— stop:test-perif	DEL
— stop:test-pusy	REV
— test:perif	DEL
— test:pusys	REV
— upd:hdata	REV (5005)
— ver:codegrp-type	REV (516)
— ver:misc	REV (516)
— ver:office	REV (6142)

- 4E23R3 Output Messages (IM-4B000-01)
 - dump:xtsi-spu REV (4043)
 - op:sdcc REV (4043)
 - rept:macli-gutl NEW (535)
 - rept:prog REV (535)
 - rst:xtsi-schedul NEW (4043)
 - test:perif DEL
 - test:pusys REV
 - ver:codegrp-03 NEW (516)
 - ver:codegrp-06 NEW (516)
 - ver:codegrp-09 NEW (516)
 - ver:codegrp-12 REV (516)
 - ver:codegrp-3 DEL
 - ver:codegrp-6 DEL
 - ver:codegrp-type REV (516)
 - ver:misc-ainitm REV (516)
 - ver:misc-trgasn NEW (516)

■ Proprietary Input Messages

— dump:xtsi-spu	DEL (4043)
— rst:xtsi-all	DEL (4043)
— test:sd	REV (6426, 4880b)
— test:tcapdsd	REV (6487)
— upd:hdata	NEW (5005)
— ver:ascit	REV (5822)
— ver:misc	REV (6142)
— ver:misc-fhtosid	REV (6266)

■ Proprietary Output Messages

— dump:xtsi-spu	REV (4043)
— OP:sdc	DEL (4043)
— rst:xtsi-schedul	DEL (4043)
— test:sd	REV (4880b)
— test:tcapdsd	REV (6487)
— ver:codegrp-03	NEW (516)
— ver:codegrp-06	NEW (516)
— ver:codegrp-09	NEW (516)
— ver:codegrp-12	REV (516)
— ver:codegrp-6	DEL
— ver:codegrp-9	DEL
— ver:memory-em	NEW (6142)
— ver:misd-csrsdx	NEW (6142)
— ver:office	NEW (6142)

- 4AP16R3 Input Messages
 - aud:fsblk REV
 - copy:p-all REV
 - dump:mhd-def REV
 - load:dfc-pump REV
 - op:nodes REV
 - ver:lvfile REV

- 4AP16R3 Ouput Messages
 - load:dfc-pump REV
 - op:nodes REV
 - ver:lvfile REV

3. OS Interfaces

NOTE: The information in this item is based on the Project Plan and the Product Release Document for this release.

3.01 Several features in this release interface with Operation Support Systems (OSSs). The following are any interfaces with AMA, CDRP, DARICS, IRAS, MACOSS, NEMOS, RICS, TDAS, and TOPAS. The items shown are based on the references in the Product Release Document (PRD) for the 4E 23 Release 3 Generic.

- 4880b DARICS, NEMOS
- 5822 RICS, CDRP
- 6142 DARICS
- 6143 RICS
- 6266 RICS
- 6272 NEMOS
- 6426 NEMOS

4. New or Changed Alarms

NOTE: The information in this item is based on the features documented in the Product Release Document for this release.

4.01 There are no new alarms related to the features documented in the Product Release Document for the 4E23 Release 3 Generic.

5. Measurements/OSOR

The information in this item is based on the features documented in the current Product Release Document.

5.01 The measurements related to Feature 4880b, Segmentation Directory Phase 2, Release 3, are the same as those for Feature 4880, Segmentation Directory Phase 2, Release 1, which was introduced in the 4E23 Release 1 Generic.

5.02 Feature 6142, Additional Support Capabilities for 4E Local Nodal Customers Phase 2, updates the On-Site Operations Reports (OSOR) to add Local Access Integrated Services Digital Network User Part (ISUP) trunks as a separate category for incoming seizure measurements. It also provides the Dynamic Engineering Mechanized System/Data Acquisition Reports and Integrated Control System (DEMS/DARICS) with seizure counts for local access trunks.

- 5.03** Feature 6272, Switch Enhancements for Segmentation Directory, affects five measurements. Two measurements—**Pre-SDQ_Blocked_FHT** and **Pre-SDQ_Blocked_Def**—are removed as 5-minute counts for NEMOS. They are now hourly counts for DEMS/DARICS. Three other measurements—**Pre-SDQ_Code_Attempts**, **Pre-SDQ_Code_Blocked_FHT**, and **Pre-SDQ_Code_Blocked_Def**—are sent to NEMOS every 5 minutes.
- 5.04** Feature 6426, Segmentation Directory CIC Based Processing and Software Defined Network Default Handling, introduces a new count, SDKSTERR, which is sent to NEMOS every 5 minutes.

6. Feature Activation Summary

6.01 The following is a summary of how the features documented in the Product Release Document for this release are activated.

(1) **Feature 4880b—Segmentation Directory—Phase 2, Release 3**

This feature is activated automatically by software deployment. However, SDTRS04 (Universal Subscriber Data Structure) must be manually provisioned to SMO via RC 810 in order to receive Segmentation Directory treatment.

(2) **Feature 5005—Assignment I/O for 4ESS Switch**

This feature is turned on automatically at the Integrated Test Network by software deployment for testing purposes.

(3) **Feature 5460a—Network Access Interrupt Call Redirection for 500, 900, and ATP Calls**

This feature is turned on automatically by software deployment.

(4) **Feature 5822—Enhanced CIC Routing for Operator Services**

This feature is activated by an on/off bit with Recent Change Form 809. It can also be activated by an absolute word change.

REL	ON/OFF	ODA Word	Field Name	Address	Disp&Size
4E23	RC 809	OD4OFCCOPY2	OD4PF54	7126222	H=5, S=1

In order for this feature to work, the following features must be turned on: 5840 (PF50), 5198 (PF30), 5791 (PF49), 5918 (PF32), and 5308 (PF23).

(5) **Feature 6130—Year 2000 for AT&T**

This feature is turned on automatically by software deployment.

(6) **Feature 6142—Support Capabilities for Nodal Customers—Phase 2**

This feature is turned on automatically by software deployment.

(7) Feature 6143—Enhanced CIC Routing for Directory Assistance

This feature is activated by an on/off bit with Recent Change Form 809. It can also be activated by an absolute word change.

REL	ON/OFF	ODA Word	Field Name	Address	Disp&Size
4E23	RC 809	OD4OFCCOPY2	OD4PF55	7126222	H=6, S=1

For this feature to work, the same features must be turned on as referred to above for Feature 5822.

(8) Feature 6266—Enhanced CIC Routing for International—Phase 1

This feature is activated by an on/off bit with Recent Change Form 809. It can also be activated by an absolute word change.

REL	ON/OFF	ODA Word	Field Name	Address	Disp&Size
4E23	RC 809	OD4OFCCOPY2	OD4PF56	7126222	H=7, S=1

For this feature to work, the same features must be turned on as referred to above for Features 5822 and 6143.

(9) Feature 6272—Performance Enhancements for Segmentation Directory

This feature is turned on automatically by software deployment.

(10) Feature 6426—Segmentation Directory CIC Based Processing and SDN Default Handling

This feature is activated by an on/off bit with Recent Change Form 809. It can also be activated by an absolute word change.

REL	ON/OFF	ODA Word	Field Name	Address	Disp&Size
4E23	RC 809	OD4OFCCOPY2	OD4PF39	7126221	H=16 (octal), S=1

(11) Feature 6487—International Toll Free TEST:TDAPDSD Support

This feature is turned on automatically by software deployment.

(12) **Feature 6745—Terminating Traffic Architecture**

This feature is activated by a 1B Recent Change to set the Trunk Sub-Group indicator.

(13) **Feature 6757—Network Access Interruption Call Redirection and the AT&T Trigger Platform**

This feature is turned on automatically by software deployment.

Abbreviations and Acronyms

A

AC	Access Tandem
ACM	Address Complete Message
AIWS	AT&T International Wholesale Service
ALA	Adjunct Logical Address
AMA	Automatic Message Accounting
ANI	Automatic Number Identification
ASN	AT&T Switched Network
ASTN	Alternate Signaling Transport Network
ATP	AT&T Trigger Platform

B

BLDS	Business Long Distance Service
BMD	Business Markets Division
BU	Business Unit

C

CCITT	Consultative Committee International Telegraph and Telephone
CCTT	CIC Code Trigger Table
CDRP	Call Detail Recording Platform
CIC	Carrier Identification Code
CID	Carrier ID
CIP	Carrier Identification Parameter
CLD	Consumer Long Distance
CLEC	Certified Local Exchange Carrier
CLLI	Common Language Location Identifier
CNI	Common Network Interface
CNP	Charge Number Parameter
COS	Class of Service
CPN	Calling Party Number
CSCI	Circuit Selection Capability Indicator
CSN	Carrier Solutions Nodal

D

DA

Directory Assistance

DARICS

Data Acquisition Reports and
Integrated Communications System

DEMS

Dynamic Engineering Mechanized
System

DEMS/DARICS

Dynamic Engineer Mechanical
System/Data Acquisition Reports and
Integrated Communications System

DFS

Directory Function Server

DFSAOC

Directory Function Server Application
Overload Control

DL

Directory Link

DLN

Direct Link Node

DMS

Data Management System

DN

Destination Number

DP

Dial Pulse

DSD

Direct Services Dialing

DTMF

Dual Tone Multi-Frequency

DTO

Dedicated Trunk Sub-Group Option

E

EO

End Office

F

FEN

Far End Network

FGD

Feature Group D

FSIT

Foreign Subscriber Identifying
Telephone number

G

GAP

Generic Address Parameter

H

HTR

Hard-To-Reach

HU

High Usage

I

I/O
Input/Output

IAM
Initial Address Message

IE
Information Element

ISC
International Switching Center

ISDN
Integrated Services Digital Network

ISUP
Integrated Services Digital Network
User Part

ITFS
International Toll Free Service

ITN
Integrated Test Network

IWZ1
International World Zone 1

IXC
Interexchange Carrier

J

JIP
Jurisdiction Information Parameter

K

KST
Key Service Type

L

LEC
Local Exchange Carrier

LSP
Local Service Provider

M

MF
Multi-Frequency

MRT
Multiple Routing Treatment

N

NAI
Network Access Interrupt

NANP
North American Numbering Plan

NCC
Network Control Center

NCD
Network Call Denial

NDB
Number Service Data Block

NEMOS
Network Management Operations
System

NESAC
National Electronic Switching
Assistance Center

NI
Network Interconnect

NI
Network Interrupt

NID
Network Identification

NIS
Network Implementation Systems

NOA
Nature of Address

NOC
Network Operations Center

NSF
Network Specific Facilities

O

OAID
Operator Service Position Access ID

OAS
Originating AT&T Switch

OCC
Other Connecting Carriers

OLI
Originating Line Information

OPC
Originating Point Code

OSOR
On Site Operations Report

OSPS
Operator Service Position System

OSPSID
Operator Service Position System ID

OSS
Operations Support System

P

PBX
Private Branch Exchange

PCP
Positive Call Processing

PECC
Product Engineering Control Center

PIC
Presubscribed Interexchange Carrier

PMO
Present Mode of Operation

POTS
Plain Old Telephone Service

PRD
Product Release Document

R

RC
Recent Change

RICS
Recorded Information Collection
System

RN
Routing Number

RTNR
Real Time Non-Hierarchical Routing

SSP
Service Switching Point

S

SC
Structure Code

SCU
Service Circuit Unit

SD
Segmentation Directory

SDDN
Software Defined Data Network

SDI-CSR
Switched Digital International Carrier
Specific Routing

SDN
Software Defined Network

SDNA
Software Defined Network Access

SDQTST
SDQuery Test

SII
Service Identity Index

SIS
Signaling Interface System

SMO
SD Mode of Operation

SNOW-R
Service Now - Routing

SNOW-T
Service Now - Trunking

SOIP
Send Optional ISUP Parameters

SS7
Signaling System 7

T

TACV
Terminating Access Charge Verification

TAS
Terminating AT&T Switch

TBN
True Billing Number

TCAP
Transaction Capabilities Application
Part

TNS
Transit Network Selection

TOT
Type of Trunk

TSG
Trunk Sub-Group

TTA
Terminating Traffic Architecture

TUP
Telephone User Part

U

UGTT
Universal Global Title Translation

UP
User Part

USDS
Universal Subscriber Data Structure

W

WOSP

Wholesale Operator Service Platform

WOST

Wholesale Operator Service Transport