Lucent Technologies
Bell Labs Innovations

4ESS™ **Switch**
Product Release Document

4E22 Release 4 Generic

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Issue 1
September 1997

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Developed by Lucent Technologies Network Systems TSVS Information Development.

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About This Document

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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 quarterly generic releases and full generic releases. This particular PRD provides information pertaining to the new features included in the 4E22 Release 4 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 4E22 Release 4 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 4E22 Release 4 Generic includes 6 new features for non-Lucent Technologies *4ESS* switches.

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 titles are also the feature names):

Chapter 1: *Number Portability with Location Routing Number Feature (450a)*

Local Number Portability (LNP) gives the end-user the ability to move from one central office to another and keep their original Directory Number (DN).

Chapter 2: *Access Tandem Routing Enhancement Feature (488)*

This feature provides the ability to determine at the *4ESS*™ switch Access Tandem (AT) if:

- A Feature Group D (FGD) call terminates in or out of the carrier's subscribed footprint

- The call is completed using the LEC network or handed off to the carrier.

Chapter 3: *CMC SSP/800 and AIN AMA Enhancement Feature (502)*

This feature changes the mechanism for populating the originating NPA and number fields of SSP/800 and AIN AMA records generated for calls received from CMCs.

Chapter 4: *Service Circuit System (SCS) Software Update Tool Feature (5563)*

This feature provides a tool that automates the update process for the Service Circuit System (SCS). The tool reduces the risk of errors and requires significant intervention by maintenance personnel only when failures occur. The previous SCS update method required a complex manual procedure that could result in errors.

Chapter 5:   *9-Gigabyte Disk Units for Service Circuit System (SCS) Feature (5568)*

This feature provides a new 9 Gigabyte (GB) disk drive circuit pack for use in Service Circuit Systems (SCS). The new unit replaces the 4 GB disk drive circuit pack. The increased disk drive capacity, together with the SCS Announcement Seconds Expansion Feature 5794 (4E22 Release 4), provides an announcement storage capacity of 2 million announcement seconds, which is required to support the increasing demand for customized service announcements.

Chapter 6:   *Release Summary—4E22 Release 4 Generic*

This chapter summarizes several aspects of the features in this document. The chapter identifies Growth and Retrofit documents resulting from features in the current release; new, changed, or deleted input and output messages; Operation Support Systems impacts of the release; and new or changed alarms. The final section tells how each feature 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 admonishments in the form of CAUTIONS. A CAUTION admonishment 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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Number Portability with Location Routing Number Feature (450a)

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Number Portability with Location Routing Number Feature (450a)

1

1. Feature Description

Background

1.01 Local Number Portability (LNP) gives the end-user the ability to move from one central office to another and keep their original Directory Number (DN). Local loop competition is a requirement to enter new markets, such as long distance and video.

1.02 There are several methodologies competing to become the industry standard LNP solution. The three main long term LNP solutions are:

- Split Domain

- Carrier Portability Code (CPC)

- Network Routing Address/Location Routing Number (NRA/LRN).

1.03 The Split Domain solution would require that two sets of numbers be assigned in the network — the subscribers' DN and the network address associated with it. The CPC solution uses spare Numbering Plan Area (NPA) to route calls. The NRA/LRN uses a 10-digit LRN to route to the switch serving the ported number.

1.04 This document provides *4ESS*™ switch Local Exchange Carrier (LEC) requirements for the NRA/LRN LNP method.

Feature Description

1.05 This feature allows the *4ESS* switch tandem to act as an LNP-capable intermediate exchange in local networks, supporting LNP using the LRN method. All three types of LNP — service portability, service provider portability, and geographic portability, can be supported. However, only intra-LATA geographic portability will be supported in this time frame due to uncertainties related to recording/billing.

1.06 Advanced Intelligent Network (AIN) capabilities are used by this feature. These capabilities allow the LEC *4ESS* switch, referred to as the Service Switching Point (SSP), to recognize calls that require advanced call treatment and to obtain instructions for processing the call from a centralized data base, known as a Service Control Point (SCP), instead of from feature logic contained in the switch. The process of identifying calls that require AIN processing is known as "triggering", since a particular characteristic of the call "triggers" the switch into providing AIN treatment. Once a trigger occurs, the SSP temporarily suspends call processing and sends a query message to the SCP requesting instructions. Based on information contained in the query message, the SCP determines which service is being requested and provides appropriate information, such as routing and billing instructions, that the SSP then executes to complete the call.

1.07 This feature introduces a new AIN Called Number Trigger (CNT). When an NPA-NXX is defined as portable, an LNP CNT is assigned to that number in the switch so that a query to the SCP is made. SCP service logic is defined to return a LRN of the serving switch for the DNs within the NPA-NXX that have been ported. When the switch receives the LRN from the SCP, the LRN is used to route the call to its correct destination. The LRN is forwarded in the ISDN User Part (ISUP) Initial Address Message (IAM) in the Called Party Number (CdPN) parameter. The actual called party number is carried in the Generic Address Parameter (GAP). The Forward Call Indicator (FCI) in the IAM is used to indicate whether an LNP query has been performed. This is used to prevent more than one LNP query from being launched on a call.

1.08 Non-ported DNs in portable NPA-NXXs will result in the SCP sending an Analyze_Route indicator with the actual called number and no LRN.

1.09 AIN default routing may be applied if the SCP cannot be accessed due to abnormal circumstances. If AIN default routing has not been purchased or has not been provisioned, the call will receive final handling treatment.

1.10 LNP queries are made by the network "owning" the call. For calls routed to an IEC network, the LEC forwards the call without making an LNP query, and the carrier performs the LNP query. Calls routed entirely within the LEC network have the LNP query performed by the first LNP-capable switch handling the call, typically the originating end office. If the switch serving the calling subscriber does not have LNP capability, the call is routed to a tandem switch which is LNP-capable, and the tandem launches the query to determine routing.

1.11   The functionality provided by this feature is applicable only to calls encountering the new LNP trigger.

1.12   New LNP Automatic Message Accounting (AMA) modules are appended to existing AMA records for calls encountering the LNP trigger which result in querying the STP. This option of generating new "connecting network access" records are provided.

1.13   New counts will be added to the existing set of AIN measurements for this feature.

2. Call Flow

2.01   The following call flows depict the roles assumed by the *4ESS* switch in support of LNP within LEC networks. These functions are:

- Performing the LNP query for calls from non-LNP capable originating End Offices (EOs).
- Passing LNP information when acting as a non-involved tandem office.
- Acting as a LNP hub for non-LNP capable terminating EOs.

Call Flow Narrative

A. Calls From Non-LNP Capable EOs

2.02   Refer to Figure 1-1 for call flow layout.

tpa 851977-01
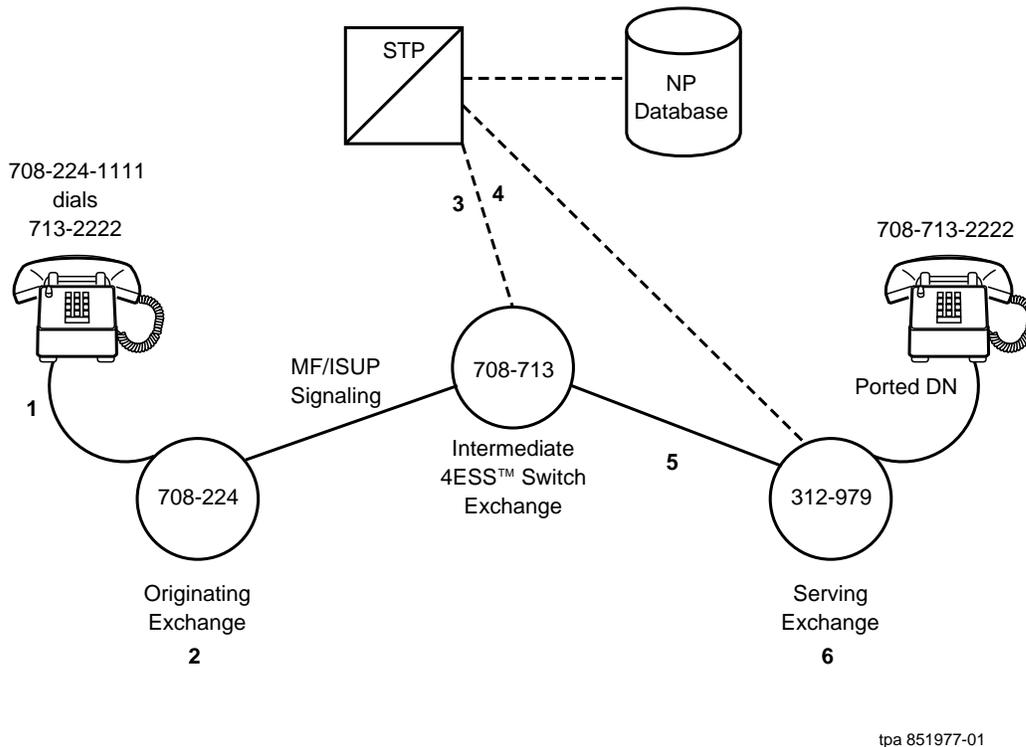
Figure 1-1. Intermediate 4ESS Switch Performs LNP Query

1. Line A (708-224-1111) dials Line B (708-713-2222).

2. The Originating Exchange (non-LNP-capable) performs digit analysis on the called number and routes the call to the *4ESS* Intermediate Exchange.

3. The *4ESS* Intermediate Exchange translates the called number and encounters an LNP CNT. The switch sends a query to the STP.

4. The database (SCP) response contains the LRN of the Serving Exchange.

5. The *4ESS* switch translates the LRN and determines an ISUP route out of the office. The "signal ported number" option is NO for the outgoing TSG, so the LRN is forwarded in the CdPN parameter and the called party number received

from the Originating Exchange is forwarded in the GAP parameter. NO means to signal the LRN, and YES means to signal the CdPN before it is used in the call flows. The *4ESS* switch sets the FCI Translated Called Number Indicator to indicate that an LNP query has been performed, that is, set to 1.

6. The Serving Exchange receives and processes the IAM. It recognizes the LRN as its own, so it uses the called party digits stored in the GAP parameter to complete the call to the subscriber.

B. Acting as a Non-involved Tandem Office

2.03   Refer to Figure 1-2 for call flow layout.

STP

NP Database

708-224-1111 dials 713-2222

2

3

708-713

1

708-224

4

Intermediate 4ESS™ Switch Exchange

5

708-713-2222

Ported DN

312-979

Originating Exchange

Serving Exchange

6
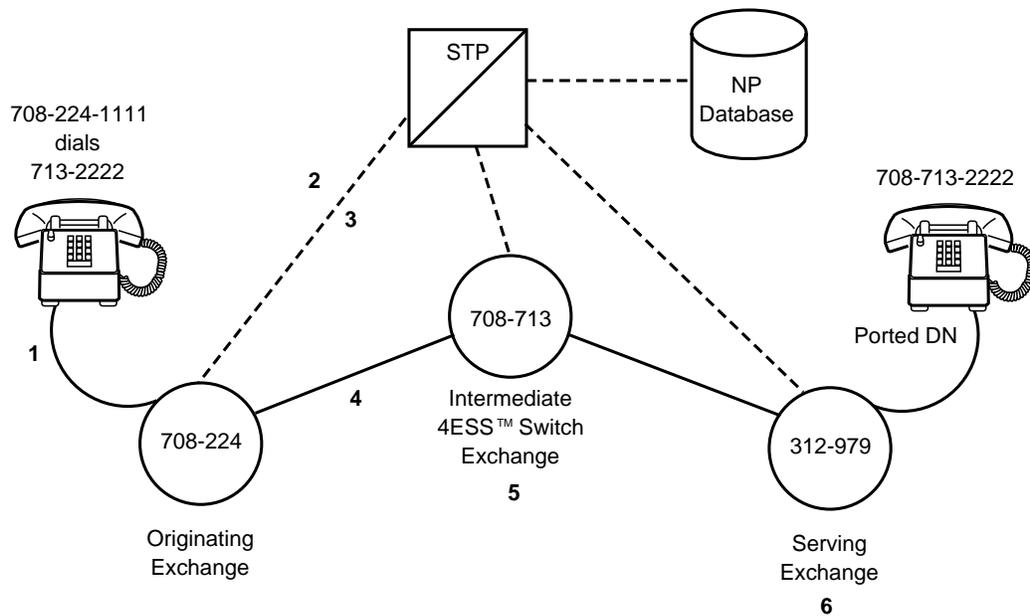
tpa 851978-01

Figure 1-2. Originating and Terminating Exchanges Both LNP-Capable

1. Line A (708-224-1111) dials Line B (708-713-2222).

2. The Originating Exchange encounters an LNP trigger on 708-713 and queries the STP.

3. The database (SCP) response contains the LRN of the Serving Exchange.

4. The Originating Exchange translates the LRN and routes the call to the *4ESS* Intermediate Exchange. The LRN is forwarded in the CdPN parameter, the called party number is forwarded in the GAP parameter, and the FCI Translated Called Number Indicator is set to indicate an LNP query has already been performed, that is, set to 1.

5. The *4ESS* Intermediate Exchange receives and processes the IAM. The outgoing route is chosen based on translation of the LRN. The outgoing TSG is marked to outpulse the LRN ("signal ported number" option set to NO), so the LRN (contained in the CdPN), the GAP, and the FCI are forwarded to the Serving Exchange.

6. The Serving Exchange receives and processes the contents of the IAM. It recognizes the LRN as its own, so it uses the called party digits contained in the GAP parameter to complete the call to the subscriber.

C. Intermediate LNP Hub for Non-LNP Capable Terminating EO

2.04   Refer to Figure 1-3 for call flow layout.

STP

NP
Database

708-224-1111
dials
713-2222

708-713-2222

708-713

MF/ISUP
Signaling

Ported DN

1

3

Intermediate
4ESS™ Switch
Exchange
4,5

708-224

312-979

Originating
Exchange
2

Terminating
Exchange
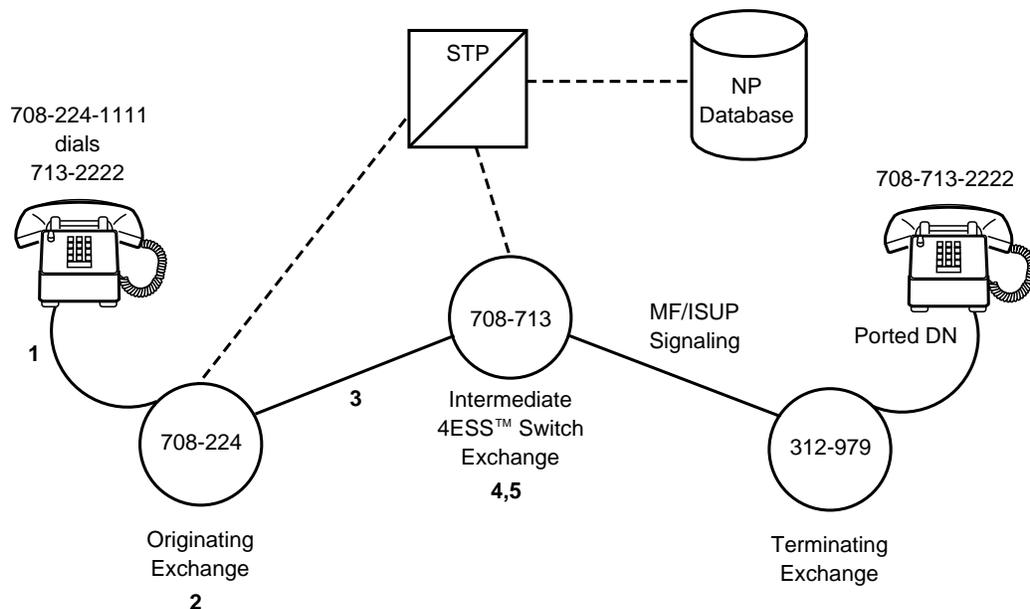
tpa 851979-01

_____

Figure 1-**3. Intermediate LNP Hub for Non-LNP Capable Terminating EO**

1. Line A (708-224-1111) dials Line B (708-713-2222).

2. The Originating Exchange encounters an LNP trigger on 708-713 and queries the database (SCP).

3. The SCP response contains the LRN of the Serving Exchange. The Originating Exchange translates the LRN and routes the call to the *4ESS* Intermediate Exchange. The LRN is forwarded in the CdPN parameter, the called party number is forwarded in the GAP parameter, and the FCI Translated Called Number Indicator is set to indicate an LNP query has already been performed, that is, set to 1.

4. The *4ESS* Intermediate Exchange receives and processes the IAM. The outgoing route is chosen based on translation of the LRN. The outgoing ISUP TSG's "signal ported number" option is marked YES (outpulse the called party number rather than the LRN) so the *4ESS* switch is acting as a LNP hub for a non-NP capable EO.

5. Because of the TSG marking (ISUP) or inband signaling (MF), the *4ESS* switch replaces the LRN with the called party number digits contained in the ported number GAP parameter to signal to the non-LNP capable exchange.

Capacity

2.05 The existing AIN limit of 8191 CNTs applies to LNP CNTs in addition to the existing AIN CNTs. Since LNP CNTs are expected to be assigned to 6-digits (NPA-NXX) only, ability to utilize the AIN expanded 10-digit trigger capabilities is not being provided as part of this feature.

Call Handling

2.06 When a call is received with an LRN in the CdPn parameter, or an LRN is returned by the SCP subsequent to an LNP query, if the "ignore triggers on LRN" office option is turned ON, any AIN triggers encountered while routing on the LRN shall be ignored.

2.07 If an incoming ISUP call includes an FCI indication of "Translated Number", and in analyzing the CdPN an LNP CNT is encountered, the LNP CNT should be ignored and the call continued as if the LNP CNT had not been encountered. Any other (non-LNP) CNT shall be honored if encountered, subject to the "ignore triggers on LRN" office option, if applicable.

3. Provisioning

3.01 The following are trigger precedence rules:

■ An SCP TSG Trigger assigned to the incoming TSG shall have precedence over an LNP CNT.

■ When the LNP CNT and another AIN CNT are assigned to overlapping or matching digits strings, the AIN CNT will take precedence, even if the LNP CNT is more specific.

■ After the query sent for either of the two above, if the SCP returns a Continue response or an Analyze_Route with the same called party digits sent in the query, the LNP CNT should be processed.

Data Relationships

A. Office Data

3.02   A package option bit, or Purchase Control Indicator (PCI), must be available to indicate that the customer has purchased the right to use this feature. The default value for this indicator is OFF. The AIN Feature 375 must also have been purchased in order to use this feature.

Recent Change Form 809

3.03   This feature is activated or deactivated by populating the FEATURE ITEM filed on RC Form 809 with F18. ON means that AIN triggers will be ignored, the default will be OFF, which means that AIN triggers will not be ignored.

3.04   A RC/V-able total office parameter (on/off bit) shall be provided to control processing of triggers encountered for LRN routed calls. Options for this parameter are:

- OFF - process triggers encountered for LRN routed called (default)
- ON - ignore triggers encountered for LRN routed calls.

4. Recording

AMA Record Information

4.01   A flexible AMA module (720) will be appended to existing AMA records generated at a LNP capable switch which performs an LNP query. The LNP module will contain information associated with a ported terminating (called) party as supplied by the LNP SCP.

4.02   When a switch serving as an access tandem or intermediate exchange generates an IC/INC originating access AMA record, the switch shall append an LRN module containing the LRN of the originating end-office to the originating access AMA record. The LRN of the originating switch will be obtained from the JIP of the incoming ISUP IAM, or, if the JIP is not available via signaling, from the JIP/LRN provisioned on the incoming TSG. If neither a ISUP JIP nor incoming TSG JIP/LRN is available, the LNP module will not be recorded.

If recorded, the LNP module shall also contain a Party Identifier set to "Originating Party Data", an LRN Source Indicator of the Supporting Information field set to either "Incoming Signaling" (if the ISUP JIP is used as the LRN source) or to "Switch Data" (if the incoming TSG JIP/LRN is used), and a Query Status Indicator of the Supporting Information field set to "No Query Performed".

This includes IC/INC originating access AMA records generated following processing of an AIN trigger (for example, Call Code 110/Structure Code 220 records).

4.03 The layout of Module 720 is as follows:

Table 1-A. Module 720

Information	Table Number	Number of Characters
Module Code	88	4
Party Identifier	730	4
Location Routing Number	731	12
Service Provider Identity	732	10
Location	733	16
Supporting Information	734	8

5. Network Management

5.01 Currently, Network Management (NM) Call Gap Controls are used throughout the network to throttle calls to a given area, switch, or specific telephone number. NM uses the called party digits to determine whether or not to block the call. Since this feature replaces the called party number with the LRN for call routing, call gaps used to control mass calling to a particular destination number(s) will need to be applied to the contents of the GAP as well as to the contents of the called party number.

5.02 At an intermediate switch, either following an LNP query resulting in the receipt of an LRN from the SCP or receiving an IAM with the FCI bit set indicating an LNP query has already been performed, manual call gap control shall be applied to the contents of the "ported number" GAP, checking for greater than 6-digit codes only. If a match is found, the contents of the CdPN (LRN) shall not be subject to call gap control. If no match is found, call gap shall be applied to the contents of the CdPN (LRN).

6. Maintenance/Troubleshooting

Final Handling Code

A new Final Handling Code (FHC), 1916, was created for this feature. A ported number GAP should be outpulsed as a called number. If ISUP determines that the POrted Number Gap (PNG) was incorrectly formatted, the *4ESS* switch will terminate the call.

Measurements

6.01   The following measurements are added to the existing set of AIN measurements for LNP:

- ■ LNP Queries Sent

  — This count measures the number of calls encountering an LNP Count which results in sending an SCP query.

- ■ LNP Queries Successful

  — This count measures the number of calls encountering an LNP trigger that results in a successful SCP query (defined by receipt of the SCP response).

    LNP query failures can be calculated by subtracting the LNP Queries Successful from the LNP Queries Sent.

- ■ LNP Ported Number Calls

  — This count measures the number of LNP query responses containing an LRN (not the previous called number).

7. Transition Considerations

Feature Interactions and Dependencies

- ■ This feature is dependent on AIN Feature number 375
- ■ This feature will support AIN Announcements Feature number 379
- ■ This feature will support AIN Global and Specific Default Routing, Features 411 and 415
- ■ This feature will support AIN Data Calls, Feature 419
- ■ This feature will support AIN Tollfree Capability Feature number 443.

Ubiquity

7.01   It is not necessary for all *4ESS* switches in the network to be running the 4E22 Release 4 Generic for this feature to be fully operational.

8. Input/Output Manual Pages (Not Affected)

Access Tandem Routing Enhancement Feature (488)

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Access Tandem Routing Enhancement Feature (488)

2

1. Feature Description

1.01 For carriers subscribed to Local Exchange Carrier (LEC) wholesale service, this feature provides the ability to determine at the *4ESS*™ switch Access Tandem (AT) whether a Feature Group D (FGD) call terminates in or out of the carrier's subscribed footprint and whether the call is completed using the LEC network (in the subscribed footprint destination) or handed off to the carrier (out of the subscribed footprint area).

1.02 Support for up to 7 subscribed footprint areas (see Figure 2-1) is provided in 4E22 Release 4. Support for up to 40 subscribed footprint areas is planned for a later 4E release. Calls requiring operator assistance are out of the subscribed area and are routed to the carrier.

2. Call Flow

Call Flow Key Points

2.01 This feature provides a Local Exchange Carrier (LEC) with the capability to resell all or a portion of its network to a carrier. The LEC may provision the carriers that receive this special call-handling treatment. The LEC may also provision the area to which each carrier subscribes. A brief overview of this process and detailed provisioning information are provided in this chapter.

2.02   When a call is routed to a carrier, the carrier ID (CID) associated with the call is signaled to the *4ESS*™ switch. This CID may be received in incoming trunk signaling (via SS7 or EAMF), or it may be received from a Service Control Point (SCP) (either SSP800 or Advanced Intelligent Network [AIN]). In any case, the CID is translated to determine the routing treatment associated with that carrier. Normally, this translation indicates the set of trunk subgroups (TSG) to use to get to the carrier, and all calls that are directed to the carrier must be routed to the carrier, even if the call is destined to an area served by the LEC. The carrier would have to direct the call back to the LEC network for completion.

2.03   With this enhancement, the CID will indicate that the *4ESS* switch should analyze the Called Digits associated with the call. The switch will translate the Called Digits to determine if the call is destined for a portion of the LEC network to which the carrier has subscribed. If it is not, the call will be directed to the carrier using current procedures. If the call is destined to a carrier-subscribed portion of the network in-footprint, the call will be routed (via intra-LATA signaling) to the intended destination.

Call Flow Diagram

Legend:
   AT - Access Tandem
   EO - End Office
   IXC - Inter-Exchange Carrier
LATA - Local Access Transport Area

tpa 852832/01
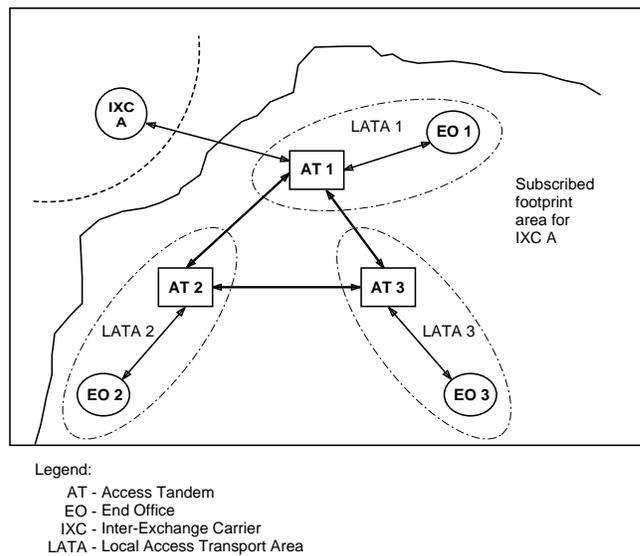
Figure 2-1. LEC Network Architecture

Call Flow Narratives

2.04   The following call flows relate to this feature:

- An originating call flow to an out-of-subscribed footprint

- An originating call flow to an in-subscribed footprint.

These call flows are described in the following sections and are illustrated in Figure 2-1.

2.05   Another case where this feature would be applicable is when the AIN or SSP800 SCP returns a carrier ID to the *4ESS* switch. In this case, the carrier ID and called number are analyzed and the call is is routed in- or out-of-footprint, similar to the call flows noted above.

A. Originating Call to an Out-of-Subscribed Footprint Area

1. The caller at EO 2 [Primary Inter-Exchange Carrier (PICed) to IXC A subscribing to wholesale service] places an inter-LATA call to a destination located outside the subscribed footprint area.

2. EO 2 generates an originating access AMA record and routes the call to AT 2 via FGD signaling.

3. Because IXC A subscribes to wholesale service, AT 2 translates the called number based on the carrier's subscribed footprint and determines that the call is destined for an out-of-footprint location.

4. AT 2 retranslates the carrier ID and routes the call to AT 1 using FGD inter-AT routing.

5. AT 1 translates the carrier ID and delivers the call to the IXC.

B. Originating Call to an In-Subscribed Footprint Area

1. The caller at EO 3 (PICed to IXC A subscribing to wholesale service) places an inter-LATA call to EO 1.

2. EO 3 generates an originating access AMA record and routes the call to AT 3 via FGD signaling.

3. AT 3 translates the carrier ID and determines that this carrier is subscribed to wholesale service.

4. Because IXC A subscribes to wholesale service, AT 3 translates the called number for the carrier's subscribed footprint and determines that the call is destined for an in-footprint location.

5. AT 3 routes the call to the EO 1 via AT 1 using FGC signaling.

3. Provisioning

Provisioning Methods

3.01 There are basically 2 methods to provision this feature:

- Flash-cut— where footprint routing data is entered into the switch, followed by the last provisionable Recent Change (RC) form that will activate the feature for a specific carrier. This form will be RC Form 301 where CALLTYP = SSP and CALLDATA = SFA.

- Progressive—where data is entered into the switch to activate the feature. This includes provisioning the STCD domain, defining the footprint with minimal routing, cutting the subscribed carrier to the footprint, and then, finally, expanding the routing coverage of the footprint.

⚠ **CAUTION:**
It is imperative that the out-of-footprint (STCD domain) be provisioned first, and before the in-footprint routing is activated. Failure to do so could result in the failure of all out-of-footprint calls.

In addition, it is important to note that the pivotal piece of provisioning that activates in-footprint routing is RC Form 301 with CALLTYP = SSP, CALLDATA = SFA, and AD1 = 0 to 6 (4E22) or AD1=0 to 39 (planned for 4E23). Once this RC Form 301 data is entered, subscribed carrier calls which terminate in-footprint will be routed within the LEC network.

Recommended Order of Provisioning

3.02   Because of the conditions described above, the recommended order of provisioning is shown in Table 2-A.

Table 2-A. Recommended Order of Routing

Order	Routing	RC Form	Purpose
1	Out-of footprint (STCD) domain routing.	309	Open STCD domain.
		311	Expand translations from 3 to 4 digits so the entire STCD domain will be looked at.
		301	Provision translations for STCD domain for out-of-footprint routing. Point carrier ID to an NDB (ST=SSP, CALLDATA=TNSND, AD1=NDBI).
2	Carrier subscribed in-footprint routing, excluding RC Form 301 which activates in-footprint routing	309	Open up a new subscribed footprint area domain (DOM=SF00 to SF06).
		300, 301, 302, 311	Add codegrouping to new subscribed footprint area domain. Codes which are pointed to RDB will be considered "in-footprint". All others are "out-of-footprint".
3	Activate footprint routing for a specific carrier.	301, 302	Cause calls routed to the selected carrier to perform in/out-of-footprint processing using the previously defined footprint domain CALLTYP=SSP, CALLDATA=SFA, AD1=0 to 6 [4E22] or 0 to 39 [planned for a later release]. Note: DOM=ATNS for ISUP, DOM=POTS for EAMF, DOM=NSR for SCP replies.

⇒ **NOTE:**
The SF domains are non-POTS;therefore, the home NPA will be present after routing. It is not necessary to prefix the home NPA to the call. If the local office is not expecting the home NPA (of the *4ESS* switch), the codegroup should be pointed to an RDB which deletes the first 3 digits.

⇒ **NOTE:**
Calls destined to international locations are not expected to encounter footprint processing. If an international routed call is directed to CALLTYP = SSP, CALLDATA = SFA, it will be terminated.

Special AT to AT Routing

3.03 There will be cases where footprint calls traverse multiple ATs. For out-of-footprint (STCD domain) calls, the ZZ/TNSI digits in the NDB need to be changed to a different value for the subsequent ATs (which need to be provisioned with this information) so that the subsequent ATs do not perform the same footprint processing. Subsequent ATs need to be provisioned to route directly to the IXC.

Structures Affected

A. OD4NAOPT

3.04 The AT Routing Enhancement feature must be purchased by the customer. The purchased indicator is populated via Office Data Assembler/Office Data Management System (ODA/ODMS) T2 form (field **AT_RTE**) and is *not* recent changeable.

B. HT4TBNCORE and HT43DIG

3.05 Table 2-B lists the eight new routing domains defined for **XL4TB_DOM**.

Table 2-B. Routing Domains

Input	Symbol	Value	Description
STCD	4XLDOMSTC	98	Super Tandem Carrier ID
SF00	4XLDOMSFA00	121	Subscribed Footprint Area 00
SF01	4XLDOMSFA01	122	Subscribed Footprint Area 01
SF02	4XLDOMSFA02	123	Subscribed Footprint Area 02
SF03	4XLDOMSFA03	124	Subscribed Footprint Area 03
SF04	4XLDOMSFA04	125	Subscribed Footprint Area 04
SF05	4XLDOMSFA05	126	Subscribed Footprint Area 05
SF06	4XLDOMSFA06	127	Subscribed Footprint Area 06

Recent Change Forms Affected

⇛ **NOTE:**
    Although recent changes are used to specify routing domains, this feature cannot
    be turned on or off by recent change. See Part 7 for the Turn On/Turn Off
    Mechanisms.

A. Forms 300, 301, 302, and 303

3.06   The new domain entries of **STCD** (Super Tandem Carrier Domain) and **SF00**
        through **SF06** are allowed on Recent Change (RC) Forms 300, 301, 302, and
303. A new SSP subtype of SFA is also allowed in the CALLDATA field along with a
new SFAI item added to the list of AD1 entries. The population rules are as follows:

■   Legal domains = **STCD** and **SF00** through **SF06**. The STCD domain uses the
    original ATNS layout, where the first 4 digits comprise the carrier ID, and the
    subsequent 2 digits contain the TNSI parameter.

■   If DOM is SF00 through SF06, refer to Table 2-C for the valid call types.

Table 2-C. CALLTYPES and DOMAIN Class for SDX Blocks

	DOMCLASS						
CALLTYPE	APN	DOM	ITRP	INTL	NSR	ATNS	GSDN
CRB	X	X			X		
DSD	X	X					X
DSN	X	X	X	X			
DUP	X	X			X		
EAR		X					
FHT	X	X	X	X	X	X	X
GNS	X	X	X	X			X
INW	X	X	X		X		
IRA	X	X	X				
MCT	X	X	X	X			X
MMT	X	X	X				
MRT	X	X	X	X			
MTA		X					

Table 2-C. CALLTYPES and DOMAIN Class for SDX Blocks (Contd.)

CALLTYPE	DOMCLASS						
	APN	DOM	ITRP	INTL	NSR	ATNS	GSDN
PAS	X	X			X		
PRT	X	X	X	X	X		
RDB	X	X	X	X	X		X
RNR	X	X	X				
SDX	X	X	X	X	X	X	X
SSP	X	X	X		X	X	
TEL	X	X			X		
TST	X	X	X				X
TTS	X	X	X				

- ■ If DOM is STCD and CALLTYP is SSP, then CALLDATA = **TNSND**.

- ■ If DOM is STCD and CALLTYP is SDX, then CALLDATA = either **MTS** or **DRTC**.

- ■ The SDTYPE of DRTC is valid only in either the ATNS or STCD, or NSR domains.

  — If AD1 on RC Forms 300 through 303 is DRTC, then DOM = either **ATNS**, **STCD**, or **NSR**.

  — If DOM is not either ATNS, STCD, or NSR and CALLTYP is SDX, then the subsequent digit block and any subsequent digit blocks linked below it must be searched for any DRTC entry. If a DRTC entry is found, the codegroup is blocked.

- ■ If CALLTYP is SSP and CALLDATA is TNSND, then DOM = either **ATNS** or **STCD**.

- ■ If CALLTYP is SSP and CALLDATA is SFA, then:

  — The feature must have been purchased and the purchase indicator turned on

  — AD1 field must have a valid SFAI entry of **0** through **6**

  — ADC, SC and CHI field entries are optional

  — AD2, AD3, DESEP, and DNST field entries must be blank.

B. Form 304

3.07 The Super Tandem Carrier ID domain is defined within the ATNS DOMCLASS and the new Subscribed Footprint Area domains SF00 through SF06 are defined within the DOM DOMCLASS. Additionally, a new SSP type of SFA is also allowed in the CALLDATA field along with a new SFAI item for AD1 entries. The population rules are

as follows:

- The SDTYPE of DRTC is valid only in the ATNS and NSR DOMCLASS

    — If AD1 on RC Form 304 is DRTC, then the DOMCLASS = either **ATNS** or **NSR**.

    — If DOM is not either ATNS or NSR and CALLTYP is SDX, then the subsequent digit block and any subsequent digit blocks linked below it must be searched for any DRTC entry. If a DRTC entry is found, the codegroup is blocked.

- If an existing SDX block is being changed and AD1 is DRTC, then all codegroups (including intermediate SDX blocks) that point to the SDX block must be in the ATNS or NSR DOMCLASS.

- If an existing SDX block is being changed and any SDX blocks downchain contain a DRTC entry, then all codegroups (including intermediate SDX blocks) that point to the SDX block must be in the ATNS or NSR DOMCLASS.

- If CALLTYPE is SSP and CALLDATA is TNSND, then the DOMCLASS = **ATNS**.

- If CALLTYP is SSP and CALLDATA is SFA, then:

    — The feature must have been purchased and the purchase indicator turned on

    — AD1 field must have a valid SFAI entry of **0** through **6**

    — ADC, SC and CHI field entries are optional

    — AD2, AD3, DESEP, and DNST field entries must be blank.

C. Forms 309, 311, 327 through 330, and 344

3.08   These forms will allow the new DOM entries of **STCD** and **SF00** through **SF06**.

D. Forms 341 and 342

3.09   These forms will allow the new PRIMDOM entries of **SF00** through **SF06**.

E. Forms 343 and 345

3.10   These forms will allow the new DOM entries of **SF00** through **SF06**.

F. Form 631

3.11   This form will allow the new RTDOM entries of **SF00** through **SF06**.

Verify Forms Affected

A. Forms 3a through 3f, 3v, 3w, 3ab, 3ai, 13b, and 13f

    3.12   The new domains of **STCD** and **SF00** through **SF06** are being added to the DOM field.

B. Form 3g

    3.13   The **STCD** domain will be allowed in the ATNS domain class.

C. Form 3aj

    3.14   The new domains of **SF00** through **SF06** are being added to the DOM field.

D. Form 3q

    3.15   The new domains of **SF00** through **SF06** are being added to the PRIMDOM field.

E. Form 6ag

    3.16   The new domains of **SF00** through **SF06** are being added to the RTDOM field.

4. Recording

> **NOTE:**
> The following records are generated only if Feature 455 (4E21 Release 4 Generic) has been purchased and is turned on. See paragraph 7.01 in this chapter.

    4.01   For Equal Access Multi-Frequency (EAMF)-to-EAMF calls to IXCs subscribed to wholesale service, the *4ESS* switch generates an originating access AMA record. The AMA record populates the terminating Number Plan Area (NPA) and Number fields with the called number.

    4.02   For EAMF-to-EAMF calls to IXCs subscribed to wholesale service, the *4ESS* switch generates an originating access AMA record. The AMA record populates the originating Number Plan Area (NPA) and Number fields with the 3- or 10-digit Automatic Number Identification (ANI) information received in the call setup.

5. Network Management (Not Affected)

6. Maintenance/Troubleshooting

6.01 The five new Final Handling Codes (FHCs) created to support this feature are described in Table 2-D.

Table 2-D. New Final Handling Codes

FHC	Description
1394	Call type translation determined that this is an SSP call. The Carrier ID to the subscribed footprint area translations failed. The *4ESS* switch drops the call.
1395	Digit translation indicated that the called party number was valid. The subscribed footprint area does not allow this carrier to complete the call. The *4ESS* switch drops the call.
1396	An Advanced Intelligent Network (AIN) query was made for this call. The response indicated that the call should be routed to a carrier. The carrier analyzes the called party number for footprint routing. Digit translation indicated the called party number was not valid (out-of-footprint). The call is final handled and all associated resources are idled.
1397	Digit translation indicated the called party number was not valid (out-of-footprint). Carrier translations do not exist or are invalid for routing. The call is final handled and all associated resources are idled.
1398	Digit translation indicated the called party number was not valid (out-of-footprint). Carrier translations do not exist or are invalid for routing. The call is final handled and all associated resources are idled.

7. Transition Considerations

Feature Dependencies

7.01 The recording requirements for this feature depend on Feature 455, *Local Exchange Carrier Access Tandem Toll Resale* (4E21 Release 4 Generic). If Feature 455 has not been purchased by the customer and is not turned on, recording for this feature (488) will not work.

Ubiquity

7.02 It is not necessary for all *4ESS* switches in the network to be running the 4E22 Release 4 Generic for this feature to be fully operational.

Turn On Mechanisms

A. Purchase Control Indicator

7.03 Customers must purchase the right to use this feature. A package option bit (purchase control indicator) does not allow carrier IDs to be identified as wholesale subscribed nor are the in- or out-of-footprint codes allowed to be specified unless this purchase indicator is set to **ON**. The default is **OFF**. If this feature is being activated on a non-release boundary (for example 4E23 Release 2 Generic), the Line Engineer must:

- ■ Fill out a T2 form
- ■ Send the form to the Next Generation-Office Data Assembler (NG/ODA).

NG/ODA will run the "update the secure bits" process to provide the information for an overwrite to Field Support, who works with the customer to apply the overwrite.

Turn Off Mechanisms

⇒ **NOTE:**
It is recommended that the old provisioning information be retained when the feature is activated to ensure ease of deactivation. Use a process that will make it easy to retrieve the data at some future date. This is recommended rather than using the ver:codegrp procedure that follows. The ver:codegrp procedure is provided in the event the information is lost.

Saving the provisioned data in the above manner will make it easier to deactivate the feature.

7.04 To turn off the feature for ISUP routed calls:

(1) Verify the routing for the carrier desired to be de-provisioned in the STCD domain (ver:codegrp:dom stcd, abc ...)

(2) Reprovision the carrier in the ATNS domain to point to the routing information in the output from the ver:codegrp step above. (The old data will be CALLTYP = SSP, CALLDATA = SFA.)

7.05   To turn off the feature for EAMF routed calls:

(1) Verify the routing for the carrier to be de-provisioned in the STCD domain.

(2) Determine the RDB associated with the NDB using ver:ndb:ndbi, where a is the ndbi output from Step 1.

(3) Reprovision the 0ZZ + CID (using RC Forms 300 to 302) to point to the RDB retrieved from the previous step. (Note: set CHI = WSNO.)

8. Input/Output Manual Pages (Not Affected)

CMC SSP/800 and AIN AMA Enhancement Feature (502)

3

CMC SSP/800 and AIN AMA Enhancement Feature (502)

3

1. Feature Description

Background

1.01 Cellular Mobile Carrier (CMC) Services Switching Point (SSP)/800 and Advanced Intelligent Network (AIN) Automatic Message Accounting (AMA) Enhancement Feature (502) conforms to current Bellcore requirements contained in GR 1504. Prior to this feature, originating access AMA records generated for calls received from CMCs used the Trunk Sub-Group (TSG) CMC billing number to populate the originating Numbering Plan Area (NPA) and number fields of these records. SSP/800 and AIN records for calls from the CMCs use the ANI received by signaling to populate the originating NPA and number fields of these records.

Description

1.02 This feature changes the mechanism for populating the originating NPA and number fields of SSP/800 and AIN AMA records generated for calls received from CMCs. The mechanism now uses the TSG CMC billing number that allows these records to be associated with the originating CMC.

2. Call Flow (Not Affected)

3. Provisioning (Not Affected)

4. Recording

4.01 All SSP/800 and AIN AMA records generated for calls received over type 2A cellular trunks use the TSG CMC billing number to populate the originating NPA and originating number fields. The Automatic Number Identification (ANI) indicator is set to zero for structure codes 360-363. There is no ANI indicator field on AIN records or SSP/800 structure codes 364-367 records.

5. Network Management (Not Affected)

6. Maintenance/Troubleshooting (Not Affected)

7. Transition Considerations

Ubiquity

7.01 It is not necessary for all *4ESS*™ switches in the network to be running the 4E22 Release 4 Generic for this feature to be fully operational.

Turn On/Turn Off Mechanism

7.02 This feature is automatically turned on by software deployment.

8. Input/Output Manual Pages (Not Affected)

Service Circuit System (SCS) Software Update Tool Feature (5563)

4

Contents

Service Circuit System (SCS) Software Update Tool Feature (5563)

4

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1. Feature Description

1.01 This feature provides a tool that automates the update process for the Service Circuit System (SCS). The tool, which is executed from a 3B Processor work center, reduces the risk of errors and requires significant intervention by maintenance personnel only when failures occur. The previous SCS update method required a complex manual procedure that could result in errors.

1.02 The tool contains all of the commands necessary to update one SCS. It is menu-driven and lists all steps at start-up. If steps 1 and 2 were completed in a prior execution, but step 3 resulted in an error, the tool will be re-executed and step 3 will be automatically chosen for execution after maintenance personnel resolve the cause of the failed condition.

1.03 The tool is similar to the 3B Processor Broadcast Warning Message/Software Update (BWM/SU), and includes a number of features such as automatic verification and dump analysis, back-outs, and perms (make permanent). If a timeout occurs during tool execution, the tool will stop and can be restarted where it left off. It also has a stop button which can be used to stop the tool during the automatic execution mode. Both maintenance channels must be active throughout the tool execution so that all messages, successes, and failures can be viewed.

SCS Update Procedure

1.04 The steps of the SCS software update procedure provided by this feature are as follows:

⟹ **NOTE:**
The current software must be loaded in the 3B Processor prior to performing this procedure. This requires loading a 3B BWM.

(1) Verification of the Destination Version Number to which the files will be copied.

(2) Copying the new files from the 3B Processor to the SCS Destination Version Number obtained in Step 1.

(3) Removing a Service Circuit Unit (SCU) and changing the version number, using RC Form 703.

(4) Restoring the SCU (pump sequence).

(5) Completing Steps 3 and 4 for all SCUs in the frame.

(6) Updating the Controllers by changing version numbers, using RC Form 801, and diagnosing and restoring each Controller (pump sequence).

⟹ **NOTE:**
The new SCS update process uses file locations 0 and 1 only, not locations 0, 1, 2 and 3, which are used in the older manual procedure.

1.05 Maintenance personnel have a choice of either manually intervening before proceeding to the next step, or automatically executing all steps to completion, intervening only if there are errors. The tool reports the status (no errors encountered, for example) with either method.

1.06 The tool will stop if an error is reported from the *4ESS*™ switch because of a tool input message, and report the error encountered, including an audible minor alarm. Maintenance personnel intervention is required to restart the tool after the last successful step.

1.07 Software update events are logged using standard *4ESS* switch procedures: 3B Processor successes, completions and errors go on the 3B Processor maintenance channel; 1B Processor successes, completions and errors go on the 1B Processor maintenance channel.

Related Documents

1.08   The following documents include information about this feature:

- 234-153-060, Growth/Degrowth, Task Oriented Procedure (TOP), Service Circuit System (SCS).

- 234-151-077, Maintenance, Task Oriented Procedure, Service Circuit System (SCS).

2. Call Flow (Not Affected)

3. Provisioning

3.01   This feature does not impact any RC or Office Data Assembler (ODA) forms.

Activation

3.02   The process of activating a file is as follows:

⇒ **NOTE:**
The SCS can be activated only while out-of-service (through protection-switching). Either the operational file or the diagnostic file can be executed, but not both.

(1) Update the Service Group using the menu-driven display page.

(2) Remove the Service Group.

(3) Copy the Service Group's operational file from the indicated location (for example, location 0) into the Service Group's random access memory. (This occurs automatically when the Service Group is restored to service.) For the SCS Controller, the File Data Transfer (FDT) file must be copied separately.

(4) ODA data pointing to either location 0 or 1 will change depending on the previous state. For example, if location 0 was standby, it would now be pointed to as active.

(5) Maintenance personnel can allow a soak time to pass before proceeding to ensure trouble-free operation.

Verify Message

    3.03   The following 1B Processor Verify Message is used to output status/version data to the Receive Only Printer (ROP):

VER:VFUNC SCSDATA:FD1 SCSMEMN,DT! a

(a = SCS member number)

The verify data includes the following information:

- Signal Conversion Circuit (SCC) number
- Service Circuit Unit (SCU) equipage status
- SCS/SCU hardware version
- Current active location of all SCS/SCU files.

4. Recording (Not Affected)

5. Network Management (Not Affected)

6. Maintenance/Troubleshooting (Not Affected)

7. Transition Considerations

Ubiquity

    7.01   It is not necessary for all *4ESS* switches in the network to be running the 4E22 Release 4 Generic for this feature to be fully operational.

Turn On/Turn Off Mechanism

    7.02   This feature is turned on automatically with software deployment. Files are activated as described in Activation, above.

8. Input/Output Manual Pages

8.01   A new output manual page, REPT:SCS-SU, was created to support this feature.

9-Gigabyte Disk Units for Service Circuit System (SCS) Feature (5568)

5

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9-Gigabyte Disk Units for Service Circuit System (SCS) Feature (5568)

5

1. Feature Description

1.01 This feature provides a new 9 Gigabyte (GB) disk drive circuit pack (TN9000) for use in Service Circuit System (SCS). The new unit replaces the 4 GB disk drive circuit pack. The increased disk drive capacity, together with the SCS Announcement Seconds Expansion Feature 5794 (4E22 Release 4), provides an announcement storage capacity of 2 million announcement seconds, which is required to support the increasing demand for customized service announcements.

1.02 The new disk drive circuit pack contains one 9 GB drive unit that is mounted on the same size pack that was used for previous SCS disk drive units. If the new circuit packs are used in SCU 0, they must be installed in slot 0 of the shelf that contains the disk units.

⇒ NOTE:
As with the units they replace, the new disk drive circuit packs are installed in pairs. Although 2 disk pairs can be installed in an SCU in 4E22 Release 4, this feature supports the installation of only 1 pair.

The number of disk pairs useable by an SCU is determined by physical considerations (only SCU 0 is capable of supporting 2 disk pairs) and by storage capacity limitations. SCUs without announcement expansion were only capable of accessing approximately 6 GB of announcements; SCUs with announcement expansion can utilize 9 GB of announcement storage. Therefore, there is no need for more than 2 disk pairs.

1.03   The Recent Change process will no longer allow a user to equip pairs 2 and 3. If direct means (IN:OWBUF, for example) is used to equip these pairs, the data will be ignored.

⟹ **NOTE:**
The lack of disk pairs 2 and 3 will have no effect, since they are not currently used in any field sites.

1.04   This feature introduces a new unit type translator value to designate the 9 GB circuit pack. A value of 3 is used to indicate the presence of a 9 GB disk drive.

1.05   The new disks are sent to the field without announcements recorded, and are loaded by field personnel using the disk-to-disk copy capability provided by the Announcement Administration Processor (AAP) Disk Copy Enhancement feature (5835).

1.06   Refer to the *4ESS™ Switch Task Oriented Practice (TOP) Service Circuit System Growth/Degrowth*, 234-100-060AC and to the *4ESS™ Switch TOP Service Circuit System Maintenance*, 234-151-077AC, for additional information.

2. Call Flow (Not Affected)

3. Provisioning

3.01   As previously noted, this feature introduces the new unit type translator value of 3 to indicate the presence of a 9 GB disk drive.

3.02   When 9 GB disk drive circuit packs are equipped on a particular SCU, the circuit packs must be equipped as pair 0. No other pairs may be equipped on that SCU. This data is modified using Recent Change Form 703.

3.03   Refer to 234-100-060AC for additional information.

4. Recording (Not Affected)

5. Network Management (Not Affected)

6. Maintenance/Troubleshooting (Not Affected)

7. Transition Considerations

Ubiquity

7.01   It is not necessary for all *4ESS*™ switches in the network to be running the 4E22 Release 4 Generic for this feature to be fully operational.

Turn On/Turn Off Mechanism

7.02   There is no turn on or off mechanism for this feature. The 9 GB disk drive is made available for use by identifying 3 as a disk capacity for the applicable disk pair/SCU member. This is done as part of a larger growth procedure that includes installing the 9 GB disk packs. Refer to 234-100-060AC for detailed information on the growth procedure.

8. Input/Output Manual Pages

The following Input Manual Pages have been modified to support this feature:

- DGN:SCS
- COPY:SCS
- DUMP:DISK-SCS
- INIT:SCS
- LOAD:DISK-SCS.

Release Summary—4E22 Release 4 Generic

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Release Summary—4E22 Release 4 Generic

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1. Growth and Retrofit Documents

1.01 The Growth and Retrofit Planning Group reports that the following documents are affected by new hardware and software in the 4E22 Release 4 Generic.

- Feature 5563—SCS Software Update Tool

    — 234-100-211 Issue 1   User Guide

- Features 5568—SCS 9GB Disk Drive and 5794—Announcement Seconds Expansion

    — 234-153-060AC   Section NTP-003
    — IEH 264A, Vol.III   Section NTP-008
    — IEH 264A, Vol.II   Section184, New NTP-020
    — IEH 264A, Vol.II   Section 176D, New NTP-021
    — IEH 264A Vol.I   Section 176C
    — 234-151-077AC   SCS Maintenance TOP
    — 234-100-210AC   SCS Application
    — 234-100-130AC   SCS Description.

2. Input/Output Messages

2.01   The following are lists of new and revised input and output messages for the 4E22 Release 4 Generic. All the messages are revised unless otherwise indicated.

- ■ 4E22R4 Input Messages (IM-4B000-01)
    - — copy:scs
    - — dgn:scs
    - — dump:disk-scs
    - — init:scs
    - — load:disk-scs
    - — ver:codelist.

- ■ 4E22R4 Output Messages (OM-4B000-01)
    - — ver:allrdb.   (New)

- ■ 4AP15R4 Input Messages
    - — aud:tdas.

- ■ 4AP15R4 Output Messages
    - — copy:update
    - — rept:cnce
    - — rept:ring-trst-er
    - — rept:scs-su.   (New)

3. OS Interfaces

NOTE: The information in this item is based on the Lucent 24ESS Switch Development Project Plan and the Product Release Document for this release.

3.01   Feature 502, CMC SSP/800 and AIN AMA Enhancement, interfaces with the Automatic Message Accounting (AMA) system.

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   Feature 5563, SCS Software Update Tool, includes an audible minor alarm to indicate an error because of a tool input message. Manual intervention by maintenance personnel is required to restart the tool after the last successful step.

5. Measurements/OSOR

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

5.01   The features in this Product Release Document do not have any new measurements.

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 450a—Number Portability with Location Routing Number**

This feature is activated or deactivated by the use of Recent Change Form 809, as described in the Provisioning section in Chapter 1 of this document.

(2) **Feature 488—Access Tandem Routing Enhancement**

Customers must purchase the right to use this feature. It is activated by Lucent Technologies.

(3) **Feature 502—CMC SSP/800 and AIN AMA Enhancement**

This feature is turned on automatically by software deployment.

(4) **Feature 5563—SCS Software Update Tool**

This feature is turned on automatically by software deployment. However, an activation procedure must be followed to use the feature.

(5) **Feature 5568—SCS–9 Gigabyte Disk Units**

This feature is activated by installation of the new disk units.

Abbreviations and Acronyms

A

AAP
Announcement Administration Processor

AIN
Advanced Intelligent Network

AMA
Automatic Message Accounting

ANI
Automatic Number Identification

AT
Access Tandem

C

CdPN
Called Party Number

CMC
Cellular Mobile Carrier

CNT
Called Number Trigger

CPC
Carrier Portability Code

D

DN
Dialed Number

DN
Directory Number

E

EAEO
Equal Access End Office

EAMF
Equal Access Multi-Frequency

F

FCI
Forward Call Indicator

FGD
Feature Group D

FHC
Final Handling Code

G

GAP
Generic Address Parameter

GB
Gigabyte

I

IAM
Initial Address Message

ISUP
ISDN User Part

ITN
Integrated Test Network

L

LATA
Local Access Transport Area

LEC
Local Exchange Carrier

LNP
Local Number Portability

LRN
Location Routing Number

N

NCC
Network Control Center

NESAC
National Electronic Switching
Assistance Center

NG-ODA
Next Generation-Office Data
Assembler

NPA
Numbering Plan Area

NRA
Network Routing Address

O

ODA/ODMS
Office Data Assembler/Office Data
Management System

P

PECC
Product Engineering Control Center

PIC
Primary Inter-Exchange Carrier

PNG
Ported Number Gap

POP
Point of Presence

PRD
Product Release Document

R

RC
Recent Change

S

SCC
Signal Conversion Circuit

SCP
Service Control Point

SCS
Service Circuit System

SCU
Service Circuit Unit

SSP
Service Switching Point

STCD
Super Tandem Carrier Domain

ABB-2   September 1997

T

TIRM
Technical Information Resource
Management

TOP
Task Oriented Practice

TSG
Trunk Sub-Group