

Tekelec EAGLE[®] 5 Integrated Signaling System

Release 40.0

Database Administration Manual - Features

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Patents

This product is covered by one or more of the following U.S. and foreign patents:

U.S. Patent Numbers:

5,732,213; 5,953,404; 6,115,746; 6,167,129; 6,324,183; 6,327,350; 6,456,845; 6,606,379; 6,639,981; 6,647,113; 6,662,017; 6,735,441; 6,745,041; 6,765,990; 6,795,546; 6,819,932; 6,836,477; 6,839,423; 6,885,872; 6,901,262; 6,914,973; 6,940,866; 6,944,184; 6,954,526; 6,954,794; 6,959,076; 6,965,592; 6,967,956; 6,968,048; 6,970,542; 6,987,781; 6,987,849; 6,990,089; 6,990,347; 6,993,038; 7,002,988; 7,020,707; 7,031,340; 7,035,239; 7,035,387; 7,043,000; 7,043,001; 7,043,002; 7,046,667; 7,050,456; 7,050,562; 7,054,422; 7,068,773; 7,072,678; 7,075,331; 7,079,524; 7,088,728; 7,092,505; 7,108,468; 7,110,780; 7,113,581; 7,113,781; 7,117,411; 7,123,710; 7,127,057; 7,133,420; 7,136,477; 7,139,388; 7,145,875; 7,146,181; 7,155,206; 7,155,243; 7,155,505; 7,155,512; 7,181,194; 7,190,702; 7,190,772; 7,190,959; 7,197,036; 7,206,394; 7,215,748; 7,219,264; 7,222,192; 7,227,927; 7,231,024; 7,242,695; 7,254,391; 7,260,086; 7,260,207; 7,283,969; 7,286,516; 7,286,647; 7,286,839; 7,295,579; 7,299,050; 7,301,910; 7,304,957; 7,318,091; 7,319,857; 7,327,670

Foreign Patent Numbers:

EP1062792; EP1308054; EP1247378; EP1303994; EP1252788; EP1161819; EP1177660; EP1169829; EP1135905; EP1364520; EP1192758; EP1240772; EP1173969; CA2352246

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Chapter 1

Introduction

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Chapter 1, Introduction, contains an overview of the features described in this manual, general information about the database, and the organization of this manual.

Overview

The *Database Administration Manual – Features* describes the procedures used to configure the EAGLE 5 ISS and its database to implement these features:

- X.25 Gateway
- STPLAN
- Database Transport Access
- GSM MAP Screening
- Eagle 5 Integrated Monitoring Support

Note: Before enabling any one of these features, make sure you have purchased the feature to be turned on. If you are not sure whether you have purchased the feature to be turned on, contact your Tekelec Sales Representative or Account Representative.

Note: Database administration privileges are password restricted. Only those persons with access to the command class “Database Administration” can execute the administrative functions. Refer to the *Commands Manual* for more information on command classes and commands allowed by those classes.

It is possible for two or more users to make changes to the same database element at any time during their database administration sessions. It is strongly recommended that only one user at a time make any changes to the database.

X.25 Gateway

The X.25 Gateway feature provides connectivity between SS7 and X.25 networks. This feature enables cellular (IS.41) applications using different transport services to connect. The gateway is physically positioned between the SS7 network and the X.25 network and transports IS.41 messages from one network to the other using the SS7 Transaction Capability Application Part (TCAP) protocol.

STPLAN

The STPLAN feature provides a TCP/IP connection from any interface shelf to support external applications. Message signaling units (MSUs) that are processed by the EAGLE 5 ISS can be copied and directed through the LAN interface to an external server or microcomputer application such as a usage measurements system. The gateway screening feature must be available on the STP in order to use the STPLAN feature.

The feature requires an STPLAN card, either the Application Communications Module (ACM) running the `stplan` application, or the Database Communications Module (DCM) running the `vxwslan` application.

Database Transport Access

The Database Transport Access (DTA) feature provides a mechanism for the redirection of specific Message signaling units (MSUs) to a customized database. The EAGLE 5 ISS uses gateway screening to qualify incoming MSUs for redirection. Once gateway screening is passed, the original MSU is encapsulated into a new MSU and routed to its new destination.

GSM MAP Screening

The GSM MAP Screening feature examines the Mobile Application Part (MAP) level of incoming SCCP messages to against predefined criteria in the system database to determine whether or not to allow an external server to interrogate an HLR and obtain information about the location and/or state of a GSM subscriber. This feature also allows the user to control which external entities can request this information, and what information they can request before allowing the message to pass through to the HLR.

EAGLE 5 Integrated Monitoring Support

The Integrated Monitoring Support feature allows the network traffic on the EAGLE 5 ISS's signaling links to be monitored by an IMF (integrated message feeder) without additional intrusive cabling. Message Signaling Units (MSUs), alarms, and events are copied to the Sentinel/IMF to provide the network traffic monitoring. The monitored traffic is delivered to the Sentinel/IMF using the EAGLE 5 ISS's STCs (Signaling Transport Cards) which are connected to the ESP/IMF subsystem by Ethernet links. The ESP/IMF subsystem delivers the monitored traffic to the Sentinel/IMF. EAGLE 5 ESP (extended services platform)/

Scope and Audience

This manual is intended for database administration personnel or translations personnel responsible for configuring the EAGLE 5 ISS and its database to implement the features shown in the [Overview](#) on page 2 section.

Manual Organization

Throughout this document, the terms database and system software are used. Database refers to all data that can be administered by the user, including shelves, cards, links, routes, global title translation tables, and gateway screening tables. System software refers to data that cannot be administered by the user, including generic program loads (GPLs).

This document is organized into the following sections.

[Introduction](#) on page 1 contains an overview of the features described in this manual, general information about the database, and the organization of this manual.

[X.25 Gateway Configuration](#) on page 13 describes the X.25 Gateway feature and the procedures necessary to configure the EAGLE 5 ISS to support this feature.

[STPLAN Configuration](#) on page 163 describes the STPLAN feature and the procedures necessary to configure the EAGLE 5 ISS to support this feature.

[Database Transport Access \(DTA\) Configuration](#) on page 219 describes the Database Transport Access (DTA) feature and the procedures necessary to configure the EAGLE 5 ISS to support this feature.




[GSM MAP Screening Configuration](#) on page 267 describes the GSM MAP Screening feature and the procedures necessary to configure the EAGLE 5 ISS to support this feature.

[EAGLE 5 Integrated Monitoring Support Configuration](#) on page 431 describes the Eagle 5 Integrated Monitoring Support feature and the procedures necessary to configure the EAGLE 5 ISS to support this feature.

Documentation Admonishments

Admonishments are icons and text throughout this manual that alert the reader to assure personal safety, to minimize possible service interruptions, and to warn of the potential for equipment damage.

Table 1: Admonishments

	DANGER: (This icon and text indicate the possibility of <i>personal injury</i> .)
	WARNING: (This icon and text indicate the possibility of <i>equipment damage</i> .)
	CAUTION: (This icon and text indicate the possibility of <i>service interruption</i> .)

Customer Care Center

The Tekelec Customer Care Center offers a point of contact for product and service support through highly trained engineers or service personnel. When a call is received, a Customer Service Report (CSR) is issued to record the request for service. Each CSR includes an individual tracking number.

After a CSR is issued, the Customer Care Center determines the classification of the trouble. If a critical problem exists, emergency procedures are initiated. If the problem is not critical, information regarding the serial number of the system, Common Language Location Identifier (CLLI), initial problem symptoms (includes outputs and messages) is recorded. A primary Customer Care Center engineer is also assigned to work on the CSR and provide a solution to the problem. The CSR is closed when the problem is resolved.

The Tekelec Customer Care Center is available 24 hours a day, 7 days a week at the following locations:

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Email (All Regions): support.tekelec.com

- USA and Canada

Phone:

1-888-FOR-TKLC or 1-888-367-8552 (toll-free, within continental USA and Canada)

1-919-460-2150 (outside continental USA and Canada)

TAC Regional Support Office Hours:

8:00 a.m. through 5:00 p.m. (GMT minus 5 hours), Monday through Friday, excluding holidays

- **Central and Latin America (CALA)**

Phone:

USA access code +1-800-658-5454, then 1-888-FOR-TKLC or 1-888-367-8552 (toll-free)

TAC Regional Support Office Hours (except Brazil):

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- **Brazil**

Phone:

0-800-891-4341 (toll-free)

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1230-020-555-5468

- **Columbia**

Phone:

01-800-912-0537

- **Dominican Republic**

Phone:

1-888-367-8552

- **Mexico**

Phone:

001-888-367-8552

- **Peru**

Phone:

0800-53-087

- **Puerto Rico**

Phone:

1-888-367-8552 (1-888-FOR-TKLC)

- **Venezuela**

Phone:

0800-176-6497

- **Europe, Middle East, and Africa**

- **Signaling**

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+33 3 89 33 54 00

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TAC Regional Support Office Hours:

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Emergency Response

In the event of a critical service situation, emergency response is offered by the Tekelec Customer Care Center 24 hours a day, 7 days a week. The emergency response provides immediate coverage, automatic escalation, and other features to ensure that the critical situation is resolved as rapidly as possible.

A critical situation is defined as a problem with an EAGLE 5 ISS that severely affects service, traffic, or maintenance capabilities, and requires immediate corrective action. Critical problems affect service and/or system operation resulting in:

- A total system failure that results in loss of all transaction processing capability
- Significant reduction in system capacity or traffic handling capability
- Loss of the system's ability to perform automatic system reconfiguration
- Inability to restart a processor or the system
- Corruption of system databases that requires service affecting corrective actions
- Loss of access for maintenance or recovery operations
- Loss of the system ability to provide any required critical or major trouble notification

Any other problem severely affecting service, capacity / traffic, billing, and maintenance capabilities may be defined as critical by prior discussion and agreement with the Tekelec Customer Care Center.

Related Publications

For information about additional publications that are related to this document, refer to the *Related Publications* document. The *Related Publications* document is published as a part of the *Release Documentation* and is also published as a separate document on the Tekelec Customer Support Site.

Documentation Availability, Packaging, and Updates

Tekelec provides documentation with each system and in accordance with contractual agreements. For General Availability (GA) releases, Tekelec publishes a complete EAGLE 5 ISS documentation set. For Limited Availability (LA) releases, Tekelec may publish a documentation subset tailored to specific feature content or hardware requirements. Documentation Bulletins announce a new or updated release.

The Tekelec EAGLE 5 ISS documentation set is released on an optical disc. This format allows for easy searches through all parts of the documentation set.

The electronic file of each manual is also available from the Tekelec Customer Support site. This site allows for 24-hour access to the most up-to-date documentation.

Printed documentation is available for GA releases on request only and with a lead time of six weeks. The printed documentation set includes pocket guides for commands and alarms. Pocket guides may also be ordered as a set or individually. Exceptions to printed documentation are:

- Hardware or Installation manuals are printed only without the linked attachments found in the electronic version of the manuals.
- The Release Notice is available only on the Customer Support site.

Note:

Customers may print a reasonable number of each manual for their own use.

Documentation is updated when significant changes are made that affect system operation. Updates resulting from Severity 1 and 2 PRs are made to existing manuals. Other changes are included in the documentation for the next scheduled release. Updates are made by re-issuing an electronic file to the customer support site. Customers with printed documentation should contact their Sales Representative for an addendum. Occasionally, changes are communicated first with a Documentation Bulletin to provide customers with an advanced notice of the issue until officially released in the documentation. Documentation bulletins are posted on the Customer Support site and can be viewed per product and release.

Maintenance and Administration Subsystem

The maintenance and administration subsystem consists of two processors, MASP (maintenance and administration subsystem processor) A and MASP B.

Each MASP is made up of two cards, the GPSM-II card (general purpose service module) and the TDM (terminal disk module).

The GPSM-II card contains the communications processor and applications processor and provides connections to the IMT bus. The GPSM-II controls the maintenance and database administration activity.

The TDM contains the fixed disk drive, the terminal processor for the 16 serial I/O ports and interfaces to the MDAL (maintenance disk and alarm) card which contains the removable cartridge drive and alarm logic. There is only one MDAL card in the maintenance and administration subsystem and it is shared between the two MASPs.

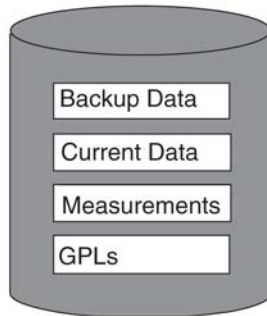
For more information on these cards, go to the *Hardware Manual - EAGLE 5 ISS* .

EAGLE 5 ISS Database Partitions

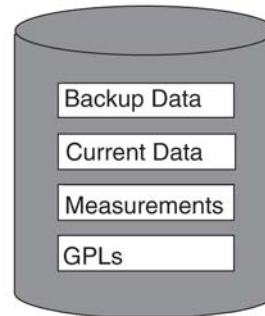
The data that the EAGLE 5 ISS uses to perform its functions are stored in two separate areas: the fixed disk drives, and the removable cartridge. The following sections describe these areas and data that is stored on them. These areas and their partitions are shown in [Figure 1: EAGLE 5 ISS Database Partitions](#) on page 8.

Figure 1: EAGLE 5 ISS Database Partitions

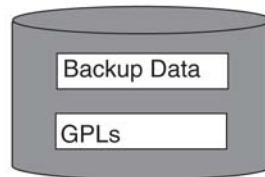
ACTIVE FIXED DISK



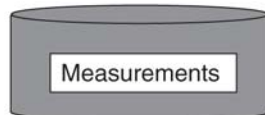
STANDBY FIXED DISK



System Data
Removable
Cartridge



Measurements
Removable
Cartridge



Fixed Disk Drive

There are two fixed disk drives on the EAGLE 5 ISS. The fixed disk drives contain the “master” set of data and programs for the EAGLE 5 ISS. The two fixed disk drives are located on the terminal disk modules (TDMs). Both disks have the same files. The data stored on the fixed disks is partially replicated on the various cards in the EAGLE 5 ISS. Changes made during database administration sessions are sent to the appropriate cards.

The data on the fixed disks can be viewed as four partitions.

- Current partition
- Backup partition
- Measurements partition
- Generic program loads (GPLs) partition

The data which can be administered by users is stored in two partitions on the fixed disk, a current database partition which has the tables which are changed by on-line administration, and a backup database partition which is a user-controlled copy of the current partition.

All of the on-line data administration commands effect the data in the current partition. The purpose of the backup partition is to provide the users with a means of rapidly restoring the database to a known good state if there has been a problem while changing the current partition.

A full set of GPLs is stored on the fixed disk, in the GPL partition. There is an approved GPL and a trial GPL for each type of GPL in this set and a utility GPL, which has only an approved version. Copies of these GPLs are downloaded to the EAGLE 5 ISS cards. The GPL provides each card with its functionality. For example, the `ss7ansi` GPL provides MTP functionality for link interface modules (LIMs).

Measurement tables are organized as a single partition on the fixed disk. These tables are used as holding areas for the measurement counts.

Removable Cartridge

A removable cartridge is used for two purposes.

- To hold an off-line backup copy of the administered data and system GPLs
- To hold a copy of the measurement tables

Because of the size of the data stored on the fixed disk drives on the TDMs, a single removable cartridge cannot store all of the data in the database, GPL and measurements partitions.

To use a removable cartridge to hold the system data, it must be formatted for system data. To use a removable cartridge to hold measurements data, it must be formatted for measurements data. The EAGLE 5 ISS provides the user the ability to format a removable cartridge for either of these purposes. A removable cartridge can be formatted on the EAGLE 5 ISS by using the `format-disk` command. More information on the `format-disk` command can be found in the *Commands Manual*. More information on the removable cartridge drives can be found in the *Hardware Manual - EAGLE 5 ISS*.

The removable cartridge drive is located on the MDAL card in card location 1117.

Additional and preformatted removable cartridges are available from the [Customer Care Center](#) on page 4.

Locate Product Documentation on the Customer Support Site

Access to Tekelec's Customer Support site is restricted to current Tekelec customers only. This section describes how to log into Tekelec's Customer Support site and locate a document. Viewing the document requires Adobe Acrobat Reader, which can be downloaded at www.adobe.com.

1. Log into Tekelec's **new** Customer Support site at support.tekelec.com.

Note: If you have not registered for this new site, click the **Register Here** link. Have your customer number available. The response time for registration requests is 24 to 48 hours.

2. Click the **Product Support** tab.

3. Use the Search field to locate a document by its part number, release number, document name, or document type. The Search field accepts both full and partial entries.
4. Click a subject folder to browse through a list of related files.
5. To download a file to your location, right-click the file name and select **Save Target As**.

X.25 Gateway Configuration

Topics:

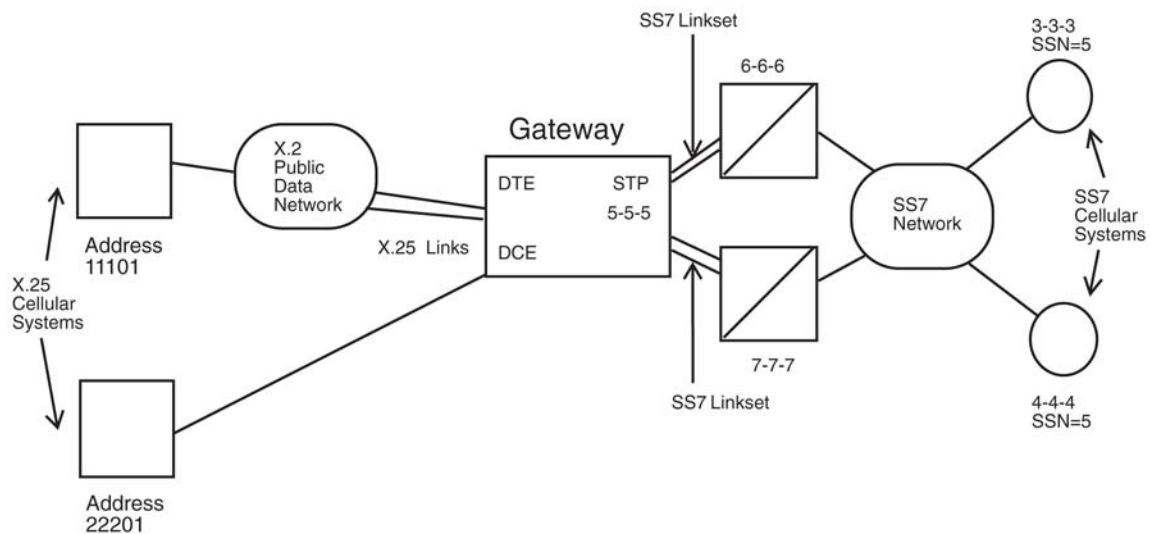
- [The X.25 Gateway Page 14](#)
- [X.25 Gateway Description Page 15](#)
- [X.25 Gateway Routing Page 16](#)
- [X.25 Gateway Configuration Procedures Page 19](#)
- [Adding an X.25 LIM Page 23](#)
- [Removing an X.25 LIM Page 26](#)
- [Adding an X.25 Gateway Destination Page 32](#)
- [Removing an X.25 Gateway Destination Page 38](#)
- [Changing an X.25 Gateway Destination Page 40](#)
- [Adding an X.25 Linkset Page 45](#)
- [Removing a Linkset Containing X.25 Signaling Links Page 67](#)
- [Changing an X.25 Linkset Page 74](#)
- [Adding an X.25 Signaling Link Page 106](#)
- [Removing an X.25 Signaling Link Page 117](#)
- [Adding an X.25 Route Page 121](#)
- [Removing an X.25 Route Page 136](#)
- [Changing an X.25 Route Page 138](#)
- [Changing the X.25 Signaling Link Parameters Page 149](#)
- [Enabling the Large System # Links Controlled Feature Page 153](#)

Chapter 2, X.25 Gateway Configuration, describes the X.25 Gateway feature and the procedures necessary to configure the EAGLE 5 ISS to support this feature.

The X.25 Gateway

The EAGLE 5 ISS X.25/SS7 gateway feature provides connectivity between SS7 and X.25 networks. This enables cellular (IS.41) applications using different transport services to connect. The gateway is physically positioned between the SS7 network and X.25 network. See [Figure 2: X.25 Gateway Network](#) on page 14. The gateway transports IS.41 messages from one network to the other using the SS7 Transaction Capability Application Part (TCAP) protocol.

Figure 2: X.25 Gateway Network



The X.25 gateway requires a new communications capability between SS7 and X.25 networks. The gateway uses a LIM card running the `ss7gx25` application. The LIM supports the DS0A, OCU, or V.35 interfaces at line speeds of 4800, 9600, 19,200, 56,000, and 64,000 bps.

The card looks and operates like any other LIM card. The card is labeled as a LIM-DS0, LIM-V35, and so forth. It can perform gateway screening. It must also provide three distinct functional components: MTP (Level 3) processing, IS.41 gateway and X.25 conversion.

The MTP Level 3 processing is similar to the operation on SS7 LIM cards. The IS.41 gateway function converts the MTP portion of the packet to X.25 protocol. The X.25 function controls the X.25 protocol and the X.25 link status.

Connectivity to the X.25 Node

The gateway supports these two types of connectivity to the X.25 node:

- direct connectivity
- connectivity through a public or private data network

If the gateway has a direct link to the X.25 node, the gateway appears as a DCE to the X.25 node. The gateway can also connect to the X.25 node through a public data network where it appears as a DTE to the X.25 network.

Message Conversion

The gateway performs the message conversion for all TCAP traffic in both directions. The message conversion removes and adds protocol envelopes used by the X.25 and SS7 networks. The TCAP portion of the data is not changed. The MTP/SCCP of SS7 is converted to X.25 and reverse, depending upon the traffic direction. TCAP is passed through the gateway unchanged. IS.41 uses TCAP as the “carrier.”

Address Mapping

In order to route traffic between networks, the gateway performs address mapping between the X.25 domain and the SS7 domain. The X.25 application entities and the SS7 application entities must have addresses not only in their domain but also in the opposite network domain. For example, the X.25 application entity is addressed by the SS7 network using a pseudo point code and pseudo subsystem number (XPC and XSSN). Conversely, the SS7 application entity must be addressed by the X.25 network using a pseudo X.25 network address (SADDR).

X.25 Gateway Description

X.25 requires that any data that is transmitted must be sent on a connection. A connection represents a route between two application entities (one in the X.25 domain and one in the SS7 domain). It must exist before any messages can be transferred. The connection can be one of three types:

- PVC (permanent virtual circuit): A fixed connection that can only be altered through administration.
- SVCA (switched virtual circuit-automatic): A connection established by the STP as soon as the X.25 gateway card initializes.
- SVCR (switched virtual circuit-remote): A connection established by the X.25-user end when necessary.

For these connections, a route must be defined through administration. Every application entity that can be connected through the gateway must be defined. The association between the application entities must also be defined.

An X.25 link appears to the STP as though it is an SS7 link. Adjacent point codes are either the originating point code of the X.25 distant end (if the connection is direct), or a virtual point code (if the connection is through a network). This is equivalent to routing through an adjacent STP to the signaling points connected to it. See [Figure 2: X.25 Gateway Network](#) on page 14.

As messages travel from the X.25 network to the SS7 network, the gateway determines the destination point code (DPC) and adds the SS7 SCCP and MTP envelopes to the TCAP message. The gateway determines the virtual circuit and removes the SCCP and MTP envelopes on messages transmitted from the SS7 network side to an X.25 destination.

Other attributes of the gateway are as follows:

- Each X.25 link supports up to 255 logical channels as SVCs or PVCs or a combination.
- The EAGLE 5 ISS supports up to 1024 X.25 logical connections. If the 2000 X.25 routes feature is turned on, shown by the entry `x252000 = on` entry in the `rttrv-feat` command output, the EAGLE 5 ISS supports up to 2000 X.25 logical connections.
- All X.25 network-initiated calls are accepted when the calling X.25 node is correctly defined in the STP.

- Gateway screening is supported from the X.25 to the SS7 network.
- Routing does not occur through the X.25 gateway between two X.25 points.
- X.25 networks that do not supply the calling address in the call request are not supported for network-initiated connections.

X.25 Gateway Routing

Gateway routing is performed through four different functions:

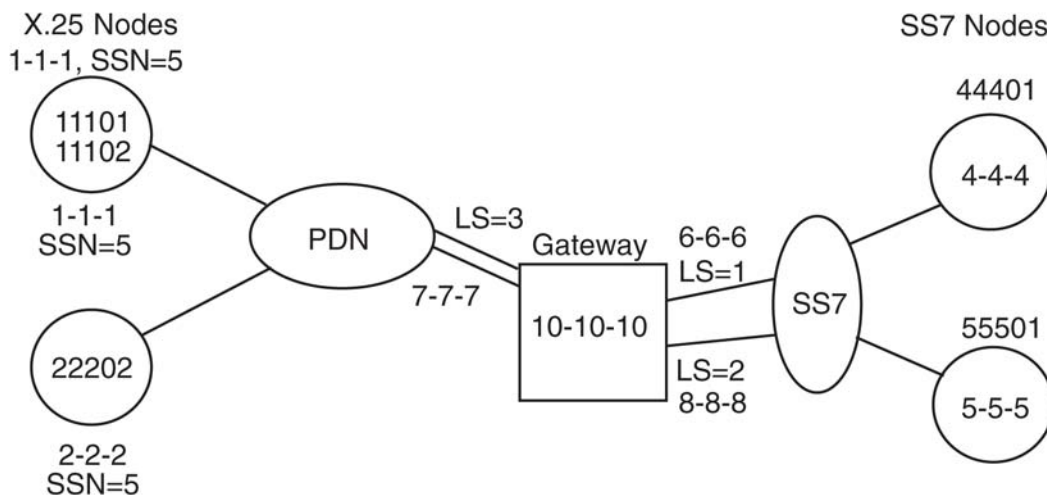
- Connection Determination
- X.25 Connection Control
- Same-Link Management
- Logical Channel to Network Management Mapping

Connection Determination

The destination address for X.25 is defined as a destination element (X.25 DE). An X.25 DE is an object on the X.25 network to which a connection can be made and has a point code assigned to it. An X.25 link can be either point-to-point (direct) or through an intermediary network. A destination for SS7 is a point code, plus an optional subsystem number (SSN).

A destination for X.25 is dependent upon whether a connection is established. A connection is defined as a pair of destinations that are exchanging messages. The destination for X.25 is an X.25 address before connection, and a logical channel (LC) after connection. One of the destinations must be in the X.25 domain and the other in the SS7 domain. See [Figure 3: X.25 Gateway Connection Determination](#) on page 16.

Figure 3: X.25 Gateway Connection Determination



The connection is determined using the gateway routing table (GRT). This process can be divided by whether the message arrives from the X.25 side (inbound) or the SS7/MTP side (outbound):

- Inbound messages:

If the logical channel on which the message arrives is in the connected state, it already points to an entry in the gateway routing table. The destination point code (DPC) is the value in the SS7 point code field. The origination point code (OPC) is the value in the X.25 point code field.

For an incoming SVC (SVCR), the X.25 user must first establish the connection.

- Outbound messages:

The DPC is used to locate the connection on which to send the message. The order of the lookup in the GRT is as follows:

1. The STP locates an entry in the X.25 point code field that matches the DPC. If no entry is found for that point code, the gateway produces MRN #1140 and the MSU is discarded.

Note: If no entry is found, or an SVCA defined, the connection cannot be established.

2. The STP verifies that the OPC matches the SS7 point code field. If there is no match, the gateway produces MRN #1134 and the MSU is discarded.
3. Once the connection entry is found in the Gateway Routing Table (GRT), the STP examines the card address field and proceeds as follows:

Table 2: Card Address Field Action

If...	then...
the card address is the same as the card that receives the MSU,	the routing is complete and the message passes to format conversion.
the card address is not the same card that receives the MSU,	the STP passes the MSU to "single link" management for the card defined in the card address field.

X.25 Connection Control

There is an additional routing requirement, connection routing and control, that is different from SS7 routing.

A connection must be established before any message can be transferred between the STP and an X.25 DE. A connection is established depending upon when and where the connection is made.

A fixed connection route is defined through administration and can be either PVC (permanent virtual circuit), SVCA (switched virtual circuit-automatic) or SVCR (switched virtual circuit - remote). If the connection type field is PVC, the PVC is already established when the link is initialized through provisioning in the public data network (PDN) and STP. The PVC remains in effect while the link is operational.

If the connection type field is SVCA, the connection is established by the designated LIM card (defined in the location field) immediately after the link becomes initialized. It is possible that the remote end becomes available during this cycle, and makes the connection from the remote end. The remote end could make the connection to any card. The connection remains in effect while the link is operational or until the remote end fails or clears the connection.

If the connection type field is SVCR, the connection can only be made by the X.25 DE as follows:

If an X.25 DE wants to send a message to an SS7 node, and the STP has not established a connection to that node, the X.25 DE attempts to establish one before sending the message. The X.25 DE establishes the connection by sending a call request to the STP with identification in the calling address field, and the SS7 node in the called address field.

When the STP receives the incoming call, the STP verifies both the calling and called addresses using the X.25 address and SS7 address fields. If the STP finds an entry for the X.25 address pair, it checks to see if a connection is active.

Table 3: Connection Action

If...	then...
the connection is active,	the STP clears the incoming call.
the connection is not active, and the SS7 point code is accessible from the STP,	it is set as active. Otherwise, the STP clears the incoming call.
an entry for the X.25 address pair is not found,	the STP checks the X.25 destination table to see if the designated X.25 addresses are present.
both addresses are present (the caller is in the X.25 domain and the called address is in the SS7 domain),	the connection is established and a temporary entry is added to the database.

Same Link Management

X.25 requires that if there is a set of links into a PDN (or directly to an X.25 DE), a response to a request must be returned on the same link and logical channel as the request was received. Because MTP routing does not use a particular link on a linkset, it is likely that a response would go to a non-originating LIM. Same link management assures that the message is sent out on the same link. This is achieved by each LIM informing all others LIMs when the state of a connection changes.

Logical Channel to Network Management Mapping

The EAGLE 5 ISS X.25/SS7 gateway also provides management procedures for failed X.25 logical channels. This feature allows traffic destined for failed logical channels to be rerouted to an alternate route.

When configuring logical channel to network management mapping (LC2NM), you must determine if the X.25 entity is expecting associated queries and responses to use the same logical channel, or if they may be assigned to different logical channels. If associated queries and responses can be received over different logical channels, load balancing and failure recovery through alternate routing is supported.

If logical channel to network management mapping is enabled, and the X.25 entity can receive associated queries and responses on different logical channels, data destined to a failed logical channel is diverted by forced rerouting procedures in the EAGLE 5 ISS to the alternate route. All other associated traffic is diverted, and the logical channels to which associated traffic is assigned are made unavailable.

If the X.25 entity expects all associated queries and responses to be received on the same logical channel, traffic is still diverted to the alternate route if the logical channel fails. Forced rerouting procedures are not needed in this case.

If the alternate route is not available, the EAGLE 5 ISS uses level three network management procedures. For example, an X.25 link interface module (LIM) determines a logical channel has failed. Network management diverts traffic away from the failed logical channel to a defined terminate route.

No network management messages are sent outside the EAGLE 5 ISS, and therefore should have no adverse effects on the SS7 network. The EAGLE 5 ISS uses SS7 network management procedures in software to divert traffic from the failed X.25 signaling link to another X.25 signaling link.

If route management mapping is not enabled on the X.25 linkset, there is no indication of logical channel failures. An unsolicited alarm message (UAM) output is created, which provides a textual message to indicate failure of an X.25 logical channel. All traffic destined to the failed logical channel is discarded.

If X.25 level 2 should fail within the X.25 LIM, all X.25 routes associated with the LIM are considered unavailable and forced rerouting procedures are used.

In either of the above cases, when the logical channel is restored to service, network management will divert traffic back to the newly restored logical channel.

X. 25 Gateway Routing on Mated STPs

If the network uses two STPs as gateways between an X.25 network (or set of X.25 networks) and the SS7 network, there are special routing considerations.

To use the mated STPs, you must define two connections between each pair of nodes that communicate through the mated pair. The view is different for the X.25 node and the SS7 node. To the SS7 node, there is one destination for the messages. To the X.25 node, there are two X.25 address pairs that represent this same logical connection.

The X.25 application on one MSC sees two connection paths to another MSC – one is primary the other secondary.

X.25 Gateway Configuration Procedures

For the EAGLE 5 ISS to implement the X.25/SS7 gateway feature, the EAGLE 5 ISS must be configured to support the X.25 network. These items must be configured to support the X.25 network.

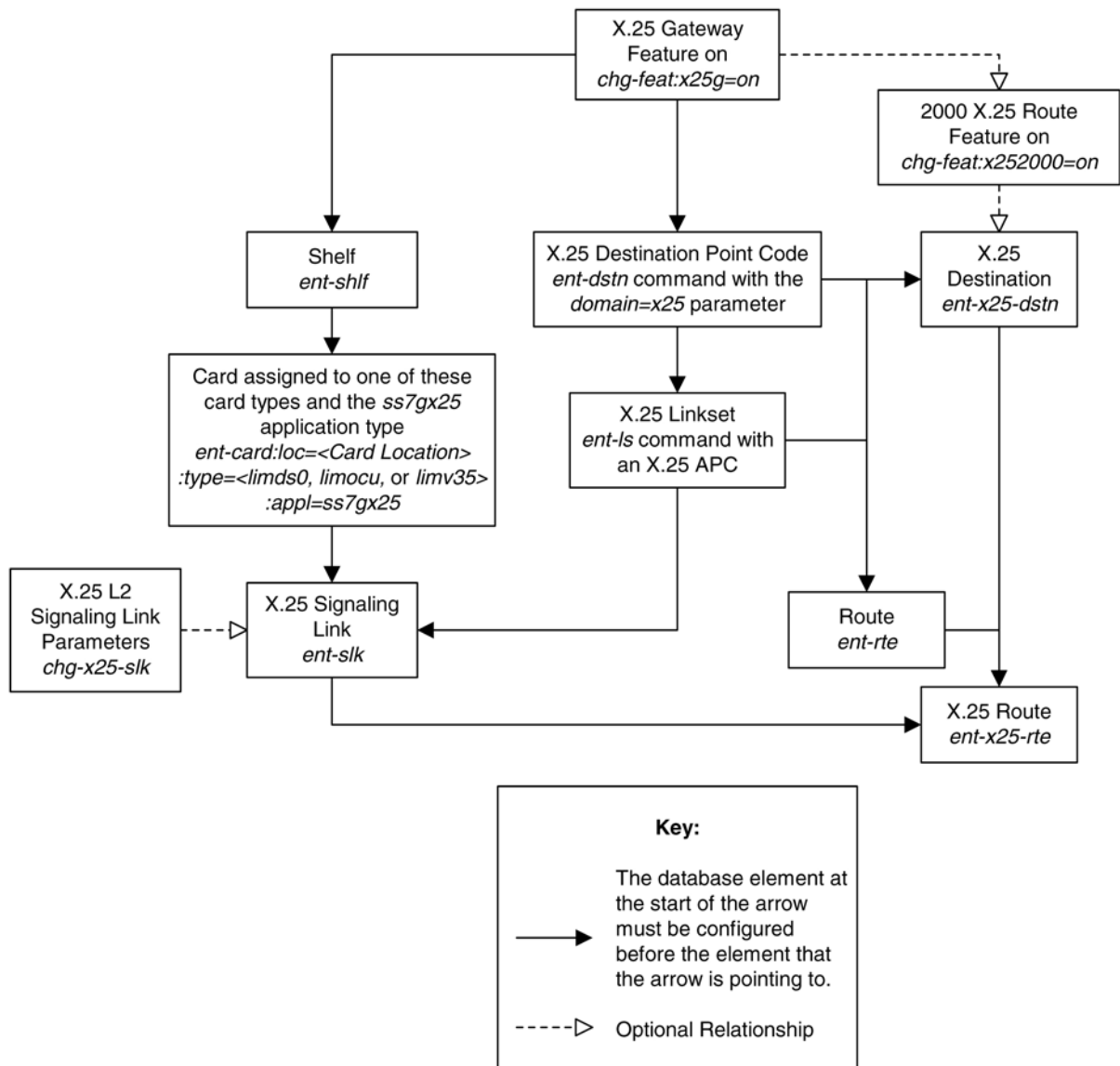
- X.25 LIMs
- X.25 gateway destinations
- X.25 linksets
- X.25 signaling links
- X.25 routes
- X.25 signaling link parameters – if the default X.25 signaling link parameters need to be changed

The procedures shown in this chapter use a variety of commands. If more information on these commands is needed, go to the *Commands Manual* to find the required information.

In addition to the X.25 gateway destinations, X.25 linksets, X.25 signaling links, X.25 routes, and X.25 signaling link parameters, other entities must be provisioned in the database to support the X.25 network. The entities that are required for the particular X.25 entity are listed with the particular procedure. They are also shown here to give an overview of what is required to configure the EAGLE 5 ISS to support the X.25 network. These entities must also be provisioned in the order that they are shown.

Figure 4: X.25 Gateway Database Relationships on page 20 shows the relationships of the database elements that are configured in these procedures.

Figure 4: X.25 Gateway Database Relationships



1. The X.25/SS7 gateway feature must be turned on with the `chg-feat:x25g=on` command. If the database is to contain more than 1024 X.25 destinations and routes, the 2000 X.25 routes feature must be turned on with the `chg-feat:x252000=on` command. The `rtrv-feat` command is used to verify whether these features are on or off.

Note: Once the X.25 gateway feature and the 2000 X.25 routes features are turned on with the `chg-feat` command, they cannot be turned off.

2. Make sure that the required shelf is in the database with the `rtrv-shlf` command. If it is not in the database, add it with the `ent-shlf` command.
3. Make sure the cards that the X.25 signaling links will be assigned to are in the database with the `rtrv-card` command. These cards must be LIMs (card types `limds0`, `limocu`, or `limv35`) and must have the `ss7gx25` application assigned to them. If these cards are not in the database, add them with the `ent-card` command, specifying a LIM (`:type=limds0`, `:type=limocu`, or `:type=limv35`) and the `ss7gx25` application (`:appl=ss7gx25`).
4. The X.25 network configuration for the EAGLE 5 ISS requires linksets, routes, and X.25 destinations. These entities use point codes and these point codes must be defined in the database. Verify that the necessary point codes are in the database with the `rtrv-dstn` command. If they are not in the database, add them with the `ent-dstn` command. The point codes must also be assigned to the X.25 domain.

Note: No database entity used for the X.25/SS7 gateway feature can contain ITU international and ITU national point codes. The `ent-dstn` command does not allow an ITU international or ITU national point code to be assigned to the X.25 domain.

5. The X.25 destination, used to assign an X.25 address to a point code, must be in the database. Verify this with the `rtrv-x25-dstn` command. If it is not in the database, add it with the `ent-x25-dstn` command, specifying a point code in the X.25 domain.
6. The linksets that will contain the X.25 signaling links must be in the database. These linksets must be assigned an adjacent point code (APC) that is in the X.25 domain. Verify this with the `rtrv-ls` command. If the APC is in the X.25 domain, the entry `X25` is shown in the `DOMAIN` field of the output. If the necessary linksets are not in the database, add them with the `ent-ls` command, specifying an APC that is in the database and in the X.25 domain, added in step 4.
7. The X.25 signaling links must be in the database. Verify this with the `rtrv-slk` command. The X.25 signaling links are assigned to linksets in the X.25 domain, from step 6 and to LIMs with the `ss7gx25` application, from step 3. They also have dashes in the `L2TSET` field in the `rtrv-slk` command. If the necessary X.25 signaling links are not in the database, add them with the `ent-slk` command. These signaling links must be assigned to LIMs with the `ss7gx25` application and to linksets whose APC is in the X.25 domain.
8. When the X.25 signaling links are added to the database, there are parameters that control the behavior of these signaling links that are not configured with the `ent-slk` command and are assigned default values. These values can be changed with the `chg-x25-slk` command. If you wish to change the values for these parameters, display the current values with the `rtrv-x25-slk` command. Change these values with the `chg-x25-slk` command.
9. The point codes assigned to each of the X.25 destinations must also be assigned to a route. A route must also be assigned to the linksets containing the X.25 APCs. Verify this with the `rtrv-rte` command. If the necessary routes are not in the database, add them to the database with the `ent-rte` command, specifying a point code assigned to an X.25 destination, from step 5, and a linkset with an X.25 APC, from step 6.
10. The X.25 routes, containing the X.25 addresses from step 5, and the X.25 signaling links from step 7, must be in the database. The connection type assigned to each X.25 route must conform to the number of connection types allowed for X.25 signaling link assigned to the X.25 route. This is shown in output of the `rtrv-x25-slk` command, from step 8, in the `PVC` and `SVC` fields. Verify this with the `rtrv-x25-rte` command. If the X.25 routes are not in the database, add them with the `ent-x25-rte` command.

Figure 5: Typical X.25/SS7 Gateway Configuration on page 22 shows a typical network configuration and Table 4: Typical X.25/SS7 Gateway Routing Table on page 22 shows the information in the gateway routing table (GRT) after the typical network is provisioned.

Figure 5: Typical X.25/SS7 Gateway Configuration

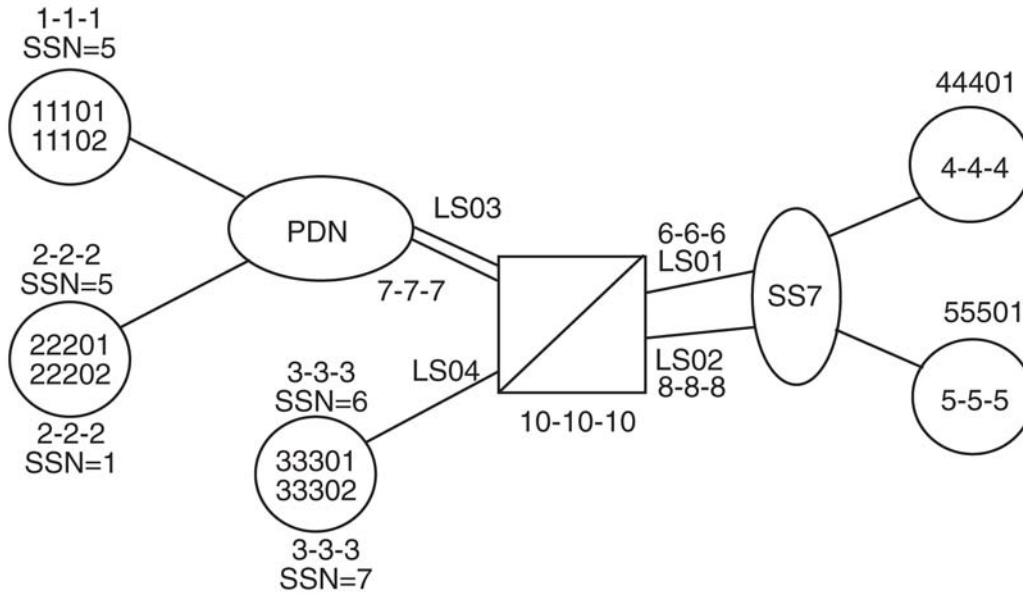


Table 4: Typical X.25/SS7 Gateway Routing Table

Conn #	X.25 Address	SS7 Address	X.25 Point Code/SSN	SS7 Point Code/SSN	Connection Type	Location	Port	Logical Channel
1	11101	44401	1-1-1/5	4-4-4/5	PVC	1205	A	1
2	11102	55501	1-1-1/5	5-5-5/5	PVC	1206	A	2
3	22201	44401	2-2-2/5	4-4-4/5	PVC	1205	A	2
4	22202	55501	2-2-2/10	5-5-5/10	PVC	1206	A	1
5	33301	44401	3-3-3/6	4-4-4/6	Auto-SVC	1207	A	--
6	33302	55501	3-3-3/7	5-5-5/7	Auto-SVC	1207	A	--

Adding an X.25 LIM

This procedure is used to add an X.25 LIM to the database using the `ent-card` command. The `ent-card` command uses these parameters.

`:loc` – The location of the card being added to the database.

`:type` – The type of card being added to the database. The X.25 LIM can be assigned to one of three card types: `limds0`, `limocu`, or `limv35`. [Table 5: X.25 LIM Card Type Combinations](#) on page 23 shows the names and part numbers of the cards that can be configured as X.25 LIMs in the database. This can be used to verify that the card being entered into the database matches the card physically installed in the EAGLE 5 ISS.

Table 5: X.25 LIM Card Type Combinations

Card Name	Part Number	Card Type (:type)
LIM or LIM-AINF	870-1014-XX 870-1488-XX	limds0, limocu, limv35
EILA	870-2049-XX	limds0, limocu, limv35
LIM-DS0	870-1009-XX 870-1485-XX	limds0
LIM-OCU	870-1010-XX 870-1486-XX	limocu
LIM-V.35	870-1012-XX 870-1487-XX	limv35
The LIM, LIM-AINF, or EILA is a link interface module using the AINF interface and can be installed in place of the LIM-DS0, LIM-OCU, or LIM-V.35. It is configured in the database as either a LIM-DS0, LIM-OCU, or LIM-V.35 card.		

`:appl` – The application software or GPL that is assigned to the card. For this procedure, the value of this parameter is `ss7gx25`.

`:force` – Allow the LIM to be added to the database even if there are not enough service modules to support the number of LIMs in the EAGLE 5 ISS. This parameter is obsolete and is no longer used.

The shelf to which the card is to be added, must already be in the database. This can be verified with the `rtrv-shlf` command. If the shelf is not in the database, see the Adding a Shelf procedure in the *Database Administration Manual – System Management*.

The card cannot be added to the database if the specified card location already has a card assigned to it.

Before an X.25 LIM can be configured in the database, the X.25 gateway feature must be turned on with the `chg-feat` command. The `rtrv-feat` command can verify that the X.25 gateway feature is on.

Note: Once the X.25 gateway feature is turned on with the `chg-feat` command, it cannot be turned off.

The examples in this procedure are used to configure an X.25 LIM on a LIM-V.35 card in card slot 1202 in the database.

1. Display the cards in the EAGLE 5 ISS using the `rtrv-card` command.

This is an example of the possible output.

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0
CARD   TYPE      APPL      LSET NAME      LINK SLC LSET NAME      LINK SLC
1101   TSM        SCCP
1102   TSM        GLS
1113   GPMS       EOAM
1114   TDM-A
1115   GPMS       EOAM
1116   TDM-B
1117   MDAL
1117   MDAL
1201   LIMDS0    SS7ANSI   sp2             A    0    sp1             B    0
1203   LIMDS0    SS7ANSI   sp3             A    0
1204   LIMDS0    SS7ANSI   sp3             A    1
1206   LIMDS0    SS7ANSI   nsp3            A    1    nsp4            B    1
1207   LIMV35    SS7GX25   nsp1            A    0
1208   LIMV35    SS7GX25   nsp1            A    1
1216   ACMENET   STPLAN
1301   TSM        SCCP
1308   LIMDS0    SS7ANSI   sp6             A    1    sp7             B    0
1314   LIMDS0    SS7ANSI   sp7             A    1    sp5             B    1
1317   ACMENET   STPLAN
```

The cards should be distributed throughout the EAGLE 5 ISS for proper power distribution. Refer to the *Installation Manual - EAGLE 5 ISS* for the shelf power distribution. If the `APPL` field of the `rtrv-card` command output shows cards assigned to the `ss7gx25 GPL`, skip steps 2, and 3, and go to step 4.

2. Verify that the X.25 gateway feature is on, by entering the `rtrv-feat` command.

If the X.25 gateway feature is on, the `X25G` field should be set to `on`. For this example, the X.25 gateway feature is off.

Note: The `rtrv-feat` command output contains other fields that are not used by this procedure. If you wish to see all the fields displayed by the `rtrv-feat` command, see the `rtrv-feat` command description in the *Commands Manual*.

3. If the X.25 gateway feature is not on, shown by the `X25G = off` entry in the `rtrv-feat` command output in step 2, turn the X.25 gateway feature on by entering this command.

```
chg-feat :x25g=on
```

Note: Once the X.25 gateway feature is turned on with the `chg-feat` command, it cannot be turned off.

When the `chg-feat` has successfully completed, this message should appear.

```
rlghncxa03w 06-10-07 00:57:31 GMT EAGLE5 36.0.0
CHG-FEAT: MASP A - COMPLTD
```

4. Using [Table 5: X.25 LIM Card Type Combinations](#) on page 23 as a reference, verify that the card has been physically installed into the proper location.
5. Add the card using the `ent-card` command.

For this example, enter this command.

```
ent-card:loc=1202:type=limv35:appl=ss7gx25
```

When this command has successfully completed, this message should appear.

```
rlghncxa03w 06-10-12 09:12:36 GMT EAGLE5 36.0.0
ENT-CARD: MASP A - COMPLTD
```

6. Verify the changes using the `rtrv-card` command with the card location specified.
- For this example, enter this command.

```
rtrv-card:loc=1202
```

This is an example of the possible output.

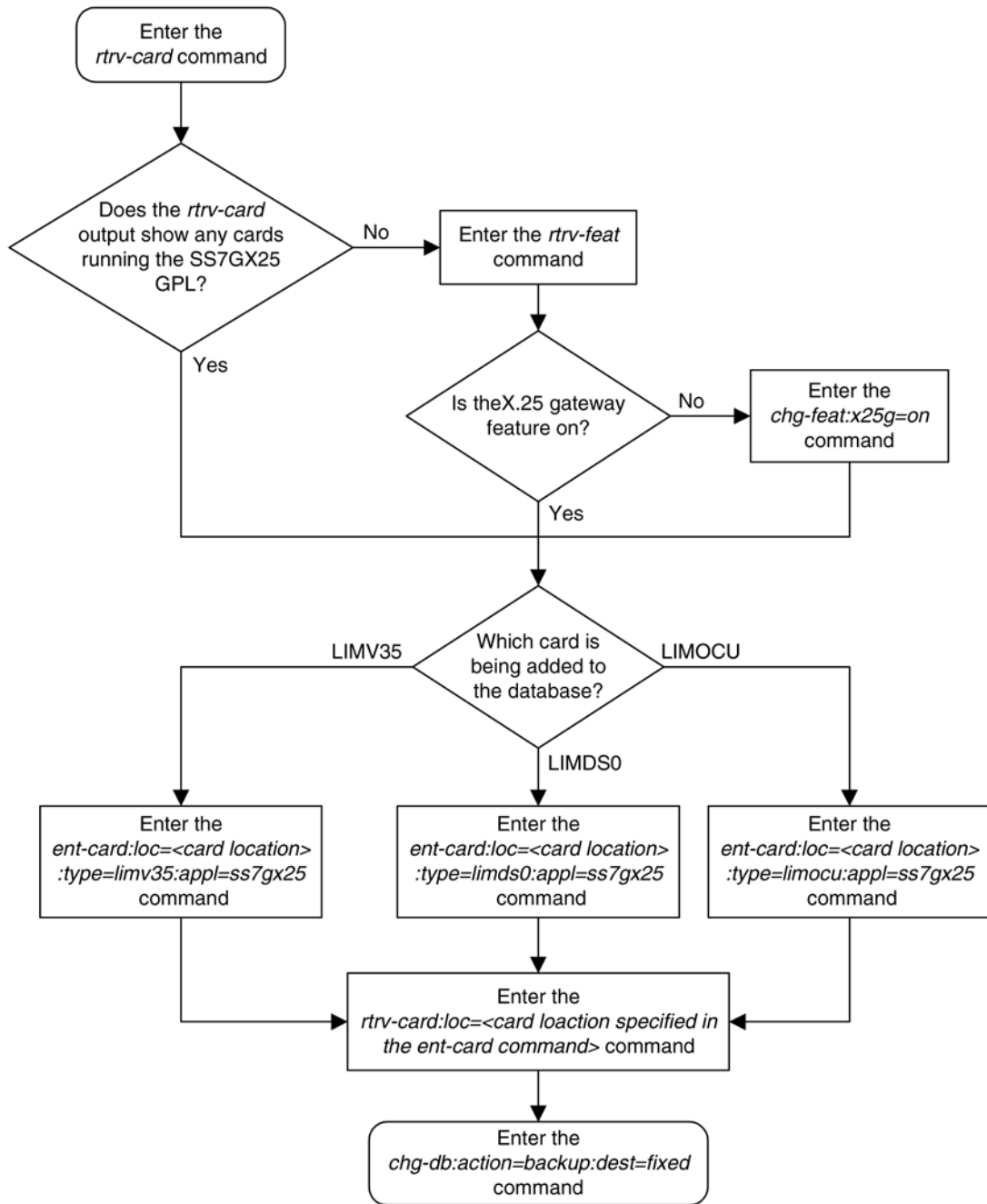
```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0
CARD      TYPE      APPL      LSET NAME      LINK SLC LSET NAME      LINK SLC
1202     LIMV35     SS7GX25
```

7. Backup the new changes using the `chg-db:action=backup:dest=fixed` command.

These messages should appear, the active Maintenance and Administration Subsystem Processor (MASP) appears first.

```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk complete.
BACKUP (FIXED) : MASP A - Backup starts on standby MASP.
BACKUP (FIXED) : MASP A - Backup on standby MASP to fixed disk complete.
```

Figure 6: Adding an X.25 LIM to the Database



Removing an X.25 LIM

This procedure is used to remove an X.25 LIM from the database using the `dlt-card` command. The card being removed must exist in the database.



CAUTION:

If the X.25 LIM is the last X.25 LIM in service, removing this card from the database will cause X.25 traffic to be lost.

The examples in this procedure are used to remove the X.25 LIM in card location 1202.

Canceling the REPT-STAT-CARD Command

Because the `rept-stat-card` command used in this procedure can output information for a long period of time, the `rept-stat-card` command can be canceled and the output to the terminal stopped. There are three ways that the `rept-stat-card` command can be canceled.

- Press the F9 function key on the keyboard at the terminal where the `rept-stat-card` command was entered.
- Enter the `canc-cmd` without the `trm` parameter at the terminal where the `rept-stat-card` command was entered.
- Enter the `canc-cmd:trm=<xx>`, where `<xx>` is the terminal where the `rept-stat-card` command was entered, from another terminal other than the terminal where the `rept-stat-card` command was entered. To enter the `canc-cmd:trm=<xx>` command, the terminal must allow Security Administration commands to be entered from it and the user must be allowed to enter Security Administration commands. The terminal's permissions can be verified with the `rtrv-secu-trm` command. The user's permissions can be verified with the `rtrv-user` or `rtrv-secu-user` commands.

For more information about the `canc-cmd` command, go to the *Commands Manual*.

1. Display the cards in the database using the `rtrv-card` command. The X.25 LIMs are shown by the entry `SS7GX25` in the `APPL` field. This is an example of the possible output.

```

rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0
CARD  TYPE      APPL      LSET NAME      LINK SLC LSET NAME      LINK SLC
1101  TSM          SCCP
1102  TSM          GLS
1113  GPMSM       EOAM
1114  TDM-A
1115  GPMSM       EOAM
1116  TDM-B
1117  MDAL
1201  LIMDS0      SS7ANSI    sp2             A    0    sp1             B    0
1202  LIMV35      SS7GX25
1203  LIMDS0      SS7ANSI    sp3             A    0
1204  LIMDS0      SS7ANSI    sp3             A    1
1206  LIMDS0      SS7ANSI    nsp3            A    1    nsp4            B    1
1207  LIMV35      SS7GX25    nsp1            A    0
1208  LIMV35      SS7GX25    nsp1            A    1
1216  ACMENET     STPLAN
1301  TSM          SCCP
1308  LIMDS0      SS7ANSI    sp6             A    1    sp7             B    0
1314  LIMDS0      SS7ANSI    sp7             A    1    sp5             B    1
1317  ACMENET     STPLAN
    
```

2. Display the current configuration of the X.25 routes in the database by entering the `rtrv-x25-rte` command. This is an example of the possible output.

```

rlghncxa03w 06-10-12 09:12:36 GMT EAGLE5 36.0.0
X25 ADDR      SS7 ADDR      TYPE  LOC  PORT  LC  RT  LC2NM
2510010011234567 342342341234567 pvc  1202 a    02  xpc  no
    
```

```

251001002      234234231      pvc  1202  a    04  pc  no
51200105      34223422845     svca 1202  a    --  pc  no
2510103       232330         pvc  1206  a    06  xpc yes
2510103       232330         svcr ---- -    --  pc  no
2516019002    24247235       svca 1206  a    --  pc  no
345454        4545434       svca 1206  a    --  pc  no
X.25 ROUTE TABLE IS 30 % FULL

```

- Remove the X.25 route assigned to the card that you wish to remove (in this example, 1202) by entering the `dlt-x25-rte` command. For this example, enter these commands.

```
dlt-x25-rte:xaddr=2510010011234567:saddr=342342341234567
```

```
dlt-x25-rte:xaddr=251001002:saddr=234234231
```

```
dlt-x25-rte:xaddr=51200105:saddr=34223422845
```

When each of these commands have successfully completed, this message should appear.

```

rlghncxa03w 06-10-12 09:12:36 GMT EAGLE5 36.0.0
DLT-X25-RTE: MASP A - X.25 Route table 45% full
DLT-X25-RTE: MASP A - COMPLTD

```

- Display the status of the X.25 signaling link assigned to the card by entering the `rept-stat-slk` command, specifying the card location and the signaling link. For this example, enter this command.

```
rept-stat-slk:loc=1202:link=a
```

This is an example of the possible output.

```

rlghncxa03w 06-10-12 09:12:36 GMT EAGLE5 36.0.0
SLK      LSN      CLLI      PST      SST      AST
1202,A   lsnqwy   -----  IS-NR    Avail    ----
  ALARM STATUS      = No Alarms.
  UNAVAIL REASON    = --
Command Completed.

```

- If the X.25 signaling link is not in an OOS-MT-DSBLD state, deactivate the X.25 signaling link using the `dact-slk` command. For this example, enter this command.

```
dact-slk:loc=1202:link=a
```

When this command has successfully completed, this message should appear.

```

rlghncxa03w 06-10-12 09:12:36 GMT EAGLE5 36.0.0
Deactivate Link message sent to card

```

- Display the cards that are in service with the `rept-stat-card:stat=nr` command.

```
rept-stat-card:stat=nr
```

This is an example of the possible output.

```

rlghncxa03w 06-10-27 16:43:42 GMT EAGLE5 36.0.0
CARD  VERSION  TYPE  GPL  PST  SST  AST
1101  113-003-000  TSM  SCCP  IS-NR  Active  ---
1102  113-003-000  TSM  GLS  IS-NR  Active  ---
1109  113-003-000  HMUX  BPHMUX  IS-NR  Active  ---
1110  113-003-000  HMUX  BPHMUX  IS-NR  Active  ---
1201  113-003-000  LIMDS0  SS7ANSI  IS-NR  Active  ---
1202  113-003-000  LIMV35  SS7GX25  IS-NR  Active  ---

```

1203	113-003-000	LIMDS0	SS7ANSI	IS-NR	Active	---
1204	113-003-000	LIMDS0	SS7ANSI	IS-NR	Active	---
1206	113-003-000	LIMDS0	SS7ANSI	IS-NR	Active	---
1207	113-003-000	LIMV35	SS7GX25	IS-NR	Active	---
1208	113-003-000	LIMV35	SS7GX25	IS-NR	Active	---
1209	113-003-000	HMUX	BPHMUX	IS-NR	Active	---
1210	113-003-000	HMUX	BPHMUX	IS-NR	Active	---
1216	113-003-000	ACMENET	STPLAN	IS-NR	Active	---
1301	113-003-000	TSM	SCCP	IS-NR	Active	---
1308	113-003-000	LIMDS0	SS7ANSI	IS-NR	Active	---
1309	113-003-000	HMUX	BPHMUX	IS-NR	Active	---
1310	113-003-000	HMUX	BPHMUX	IS-NR	Active	---
1314	113-003-000	LIMDS0	SS7ANSI	IS-NR	Active	---
1317	113-003-000	ACMENET	STPLAN	IS-NR	Active	---

- If the signaling link on the card to be removed from the database is the last signaling link in a linkset, the `force=yes` parameter must be used with the `dlt-slk` command. To verify this, enter the `rtrv-ls` command with the linkset name shown in step 1 (LSET NAME field). For this example, enter this command.

```
rtrv-ls:lsn=lsngwy
```

This is an example of the possible output.

```
rlghncxa03w 06-10-28 16:31:35 GMT EAGLE5 36.0.0

                                L3T SLT                                GWS GWS GWS
LSN          APCA  (X25)  SCRN  SET SET BEI  LST  LNKS ACT MES DIS SLSCI NIS
lsngwy      240-020-000  scr1  1   1  yes A   1   off off off  yes  off

          CLLI          TFATCABMLQ MTPRSE  ASL8
          -----          ---          ---

          IPGWAPC MATELSN          IPTPS  LSUSEALM  SLKUSEALM  GTTMODE
          no          -----          ---          ---          ---          CdPA

                                L2T                                L1                                PCR  PCR
                                SET  BPS                                MODE TSET  ECM  N1  N2
                                1   56000                                ---  ---  BASIC  ---  -----
1202 A    0   LIMV35                                1   56000                                ---  ---  BASIC  ---  -----

Link set table is ( 10 of 1024) 1% full
```

- Inhibit the card using the `rmv-card` command, specifying the card location. If the LIM to be inhibited contains the only signaling link in the linkset that is in service, the `force=yes` parameter must also be specified. For this example, enter this command.

```
rmv-card:loc=1202:force=yes
```

When this command has successfully completed, this message should appear.

```
rlghncxa03w 06-10-12 09:12:36 GMT EAGLE5 36.0.0
Card has been inhibited.
```

- Remove the signaling link on the specified card by using the `dlt-slk` command. If the output of step 7 shows that the signaling link being removed is the last signaling link in a linkset, the `force=yes` parameter must be used. For this example, enter this command.

```
dlt-slk:loc=1202:link=a:force=yes
```

When this command has successfully completed, this message should appear.

```
rlghncxa03w 06-10-12 09:12:36 GMT EAGLE5 36.0.0  
DLT-SLK: MASP A - COMPLTD
```

10. Remove the card using the `dlt-card` command with the card location of the card to be removed. The `dlt-card` command has only one parameter, `loc`, which is the location of the card. For this example, enter this command.

```
dlt-card:loc=1202
```

When this command has successfully completed, this message should appear.

```
rlghncxa03w 06-10-12 09:12:36 GMT EAGLE5 36.0.0  
DLT-CARD: MASP A - COMPLTD
```

11. Verify the changes using the `rtrv-card` command specifying the card that was removed in step 11. For this example, enter this command.

```
rtrv-card:loc=1202
```

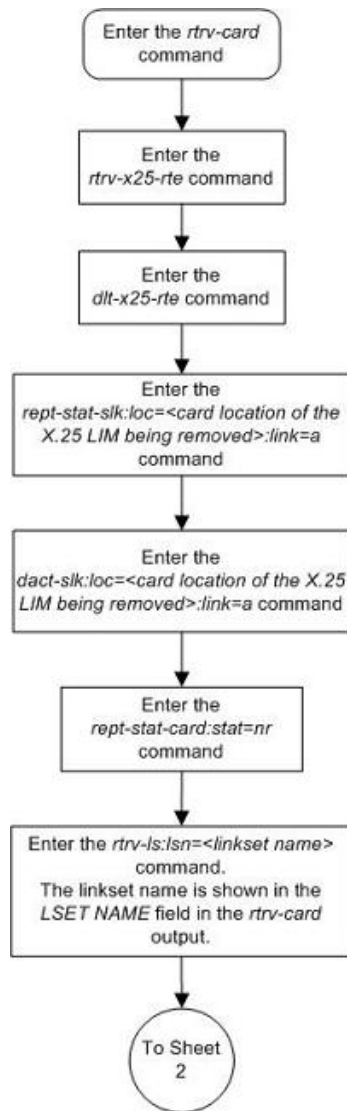
When this command has successfully completed, this message should appear.

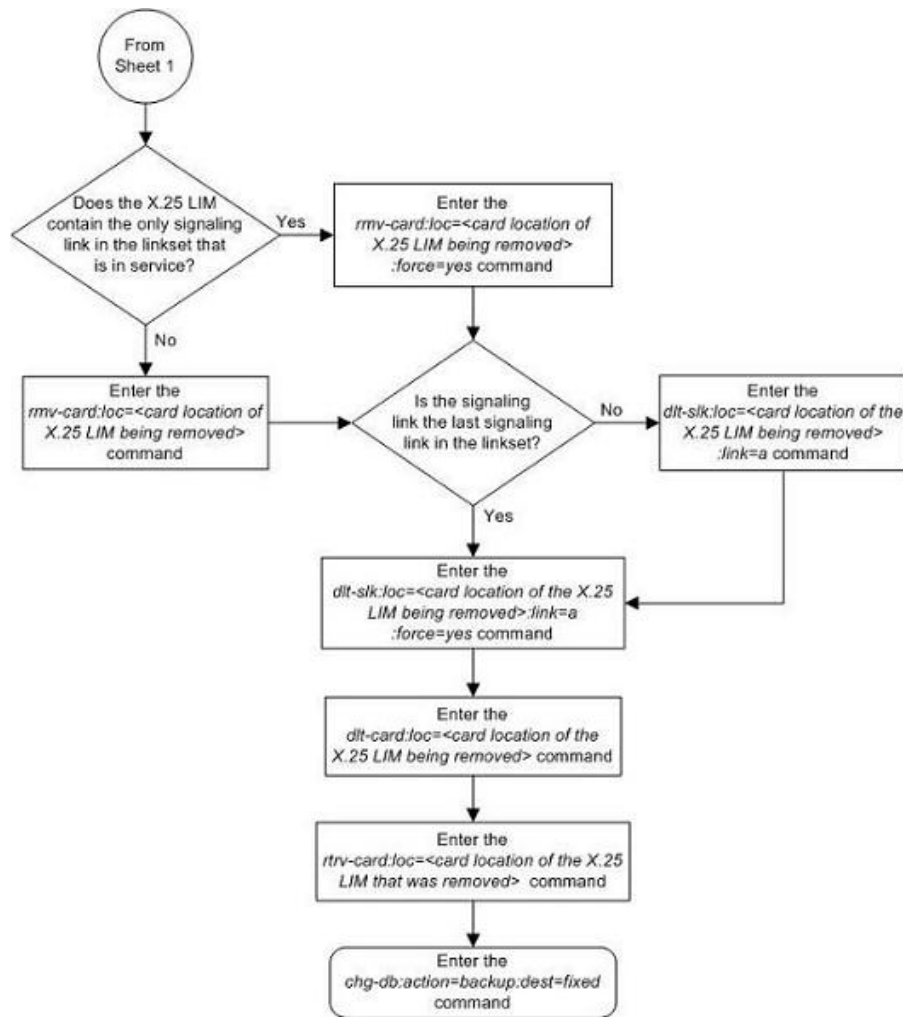
```
E2144 Cmd Rej: Location invalid for hardware configuration
```

12. Backup the new changes using the `chg-db:action=backup:dest=fixed` command. These messages should appear, the active Maintenance and Administration Subsystem Processor (MASP) appears first.

```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.  
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk complete.  
BACKUP (FIXED) : MASP A - Backup starts on standby MASP.  
BACKUP (FIXED) : MASP A - Backup on standby MASP to fixed disk complete.
```

Figure 7: Removing an X.25 LIM





Adding an X.25 Gateway Destination

This procedure is used to add an X.25 destination to the database using the `ent-x25-dstn` command.

The `ent-x25-dstn` command uses these parameters.

- :xaddr – The X.25 network address of the X.25 destination entity or the SS7 node.
- :dpc – The real SS7 point code assigned to a real SS7 node or the dummy point code for an X.25 destination entity. The value for this parameter is an ANSI point code.
- :ssn – The subsystem number of the destination point code to be assigned to the X.25 address.

The examples in this procedure are based on the example network shown in [Figure 5: Typical X.25/SS7 Gateway Configuration](#) on page 22 and [Table 4: Typical X.25/SS7 Gateway Routing Table](#) on page 22.

A destination point code (DPC) in the X.25 domain – see the "Adding a Destination Point Code" procedure in the *Database Administration Manual – SS7*.

Note: The point code assigned to the X.25 address in the X.25 destination cannot be an ITU international or ITU national point code. The `ent-dstn` command does not allow an ITU international or ITU national point code to be assigned to the X.25 domain.

The destination point code specified with the `ent-x25-dstn` command must be a full point code. Cluster point codes and network routing point codes cannot be specified for X.25 destinations. For more information on cluster point codes, go to the "Cluster Routing and Management Diversity" section in the *Database Administration Manual – SS7*. For more information on network routing point codes, go to the "Network Routing" section in the *Database Administration Manual – SS7*.

The X.25 gateway destination to be added cannot already be in the database. This can be verified in step 2.

The X.25/SS7 gateway feature must be turned on. Verify this by entering the `rtrv-feat` command. If the X.25/SS7 gateway feature is off, shown by the entry `X25G = off` in the output of the `rtrv-feat` command, it can be turned on by entering the `chg-feat:x25g=on` command.

If the database is to contain more than 1024 X.25 destinations and routes, The 2000 X.25 routes feature must be turned on. Verify this by entering the `rtrv-feat` command. If the 2000 X.25 routes feature is off, shown by the entry `X252000 = off` in the output of the `rtrv-feat` command, it can be turned on by entering the `chg-feat:x252000=on` command.

Note: Once the X.25 gateway feature and the 2000 X.25 routes features are turned on with the `chg-feat` command, they cannot be turned off.

Canceling the RTRV-DSTN Command

Because the `rtrv-dstn` command used in this procedure can output information for a long period of time, the `rtrv-dstn` command can be canceled and the output to the terminal stopped. There are three ways that the `rtrv-dstn` command can be canceled.

- Press the F9 function key on the keyboard at the terminal where the `rtrv-dstn` command was entered.
- Enter the `canc-cmd` without the `trm` parameter at the terminal where the `rtrv-dstn` command was entered.
- Enter the `canc-cmd:trm=<xx>`, where `<xx>` is the terminal where the `rtrv-dstn` command was entered, from another terminal other than the terminal where the `rtrv-dstn` command was entered. To enter the `canc-cmd:trm=<xx>` command, the terminal must allow Security Administration commands to be entered from it and the user must be allowed to enter Security Administration commands. The terminal's permissions can be verified with the `rtrv-secu-trm` command. The user's permissions can be verified with the `rtrv-user` or `rtrv-secu-user` commands.

For more information about the `canc-cmd` command, go to the *Commands Manual*.

1. Verify that the X.25 gateway feature is on, by entering the `rtrv-feat` command.

If the X.25 gateway feature is on, the X25G field should be set to on. For this example, the X.25 gateway feature is off.

Note: The `rtrv-feat` command output contains other fields that are not used by this procedure. If you wish to see all the fields displayed by the `rtrv-feat` command, see the `rtrv-feat` command description in the *Commands Manual*.

If the X.25 gateway feature is on, skip step 2 and go to step 3.

If the X.25 gateway feature is not on, go to step 2.

- If the X.25 gateway feature is not on, shown by the X25G = off entry in the rtrv-feat command output in step 1, turn the X.25 gateway feature on by entering this command.

```
chg-feat:x25g=on
```

Note: Once the X.25 gateway feature is turned on with the chg-feat command, it cannot be turned off.

When the chg-feat has successfully completed, this message should appear.

```
rlghncxa03w 06-10-07 00:57:31 GMT EAGLE5 36.0.0
CHG-FEAT: MASP A - COMPLTD
```

- Display the DPCs in the database by entering the rtrv-dstn command.

This is an example of the possible output.

```
rlghncxa03w 06-10-28 16:02:05 GMT EAGLE5 36.0.0
DPCA      CLLI      BEI  ELEI  ALIASI  ALIASN  DOMAIN
020-002-*  rlghncbb000 yes yes  -----  -----  SS7
004-004-004 -----  yes ---  -----  -----  SS7
005-005-005 -----  yes ---  -----  -----  SS7
240-012-004 rlghncbb001 yes ---  1-111-1  11111  SS7
240-012-005 rlghncbb002 yes ---  1-112-2  11112  SS7
240-012-006 rlghncbb003 yes ---  1-112-3  11113  SS7
240-012-008 -----  yes ---  1-113-5  11114  SS7
001-001-001 -----  yes ---  -----  -----  X25
002-002-002 -----  yes ---  -----  -----  X25
003-003-003 -----  yes ---  -----  -----  X25

DPCI      CLLI      BEI  ELEI  ALIASA  ALIASN  DOMAIN
2-131-1   rlghncbb023 no ---  222-210-000 12001  SS7
2-131-2   -----  no ---  222-211-001 12002  SS7
2-131-3   -----  no ---  222-211-002 12003  SS7

DPCN      CLLI      BEI  ELEI  ALIASA  ALIASI  DOMAIN
11211     rlghncbb013 no ---  222-200-200 2-121-1  SS7
11212     rlghncbb013 no ---  222-200-201 2-121-2  SS7

DESTINATION ENTRIES ALLOCATED: 2000
  FULL DPC(s): 14
  EXCEPTION DPC(s): 0
  NETWORK DPC(s): 0
  CLUSTER DPC(s): 1
  TOTAL DPC(s): 15
  CAPACITY (% FULL): 1%
ALIASES ALLOCATED: 8000
  ALIASES USED: 18
  CAPACITY (% FULL): 1%
X-LIST ENTRIES ALLOCATED: 500
RTRV-DSTN: MASP A - COMPLTD
```

If the required DPC is not in the database, go to the "Adding a Destination Point Code" procedure in the *Database Administration Manual - SS7* and add the DPC to the database.

- Display the X.25 destinations in the database by entering the rtrv-x25-dstn command.

This is an example of the possible output.

```
rlghncxa03w 06-10-28 21:16:37 GMT EAGLE5 36.0.0
X25 ADDR          SS7 DPC          SSN
220525586456772  240-012-004  002
234234231         240-012-005  113
23423422834      244-010-006  235
2342342325       244-010-006  236
23423423         244-010-007  112
423423045656767  244-010-008  112
9342             244-010-006  234
X.25 DSTN TABLE IS 30 % FULL
```

If the database is to contain more than 1024 X.25 destinations and routes, the X.25 gateway feature and the 2000 X.25 routes feature must be turned on. If the 2000 X.25 routes feature is on, the X252000 field in the `rtrv-feat` command output in step 1 should be set to on.

If the database is to contain 1024 X.25 destinations and routes or less, skip step 5 and go to step 6.

If the 2000 X.25 routes feature is on, skip step 5 and go to step 6.

If the 2000 X.25 routes feature is off, and the database is to contain more than 1024 X.25 destinations and routes, go to step 5.

5. If the 2000 X.25 routes feature is not on, shown by the `X252000 = off` entry in the `rtrv-feat` command output in step 1, turn the 2000 X.25 routes feature on by entering this command.

```
chg-feat:x252000=on
```

Note: Once the 2000 X.25 routes feature is turned on with the `chg-feat` command, it cannot be turned off.

When the `chg-feat` has successfully completed, this message should appear.

```
rlghncxa03w 06-10-07 00:57:31 GMT EAGLE5 36.0.0
CHG-FEAT: MASP A - COMPLTD
```

6. Add the X.25 destination to the database using the `ent-x25-dstn` command.

For this example, enter these commands.

```
ent-x25-dstn:xaddr=11101:dpc=001-001-001:ssn=5
ent-x25-dstn:xaddr=11102:dpc=001-001-001:ssn=5
ent-x25-dstn:xaddr=22201:dpc=002-002-002:ssn=5
ent-x25-dstn:xaddr=22202:dpc=002-002-002:ssn=10
ent-x25-dstn:xaddr=33301:dpc=003-003-003:ssn=6
ent-x25-dstn:xaddr=33302:dpc=003-003-003:ssn=7
ent-x25-dstn:xaddr=44401:dpc=004-004-004
ent-x25-dstn:xaddr=55501:dpc=005-005-005
```

When each of these commands have successfully completed, this message should appear.

```
rlghncxa03w 06-10-28 08:38:53 GMT EAGLE5 36.0.0
X.25 DSTN TABLE 33 % FULL
ENT-X25-DSTN: MASP A - COMPLTD
```

7. Verify the changes using the `rtrv-x25-dstn` command.

This is an example of the possible output.

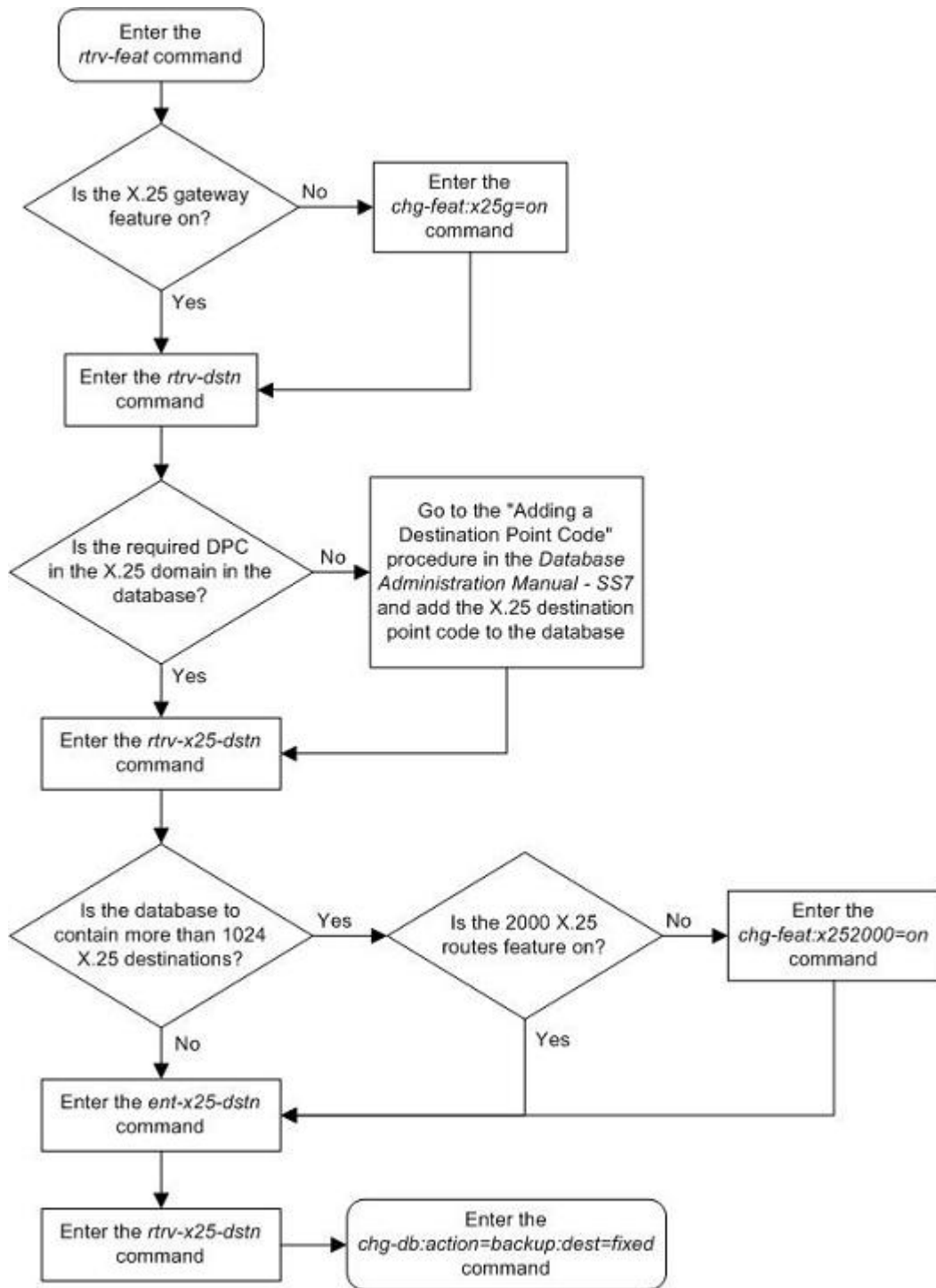
```
rlghncxa03w 06-10-28 21:16:37 GMT EAGLE5 36.0.0
X25 ADDR          SS7 DPC          SSN
11101             001-001-001     005
11102             001-001-001     005
22201             002-002-002     005
22202             002-002-002     010
220525586456772 240-012-004     002
234234231        240-012-005     113
23423422834      244-010-006     235
2342342325       244-010-006     236
23423423         244-010-007     112
33301             003-003-003     006
33302             003-003-003     007
3450912          244-010-005     114
423423045656767 244-010-008     112
44401             004-004-004     005
55501             005-005-005     005
9342             244-010-006     234
X.25 DSTN TABLE IS 30 % FULL
```

8. Backup the new changes using the `chg-db:action=backup:dest=fixed` command.

These messages should appear, the active Maintenance and Administration Subsystem Processor (MASP) appears first.

```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk complete.
BACKUP (FIXED) : MASP A - Backup starts on standby MASP.
BACKUP (FIXED) : MASP A - Backup on standby MASP to fixed disk complete.
```

Figure 8: Adding an X.25 Gateway Destination



Removing an X.25 Gateway Destination

This procedure is used to remove an X.25 destination from the database using the `dlt-x25-dstn` command.

The `dlt-x25-dstn` command has only one parameter, `xaddr`, which is the X.25 network address of the X.25 destination entity or the SS7 node.

The examples in this procedure are used to remove the X.25 destination 33301 from the database.

The X.25 gateway destination to be removed must be in the database. This can be verified in step 1.

The X.25 gateway destination to be removed cannot have any X.25 routes assigned to it. This can be verified in step 2.

1. Display the X.25 destinations in the database by entering the `rtrv-x25-dstn` command.

This is an example of the possible output.

```
rlghncxa03w 06-10-28 21:16:37 GMT EAGLE5 36.0.0
X25 ADDR      SS7 DPC      SSN
11101         001-001-001 005
11102         001-001-001 005
22201         002-002-002 005
22202         002-002-002 010
220525586456772 240-012-004 002
234234231    240-012-005 113
23423422834 244-010-006 235
2342342325   244-010-006 236
23423423     244-010-007 112
33301        003-003-003 006
33302        003-003-003 007
3450912      244-010-005 114
423423045656767 244-010-008 112
44401        004-004-004 005
55501        005-005-005 005
9342         244-010-006 234
X.25 DSTN TABLE IS 30 % FULL
```

2. Verify that there are no X.25 routes assigned to the X.25 destination to be removed by entering the `rtrv-x25-rte` command.

This is an example of the possible output.

```
rlghncxa03w 06-10-28 21:16:37 GMT EAGLE5 36.0.0
X25 ADDR      SS7 ADDR      TYPE LOC  PORT  LC  RT  LC2NM
11101         44401         pvc 1205  a    01  xpc no
11102         55501         pvc 1206  a    02  pc  no
22201         44401         pvc 1205  a    02  pc  no
22202         55501         pvc 1206  a    01  xpc yes
33301         44401         svca 1207  a    --  pc  no
33302         55501         svca 1207  a    --  pc  no
X.25 ROUTE TABLE IS 30 % FULL
```

3. If the X.25 destination to be removed, shown in the `X25 ADDR` column in the output of step 1, is shown in either the `X25 ADDR` or `SS7 ADDR` columns in the output of step 2, then the X.25 destination has an X.25 route assigned to it.

Remove these X.25 routes by using the `dlt-x25-rte` command. For this example, enter this command.

```
dlt-x25-rte:xaddr=33301:saddr=44401
```

When this command has successfully completed, this message should appear.

```
rlghncxa03w 06-10-28 11:43:04 GMT EAGLE5 36.0.0
DLT-X25-RTE: MASP A - X.25 Route table 45% full
DLT-X25-RTE: MASP A - COMPLTD
```

- Verify the changes using the `rtrv-x25-rte` command.

This is an example of the possible output.

```
rlghncxa03w 06-10-28 21:16:37 GMT EAGLE5 36.0.0
X25 ADDR          SS7 ADDR          TYPE LOC  PORT  LC  RT  LC2NM
11101             44401             pvc  1205  a    01  xpc  no
11102             55501             pvc  1206  a    02  pc   no
22201             44401             pvc  1205  a    02  pc   no
22202             55501             pvc  1206  a    01  xpc  yes
33302             55501             svca 1207  a    --  pc   no
X.25 ROUTE TABLE IS 30 % FULL
```

- Remove the X.25 destination from the database using the `dlt-x25-dstn` command.

For this example, enter this command.

```
dlt-x25-dstn:xaddr=33301
```

When this command has successfully completed, this message should appear.

```
rlghncxa03w 06-10-28 08:38:53 GMT EAGLE5 36.0.0
X.25 DSTN TABLE 33 % FULL
DLT-X25-DSTN: MASP A - COMPLTD
```

- Verify the changes using the `rtrv-x25-dstn` command.

This is an example of the possible output.

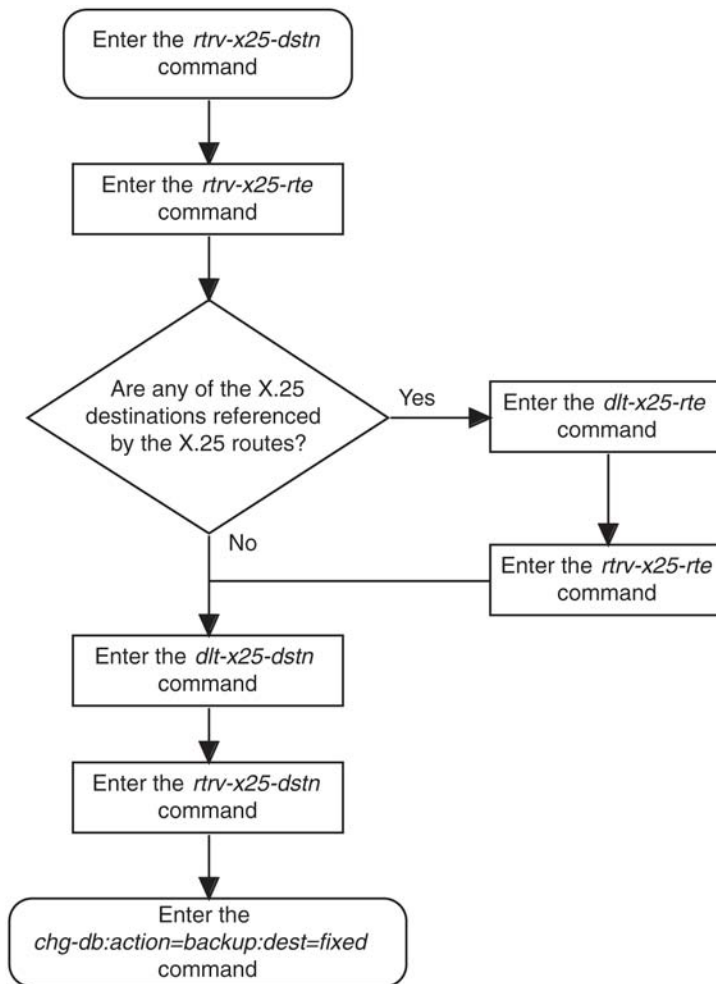
```
rlghncxa03w 06-10-28 21:16:37 GMT EAGLE5 36.0.0
X25 ADDR          SS7 DPC          SSN
11101             001-001-001     005
11102             001-001-001     005
22201             002-002-002     005
22202             002-002-002     010
220525586456772  240-012-004     002
234234231        240-012-005     113
23423422834      244-010-006     235
2342342325       244-010-006     236
23423423         244-010-007     112
33302             003-003-003     007
3450912          244-010-005     114
423423045656767  244-010-008     112
44401             004-004-004     005
55501             005-005-005     005
9342             244-010-006     234
X.25 DSTN TABLE IS 30 % FULL
```

- Backup the new changes using the `chg-db:action=backup:dest=fixed` command.

These messages should appear, the active Maintenance and Administration Subsystem Processor (MASP) appears first.

```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk complete.
BACKUP (FIXED) : MASP A - Backup starts on standby MASP.
BACKUP (FIXED) : MASP A - Backup on standby MASP to fixed disk complete.
```

Figure 9: Removing an X.25 Gateway Destination



Changing an X.25 Gateway Destination

This procedure is used to change the attributes of an X.25 destination in the database using the `chg-x25-dstn` command.

The `chg-x25-dstn` command uses these parameters.

:xaddr – The X.25 network address of the X.25 destination entity or the SS7 node.

:dpc – The real SS7 point code assigned to a real SS7 node or the dummy point code for an X.25 destination entity. The value for this parameter is an ANSI point code.

:ssn – The subsystem number of the destination that is assigned to the X.25 address.

The examples in this procedure are used to change the DPC and SSN of the X.25 destination 33301 in the database to the DPC 011-011-011 and the SSN 230.

The X.25 gateway destination to be changed must be in the database and cannot have any X.25 routes assigned to it. This can be verified in steps 1 and 2.

If the destination point code (DPC) is changed, the new DPC must be in the database. This can be verified in step 5 with the `rtrv-dstn` command. If the new DPC is not in the database, go to the "Adding a Destination Point Code" procedure in the *Database Administration Manual – SS7*.

Note: The point code assigned to the X.25 address in the X.25 destination cannot be an ITU international or ITU national point code. The `ent-dstn` command does not allow an ITU international or ITU national point code to be assigned to the X.25 domain.

The destination point code specified with the `chg-x25-dstn` command must be a full point code. Cluster point codes and network routing point codes cannot be specified for X.25 destinations. For more information on cluster point codes, go to the "Cluster Routing and Management Diversity" section in the *Database Administration Manual – SS7*. For more information on network routing point codes, go to the "Network Routing" section in the *Database Administration Manual – SS7*.

Canceling the RTRV-DSTN Command

Because the `rtrv-dstn` command used in this procedure can output information for a long period of time, the `rtrv-dstn` command can be canceled and the output to the terminal stopped. There are three ways that the `rtrv-dstn` command can be canceled.

- Press the F9 function key on the keyboard at the terminal where the `rtrv-dstn` command was entered.
- Enter the `canc-cmd` without the `trm` parameter at the terminal where the `rtrv-dstn` command was entered.
- Enter the `canc-cmd:trm=<xx>`, where `<xx>` is the terminal where the `rtrv-dstn` command was entered, from another terminal other than the terminal where the `rtrv-dstn` command was entered. To enter the `canc-cmd:trm=<xx>` command, the terminal must allow Security Administration commands to be entered from it and the user must be allowed to enter Security Administration commands. The terminal's permissions can be verified with the `rtrv-secu-trm` command. The user's permissions can be verified with the `rtrv-user` or `rtrv-secu-user` commands.

For more information about the `canc-cmd` command, go to the *Commands Manual*.

1. Display the X.25 destinations in the database by entering the `rtrv-x25-dstn` command. This is an example of the possible output.

```
rlghncxa03w 06-10-28 21:16:37 GMT EAGLE5 36.0.0
X25 ADDR      SS7 DPC      SSN
11101         001-001-001  005
11102         001-001-001  005
22201         002-002-002  005
22202         002-002-002  010
220525586456772 240-012-004  002
234234231    240-012-005  113
23423422834  244-010-006  235
```

```

2342342325      244-010-006  236
23423423      244-010-007  112
33301          003-003-003  006
33302          003-003-003  007
3450912        244-010-005  114
423423045656767 244-010-008  112
44401          004-004-004  005
55501          005-005-005  005
9342           244-010-006  234
X.25 DSTN TABLE IS 30 % FULL

```

2. Verify that there are no X.25 routes assigned to the X.25 destination to be changed by entering the `rtrv-x25-rte` command.

This is an example of the possible output.

```

rlghncxa03w 06-10-28 21:16:37 GMT EAGLE5 36.0.0
X25 ADDR      SS7 ADDR      TYPE LOC  PORT  LC  RT   LC2NM
11101         44401         pvc 1205  a    01  xpc  no
11102         55501         pvc 1206  a    02  pc   no
22201         44401         pvc 1205  a    02  pc   no
22202         55501         pvc 1206  a    01  xpc  yes
33301         44401         svca 1207  a    --  pc   no
33302         55501         svca 1207  a    --  pc   no
X.25 ROUTE TABLE IS 30 % FULL

```

3. If the X.25 destination to be removed, shown in the X25 ADDR column in the output of step 1, is shown in either the X25 ADDR or SS7 ADDR columns in the output of step 2, then the X.25 destination has an X.25 route assigned to it.

Remove these X.25 routes by using the `dlt-x25-rte` command. For this example, enter this command.

```
dlt-x25-rte:xaddr=33301:saddr=44401
```

When this command has successfully completed, this message should appear.

```

rlghncxa03w 06-10-28 11:43:04 GMT EAGLE5 36.0.0
DLT-X25-RTE: MASP A - X.25 Route table 45% full
DLT-X25-RTE: MASP A - COMPLTD

```

4. Verify the changes using the `rtrv-x25-rte` command.

This is an example of the possible output.

```

rlghncxa03w 06-10-28 21:16:37 GMT EAGLE5 36.0.0
X25 ADDR      SS7 ADDR      TYPE LOC  PORT  LC  RT   LC2NM
11101         44401         pvc 1205  a    01  xpc  no
11102         55501         pvc 1206  a    02  pc   no
22201         44401         pvc 1205  a    02  pc   no
22202         55501         pvc 1206  a    01  xpc  yes
33302         55501         svca 1207  a    --  pc   no
X.25 ROUTE TABLE IS 30 % FULL

```

5. If the DPC is being changed, display the DPCs in the database by entering the `rtrv-dstn` command.

This is an example of the possible output.

```

rlghncxa03w 06-10-28 16:02:05 GMT EAGLE5 36.0.0
DPCA        CLLI        BEI ELEI  ALIASI  ALIASN  DOMAIN
020-002-*  rlghncbb000 yes yes  -----  -----  SS7
004-004-004 -----  yes ---  -----  -----  SS7

```

```

005-005-005 ----- yes --- ----- ----- SS7
240-012-004 rlghncbb001 yes --- 1-111-1 11111 SS7
240-012-005 rlghncbb002 yes --- 1-112-2 11112 SS7
240-012-006 rlghncbb003 yes --- 1-112-3 11113 SS7
240-012-008 ----- yes --- 1-113-5 11114 SS7
001-001-001 ----- yes --- ----- ----- X25
002-002-002 ----- yes --- ----- ----- X25
003-003-003 ----- yes --- ----- ----- X25
011-011-011 ----- yes --- ----- ----- X25

DPCI      CLLI      BEI  ELEI  ALIASA      ALIASN      DOMAIN
2-131-1   rlghncbb023 no --- 222-210-000 12001      SS7
2-131-2   ----- no --- 222-211-001 12002      SS7
2-131-3   ----- no --- 222-211-002 12003      SS7

DPCN      CLLI      BEI  ELEI  ALIASA      ALIASI      DOMAIN
11211    rlghncbb013 no --- 222-200-200 2-121-1    SS7
11212    rlghncbb013 no --- 222-200-201 2-121-2    SS7

DESTINATION ENTRIES ALLOCATED: 2000
FULL DPC(s): 15
EXCEPTION DPC(s): 0
NETWORK DPC(s): 0
CLUSTER DPC(s): 1
TOTAL DPC(s): 16
CAPACITY (% FULL): 1%
ALIASES ALLOCATED: 8000
ALIASES USED: 18
CAPACITY (% FULL): 1%
X-LIST ENTRIES ALLOCATED: 500
RTRV-DSTN: MASP A - COMPLTD

```

If the required DPC is not in the database, go to the “Adding a Destination Point Code” procedure in the *Database Administration Manual - SS7* and add the DPC to the database.

- Change the attributes of the X.25 destination using the `chg-x25-dstn` command.

For this example, enter this command.

```
chg-x25-dstn:xaddr=33301:dpc=011-011-011:ssn=230
```

When this command has successfully completed, this message should appear.

```

rlghncxa03w 06-10-28 08:38:53 GMT EAGLE5 36.0.0
X.25 DSTN TABLE 33 % FULL
CHG-X25-DSTN: MASP A - COMPLTD

```

- Verify the changes using the `rtrv-x25-dstn` command.

This is an example of the possible output.

```

rlghncxa03w 06-10-28 21:16:37 GMT EAGLE5 36.0.0
X25 ADDR      SS7 DPC      SSN
11101         001-001-001 005
11102         001-001-001 005
22201         002-002-002 005
22202         002-002-002 010
220525586456772 240-012-004 002
234234231     240-012-005 113
23423422834   244-010-006 235
2342342325    244-010-006 236
23423423      244-010-007 112
33301         011-011-011 230
33302         003-003-003 007
3450912      244-010-005 114

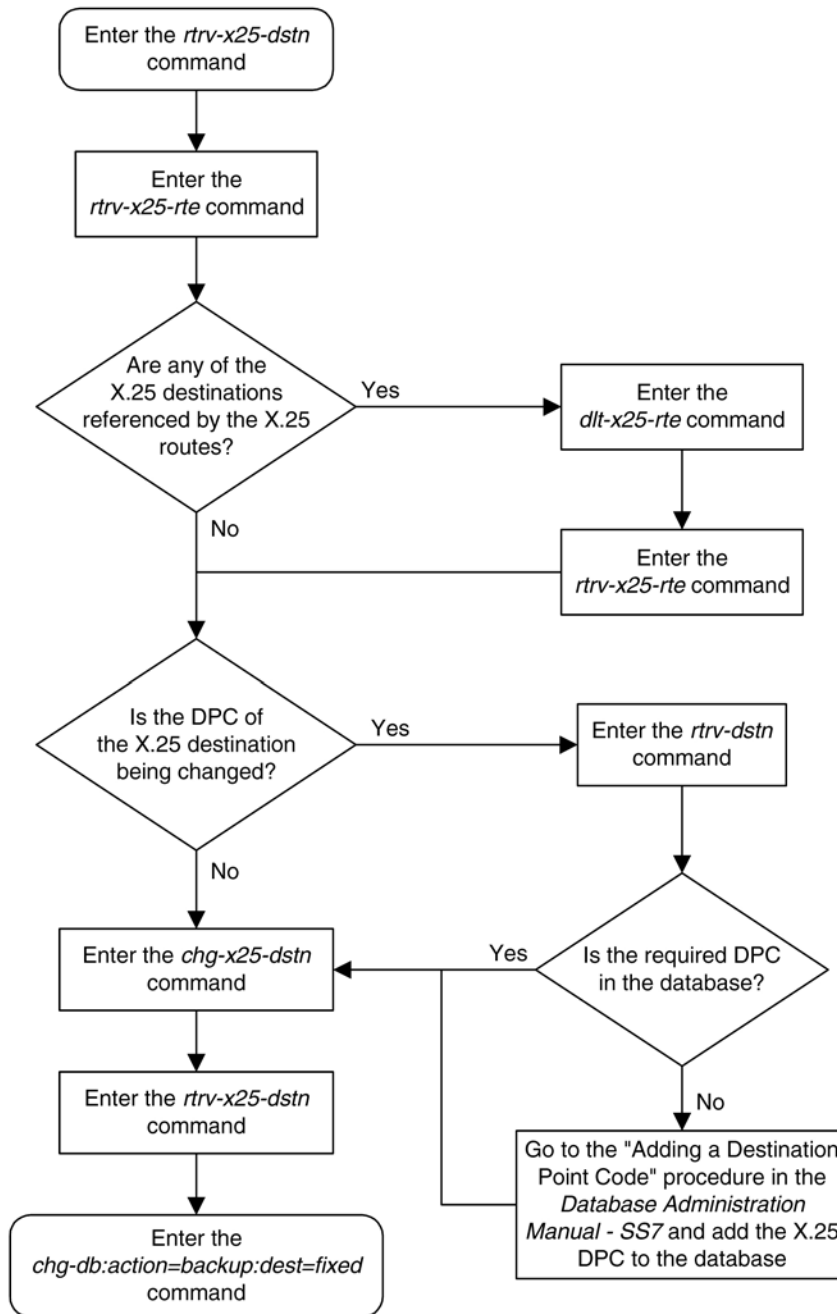
```

```
423423045656767 244-010-008 112
44401             004-004-004 005
55501             005-005-005 005
9342              244-010-006 234
X.25 DSTN TABLE IS 30 % FULL
```

8. Backup the new changes using the `chg-db:action=backup:dest=fixed` command. These messages should appear, the active Maintenance and Administration Subsystem Processor (MASP) appears first.

```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk complete.
BACKUP (FIXED) : MASP A - Backup starts on standby MASP.
BACKUP (FIXED) : MASP A - Backup on standby MASP to fixed disk complete.
```

Figure 10: Changing an X.25 Gateway Destination



Adding an X.25 Linkset

This procedure is used to add X.25 linksets to the EAGLE 5 ISS using the `ent-1s` command. To add SS7 linksets, go to the "Adding an SS7 Linkset" procedure in the *Database Administration Manual - SS7*.

The `ent-1s` command uses these parameters.

:*lsn* – The name of the linkset. The linkset name can contain up to 10 characters, with the first character being a letter. However, the SEAS interface supports only eight characters. If this linkset is displayed on the SEAS interface and the linkset name contains more than eight characters, only the first eight characters in the linkset name are shown. If this linkset name contains more than eight characters, and is specified with the linkset commands on the SEAS interface, only the first eight characters can be specified.

:*apc/apca* – Adjacent point code – the point code identifying the node that is next to the EAGLE 5 ISS.

:*spc/spca* – The secondary point code assigned to the linkset. Secondary point codes are used for multiple linksets that have the same APC. Secondary point codes can be used only if the Multiple Linksets to Single Adjacent PC feature is enabled and turned on (shown in the *rtrv-ctrl-feat* output).

Note: See Chapter 2, "Configuring Destination Tables," in the *Database Administration Manual - SS7* for a definition of the point code types that are used on the EAGLE 5 ISS.

:*lst* – The linkset type of the specified linkset - A, B, C, D, or E.

:*cli* – The Common Language Location Identifier assigned to this point code. The value of the *cli* parameter is only displayed in the *rtrv-ls* command output when a specific linkset is being displayed with the *rtrv-ls:lsn=<linkset name>* command.

:*sltset* – The signaling link test message record to be associated with the linkset.

:*l3tset* – The level 3 timer set table. This parameter identifies which level three timer set is to be assigned to this linkset.

:*scrn* – The name of the screenset to be assigned to this linkset if gateway screening is to be used.

:*gwsa* – Gateway screening action determines whether gateway screening (GWS) is on or off for the specified link set.

:*gwsn* – Gateway screening messaging is used to turn on or off the display of messages generated for each screened message. When an MSU is rejected by gateway screening, a message is output to alert personnel of the event.

:*gwsd* – Gateway screening MSU discard is used to turn on or off the discarding of MSUs that bypass the gateway screening function due to load-shedding. Also use this parameter with the *redirect* function; MSUs that cannot be screened are discarded if you specify *gwsd=on*.

:*bei* – The broadcast exception indicator. This parameter indicates whether TFP (transfer prohibited) messages are allowed to be broadcast on the linkset. The *yes* parameter means TFPs are not broadcast. The *no* parameter means TFPs are broadcast. The *bei=yes* parameter must be specified, or the *bei* parameter must be omitted.

:*gttmode* – The GTT mode/hierarchy identifying the types of global title translation that will be performed on the messages arriving on the specified linkset. The values for this parameter are:

- *sysdflt* – the value of the *dfltgttmode* parameter shown in the *rtrv-sccopts* command output.
- *cd* - CdPA GTT only
- *cg* - CgPA GTT only
- *acdc* - Advanced CdPA GTT, CdPA GTT
- *acdcgc* - Advanced CdPA GTT, CgPA GTT, CdPA GTT
- *acdcgcg* - Advanced CdPA GTT, CdPA GTT, CgPA GTT

- `cgacdcd` - CgPA GTT, Advanced CdPA GTT, CdPA GTT
- `cgcd` - CgPA GTT, CdPA GTT
- `cdcg` - CdPA GTT, CgPA GTT

The default value for the `gttmode` parameter is `sysdf1t`.

For more information on using the `gttmode` parameter, see the Origin Based SCCP Routing Feature section in the *Database Administration Manual - Global Title Translation*.

`:cggmod` - The calling party GT modification indicator. This parameter specifies whether or not calling party global title modification is required. The values for this parameter are `yes` (calling party global title modification is required) or `no` (calling party global title modification is not required). The default value for the `cggmod` parameter is `no`. This parameter can be specified only if the AMGTT or AMGTT CgPA Upgrade feature is enabled. Enter the `rtrv-ctrl-feat` command to verify that either the AMGTT or AMGTT CgPA Upgrade feature is enabled. If the AMGTT or AMGTT CgPA Upgrade feature is not enabled, perform the "Activating the Advanced GT Modification Feature" procedure in the *Database Administration Manual - Global Title Translation* to enable the required feature. For more information about the Advanced GT Modification feature, refer to the "Advanced GT Modification Feature" section in the *Database Administration Manual - Global Title Translation*.

`:islsrsb` - selects which bit (1 - 4) of the SLS field to use as the least significant bit for signaling link selection in the link set for all messages on ANSI and ITU linksets on incoming linksets. For more information on the `islsrsb` parameter refer to the "ITU SLS Enhancement" section in the *Database Administration Manual - SS7*. To specify the `islsrsb` parameter, the SLS Bit Rotation by Incoming Linkset feature must be enabled. To enable the SLS Bit Rotation by Incoming Linkset feature, perform the "Activating the SLS Bit Rotation by Incoming Linkset Feature" procedure in the *Database Administration Manual - SS7*.

The examples in this procedure are based on the example network shown in [Figure 5: Typical X.25/SS7 Gateway Configuration](#) on page 22 and [Table 6: X.25 Linkset Configuration Table](#) on page 47 and are used to add X.25 linksets `1s03` and `1s04` to the database.

Table 6: X.25 Linkset Configuration Table

Linksets	Linkset APC	# LINKS	LST	GWSA	GWSD	SCRN
1s03	007-007-007	2	A	ON	OFF	SCR0
1s04	003-003-003	1	A	ON	ON	SCR2

The EAGLE 5 ISS can contain 1024 linksets, with a maximum of 255 of these linksets being gateway linksets. A gateway linkset is a linkset that contains routes to a different network.

The linkset to be added cannot be in the database. This can be verified in step 1 of this procedure.

The adjacent point code (APC) must be defined in the database. This can be verified in step 2 of this procedure. The domain of the point code is shown in the `DOMAIN` field in the output of the `rtrv-dstn` command (step 2). The adjacent point code must be a full point code and cannot be a cluster point code.

If the APC is not in the destination point code table, go to the "Adding a Destination Point Code" procedure in the *Database Administration Manual – SS7* . and add the point code to the destination point code table.

Note: The adjacent point code for the X.25 linkset cannot be an ITU international or ITU national point code. An ITU international or ITU national point code cannot be assigned to the X.25 domain.

An X.25 APC cannot be referenced by an X.25 route that has the logical channel to network management function turned on (`lc2nm=yes`). Enter the `rtrv-x25-dstn` command to show the association of the point codes to X.25 addresses. Enter the `rtrv-x25-rte` command to show which X.25 routes have the logical channel to network management function turned on. This is shown by the entry `no` in the `LC2NM` field in the output of the `rtrv-x25-rte` command. The APC cannot be associated with an X.25 address that is assigned to an X.25 route that has the logical channel to network management function turned on (`lc2nm=yes`).

The `gwsa`, `gwsn`, and `gwsd` parameters can only be specified if the `scrn` parameter is defined. Enter the `rtrv-ls` command to verify that the `scrn` parameter is defined for the specified linkset. If the `scrn` parameter is defined, a gateway screening screen set name is shown in the `SCRN` field of the output. This gateway screening screen set name must also be defined as a gateway screening screen set entity. This can be verified with the `rtrv-scrset` command.

The `gwsd` parameter allows the discarding of messages that should have gone through the gateway screening process, but did not. The `gwsd` parameter is only intended to be used with the Database Transport Access (DTA) feature. If you are not using the DTA feature, the `gwsd` parameter should not be specified or should be set to `no` (`gwsd=no`).



CAUTION

CAUTION: When Gateway Screening is in the screen test mode, as defined by the linkset parameters `gwsa=off` and `gwsn=on`, the gateway screening action in the gateway screening stop action set specified by the `actname` parameter of the gateway screening screen set at the end of the gateway screening process will be performed.

If the `clli` parameter is specified with the `ent-ls` command, the value of the `clli` parameter must match the CLLI value of the adjacent point code of the linkset. The CLLI value of the adjacent point code is shown in the `CLLI` field of the `rtrv-dstn` command.

To provision more than one linkset with the same APC, the Multiple Linksets to Single Adjacent PC feature must be enabled and turned on. The database can contain a maximum of six linksets that have the same APC. A secondary point code (shown in the `rtrv-spc` output) must be specified with the linkset. The network type and format of the secondary point code must be the same as the APC of the linkset. Secondary point codes cannot be assigned to the APC of the linkset when the point code is provisioned in the database with the `ent-dstn` or `chg-dstn` commands.

Other Optional Parameters

The `ent-ls` command contains other optional parameters that are not used to configure an X.25 linkset. These parameters are discussed in more detail in the *Commands Manual* or in these sections.

- The [Configuring a Linkset for the GSM MAP Screening Feature](#) on page 309 procedure
- The "Adding an SS7 Linkset" procedure in the *Database Administration Manual - SS7*
- These procedures in the *Database Administration Manual - IP' Secure Gateway*
 - Configuring an IPGWx Linkset
 - Adding a Mate IPGWx Linkset to another IPGWx Linkset
 - Removing a Mate IPGWx Linkset from another IPGWx Linkset
 - Adding an IPSP M3UA Linkset

- Adding an IPSP M2PA Linkset

Canceling the REPT-STAT-LS, RTRV-LS, and RTRV-DSTN Commands

Because the `rept-stat-ls`, `rtrv-ls`, and `rtrv-dstn` commands used in this procedure can output information for a long period of time, the `rept-stat-ls`, `rtrv-ls`, and `rtrv-dstn` commands can be canceled and the output to the terminal stopped. There are three ways that the `rept-stat-ls`, `rtrv-ls`, and `rtrv-dstn` commands can be canceled.

- Press the F9 function key on the keyboard at the terminal where the `rept-stat-ls`, `rtrv-ls`, or `rtrv-dstn` commands were entered.
- Enter the `canc-cmd` without the `trm` parameter at the terminal where the `rept-stat-ls`, `rtrv-ls`, or `rtrv-dstn` commands were entered.
- Enter the `canc-cmd:trm=<xx>`, where `<xx>` is the terminal where the `rept-stat-ls`, `rtrv-ls`, or `rtrv-dstn` commands were entered, from another terminal other than the terminal where the `rept-stat-ls`, `rtrv-ls`, or `rtrv-dstn` commands were entered. To enter the `canc-cmd:trm=<xx>` command, the terminal must allow Security Administration commands to be entered from it and the user must be allowed to enter Security Administration commands. The terminal's permissions can be verified with the `rtrv-secu-trm` command. The user's permissions can be verified with the `rtrv-user` or `rtrv-secu-user` commands.

For more information about the `canc-cmd` command, go to the *Commands Manual*.

1. Display the current linkset configuration using the `rtrv-ls` command.

This is an example of the possible output.

```
rlghncxa03w 06-10-28 11:43:04 GMT EAGLE5 37.5.0

LSN          APCA   (SS7)  SCRNL3T SLT          GWS GWS GWS
lsa1         240-020-000 scr1  1  1  yes a  1  off off off no  off
lsa2         240-030-000 scr2  1  2  no  c  3  on  on  on yes off
lsa3         240-040-000 scr3  1  3  yes c  5  off off off yes off
ls01         006-006-006 scr1  1  1  yes a  1  on  off off no  off
ls02         008-008-008 scr1  1  1  yes a  1  on  off off yes off

LSN          APCA   (X25)  SCRNL3T SLT          GWS GWS GWS
ls6          244-010-004 scr4  1  4  no  a  6  off off off --- off
ls7          244-012-005 scr5  1  5  no  c  3  on  on  on --- off
ls8          244-012-006 scr6  1  6  no  c  8  off off off --- off

LSN          APCI   (SS7)  SCRNL3T SLT          GWS GWS GWS
lsi1         1-111-1    scr1  1  1  yes a  1  off off off --- ---
lsi2         1-111-2    scr2  1  2  no  c  3  on  on  on --- ---
lsi3         1-111-3    scr3  1  3  yes c  5  off off off --- ---

LSN          APCN   (SS7)  SCRNL3T SLT          GWS GWS GWS
lsn1         11111     scr1  1  1  yes a  1  off off off --- off
lsn2         11112     scr2  1  2  no  c  3  on  on  on --- off
lsn3         11113     scr3  1  3  yes c  5  off off off --- off
```

```
Link set table is ( 14 of 1024) 1% full
```

If the APC of the linkset is being assigned to more than one linkset, and multiple linksets with the same APC are shown in the `rtrv-ls` output in this step, continue the procedure with [Step 3](#) on page 50.

If the APC of the linkset is being assigned to more than one linkset, and multiple linksets with the same APC are not shown in the `rtrv-ls` output in this step, continue the procedure with [Step 2](#) on page 50.

2. Verify whether or not the Multiple Linksets to Single Adjacent PC feature is enabled and turned on by entering this command.

```
rtrv-ctrl-feat:partnum=893017901
```

This is an example of the possible output.

```
rlghncxa03w 07-08-21 15:48:20 EST 37.5.0
```

The following features have been permanently enabled:

Feature Name	Partnum	Status	Quantity
Multiple Linkset to APC	893019701	on	----

The following features have been temporarily enabled:

Feature Name	Partnum	Status	Quantity	Trial Period Left
Zero entries found.				

The following features have expired temporary keys:

Feature Name	Partnum
Zero entries found.	

If the Multiple Linksets to Single Adjacent PC feature is not enabled or turned on, perform the "Activating the Multiple Linksets to Single Adjacent PC (MLS) Feature" procedure in this chapter to enable and turn on this feature. After this feature has been enabled and turned on, continue the procedure with [Step 3](#) on page 50.

If the Multiple Linksets to Single Adjacent PC feature is enabled and turned on, continue the procedure with [Step 3](#) on page 50.

3. Display the linksets that contain the APC for the new linkset by entering the `rtrv-ls` command with the APC of the linkset. For this example, enter this command.

```
rtrv-ls:apca=001-001-002
```

This is an example of the possible output.

```
rlghncxa03w 07-08-22 08:09:26 EST 37.5.0
```

```
APCA = 001-001-002
```

LSN	SPCA	SCRN	SET	SET	BEI	LST	LNKS	GWS	GWS	GWS	ACT	MES	DIS	SLSCI	NIS
elmls2	020-020-021	none	1	1	no	A	7	off	off	off	no	off	no	off	off

```
Link set table is (10 of 1024) 1% full.
```

The maximum number of linksets that can use the same APC is six. If six linksets are shown in this step, the specified APC cannot be used in this procedure. Select another APC from the `rtrv-ls` output in [Step 1](#) on page 49 and repeat this step.

If one to five linksets are shown in this step, continue the procedure with [Step 4](#) on page 51.

4. Display the secondary point codes by entering the `rtrv-spc` command. This is an example of the possible output.

```
rlghncxa03w 07-08-22 09:39:30 EST 37.5.0
SPC (Secondary Point Codes)

SPCA
    020-020-020
    020-020-021
    021-021-021
    022-022-022
    026-026-026
    026-026-027
    026-026-028
    026-026-029
    200-010-000

SPC-I
none

SPC-N
    00002

SPC-N24
none

Secondary Point Code table is (10 of 40) 25% full.
```

If the desired secondary point code is shown in this step, continue the procedure with [Step 7](#) on page 53.

If the desired secondary point code is not shown in this step, perform the "Adding a Secondary Point Code" procedure in the *Database Administration Manual - SS7* to add the desired secondary point code. The network type of the new secondary point code must be the same as the APC of the linkset. After the secondary point code has been added, continue the procedure with [Step 7](#) on page 53.

5. Display the point codes in the destination point code table by using the `rtrv-dstn` command. This is an example of the possible output.

```
rlghncxa03w 06-10-28 16:02:05 GMT EAGLE5 37.5.0
DPCA      CLLI      BEI  ELEI  ALIASI  ALIASN  DOMAIN
004-004-004 ----- yes  ---  -----  -----  SS7
005-005-005 ----- yes  ---  -----  -----  SS7
006-006-006 ----- no   ---  -----  -----  SS7
008-008-008 ----- no   ---  -----  -----  SS7
240-012-004 rlghncbb001 yes  ---  1-111-1  11111  SS7
240-012-005 rlghncbb002 yes  ---  1-112-2  11112  SS7
240-012-006 rlghncbb003 yes  ---  1-112-3  11113  SS7
240-012-008 ----- yes  ---  1-113-5  11114  SS7
001-001-001 ----- yes  ---  -----  -----  X25
002-002-002 ----- yes  ---  -----  -----  X25
003-003-003 ----- yes  ---  -----  -----  X25
007-007-007 ----- yes  ---  -----  -----  X25
244-010-004 ls06clli  no   ---  -----  -----  X25
244-012-005 ls07clli  no   ---  -----  -----  X25
244-012-006 ls08clli  no   ---  -----  -----  X25
244-012-007 ----- no   ---  -----  -----  X25
244-012-008 ----- no   ---  -----  -----  X25
```

```

DPCI          CLLI          BEI  ELEI  ALIASA          ALIASN          DOMAIN
2-131-1      rlghncbb023  no   ---   222-210-000    12001          SS7
2-131-2      -----      no   ---   222-211-001    12002          SS7
2-131-3      -----      no   ---   222-211-002    12003          SS7

DPCN          CLLI          BEI  ELEI  ALIASA          ALIASI          DOMAIN
11211        rlghncbb013  no   ---   222-200-200    2-121-1        SS7
11212        rlghncbb013  no   ---   222-200-201    2-121-2        SS7

Destination table is (22 of 2000) 1% full
    
```

If the required DPC is not in the database, go to the “Adding a Destination Point Code” procedure in the *Database Administration Manual - SS7* and add the DPC to the database. After the adjacent point code has been added, continue the procedure with [Step 7](#) on page 53.

- The adjacent point code of the linkset cannot be the DPC of any exception route. Verify that the adjacent point code of the new linkset is not the DPC of any exception route by entering the `rtrv-rtx` command with the `dpc/dpca` parameter. The `dpc/dpca` parameter value is the adjacent point code value that will be specified for the linkset. For this example, enter this command.

```
rtrv-rtx:dpca=010-020-005
```

This is an example of the possible output.

```

rlghncxa03w 06-10-10 11:43:04 GMT EAGLE5 37.5.0
  DPCA          RTX-CRITERIA          LSN          RC          APC
  010-020-005  OPCA
                   007-008-009          1s01          20          006-006-006
                   008-008-100          1s02          40          008-008-008

DESTINATION ENTRIES ALLOCATED: 2000
  FULL DPC(s): 13
  EXCEPTION DPC(s): 5
  NETWORK DPC(s): 0
  CLUSTER DPC(s): 1
  TOTAL DPC(s): 19
  CAPACITY (% FULL): 1%
ALIASES ALLOCATED: 12000
  ALIASES USED: 0
  CAPACITY (% FULL): 0%
X-LIST ENTRIES ALLOCATED: 500
    
```

If the adjacent point code of the linkset is not the DPC of a route exception table entry, no entries are displayed in the `rtrv-rtx` output, but a summary of the point code quantities is displayed, as shown in the following output example.

```

rlghncxa03w 06-10-10 11:43:04 GMT EAGLE5 37.5.0

DESTINATION ENTRIES ALLOCATED: 2000
  FULL DPC(s): 15
  EXCEPTION DPC(s): 5
  NETWORK DPC(s): 0
  CLUSTER DPC(s): 1
  TOTAL DPC(s): 21
  CAPACITY (% FULL): 1%
ALIASES ALLOCATED: 12000
  ALIASES USED: 0
    
```

```
CAPACITY (% FULL):          0%
X-LIST ENTRIES ALLOCATED:    500
```

If the point code specified in this step is shown in the DPCA column in this step, the point code value cannot be used as an adjacent point code unless one of two actions are taken:

- a) Choose another adjacent point code value and repeat [Step 5](#) on page 51 and [Step 6](#) on page 52.
 - b) Remove all the entries displayed in this step by performing the “Removing a Route Exception Entry” procedure in the *Database Administration Manual - SS7*.
7. Verify that the gateway screening screen set that is to be assigned to the linkset is in the database by entering the `rtrv-scrset` command. This is an example of the possible output.

Note: If the screen set assigned to the linkset is not being changed, or if the screen set that you wish to assign to the linkset is assigned to other linksets (shown in the SCRNM field of the `rtrv-ls` command output in [Step 1](#) on page 49), continue the procedure with [Step 8](#) on page 54.

```
rlghncxa03w 06-10-28 16:37:05 GMT EAGLE5 37.5.0
ENTIRE GWS DATABASE IS 1% FULL
CDPA + AFTPC TABLES ARE 1% FULL
THERE ARE 243 SCREEN SETS AVAILABLE

THE FOLLOWING ARE OVER 80% FULL:
SCRNM  NSFI      NSR/ACT  FULL  RULES  TABLES  DESTFLD
-----
fld1   OPC       1%      5     4     NO
gws1   OPC       gws4    1%    9     7     NO
gws2   BLKOPC    gws5    1%    5     4     NO
ls01   SIO       ls02    1%    3     3     YES
scr1   OPC       opc1    1%    37    10    YES
scr2   OPC       opc2    2%    75    22    YES
scr3   OPC       opc3    2%    75    22    YES
scr4   OPC       opc1    51%   2075  22    NO
scr5   OPC       opc1    51%   2075  22    YES
scr6   OPC       opc1    51%   2075  22    NO
ss28   OPC       opc1    51%   2075  22    YES
wrld1  SIO       iec     1%    6     5     YES
```

If you wish to examine the contents of a particular screen set, enter the `rtrv-scrset:scrn=<screen set name>` command specifying a screen set name shown in the SCRNM field of either the `rtrv-scrset` command executed in this step or the `rtrv-ls` command executed in step 1.

For this example, enter the `rtrv-scrset:scrn=scr1` command.

This is an example of the possible output.

```
rlghncxa03w 06-10-14 16:39:04 GMT EAGLE5 37.5.0
SCRNM  NSFI      NSR/ACT  RULES  DESTFLD
scr1   OPC       opc1    3      Y
      BLKDPC  bkd2    2
      CGPA    cgp1    3
      TT     tt1     3
      TT     tt2     3
      TT     tt3     4
      CDPA   cdp1    3
      CDPA   cdp2    3
```

CDPA	cdp3	4
AFTPC	end1	9

The output of this command shows the screens that make up the screen set. These screens can be examined by entering the gateway screening retrieve command corresponding to the value in the NSFI field and specifying the screening reference name shown in the NSR/ACT field. For this example, you enter these commands to examine the screens in the screen set.

- `rtrv-scr-opc:sr=opc1`
- `rtrv-scr-blkdpc:sr=bkd2`
- `rtrv-scr-cgpa:sr=cgp1`
- `rtrv-scr-tt:sr=tt1`
- `rtrv-scr-tt:sr=tt2`
- `rtrv-scr-tt:sr=tt3`
- `rtrv-scr-cdpa:sr=cdp1`
- `rtrv-scr-cdpa:sr=cdp2`
- `rtrv-scr-cdpa:sr=cdp3`
- `rtrv-scr-aftpc:sr=end1`

If the screen set that you wish to assign to the linkset is not in the database, go to the "Adding a Screen Set" procedure in the *Database Administration Manual - Gateway Screening* and add the screen set to the database.

8. Display the X.25 destinations in the database by entering the `rtrv-x25-dstn` command with the point code to be assigned to the linkset, shown in the `rtrv-dstn` output in [Step 5](#) on page 51.

Note: If a new X.25 point code was added in [Step 5](#) on page 51, continue the procedure with [Step 10](#) on page 55.

```
rtrv-x25-dstn:dpca=244-012-008
```

This is an example of the possible output.

```
rlghncxa03w 06-10-28 21:16:37 GMT EAGLE5 37.5.0
X25 ADDR          SS7 DPC          SSN
234234231         244-012-008     113
234234231         244-012-008     113
X.25 DSTN TABLE IS 30 % FULL
```

If the new APC of the linkset is not shown in the `rtrv-x25-dstn` output, continue the procedure with [Step 10](#) on page 55. If the new APC of the linkset is shown in the `rtrv-x25-dstn` output, continue the procedure with [Step 10](#) on page 55.

9. Display the X.25 routes by entering the `rtrv-x25-rte` command with the `xaddr` parameter value shown in [Step 8](#) on page 54. For this example, enter this command.

```
rtrv-x25-rte:xaddr=234234231
```

This is an example of the possible output.

```
rlghncxa03w 06-10-28 21:16:37 GMT EAGLE5 37.5.0
X25 ADDR          SS7 ADDR          TYPE LOC  PORT  LC  RT  LC2NM
234234231         44401              pvc 1205  a    01  xpc  no
X.25 ROUTE TABLE IS 30 % FULL
```

If the LC2NM value in the X.25 route is no, continue the procedure with [Step 10](#) on page 55.

If the LC2NM value in the X.25 route is yes, the new linkset APC cannot be used in the X.25 linkset. To use the new linkset APC in the X.25 linkset, the LC2NM value of the X.25 route associated with the new linkset APC must be no. The LC2NM value must be changed to no, or another X.25 point code must be chosen.

To choose another X.25 point code, repeat this procedure from [Step 5](#) on page 51.

To change the LC2NM value, perform the [Changing an X.25 Route](#) on page 138 procedure. Then continue the procedure with [Step 10](#) on page 55.

10. The `gttmode` parameter can be specified with the values `acdc`, `cgacdc`, `acdcgc`, `acdcgcg`, `cgcd`, `cdcg`, or `cg` only if the Origin Based SCCP Routing feature is enabled. Enter the `rtrv-ctrl-feat` command with the part number of the Origin Based SCCP Routing feature to verify whether or not the Origin Based SCCP Routing feature is enabled. Enter this command.

Note: If the `gttmode` parameter is not being specified for the linkset, or if the `gttmode` parameter is being specified for the linkset with either the `sysdf1t` or `cd` values, continue the procedure with [Step 11](#) on page 55.

```
rtrv-ctrl-feat:partnum=893014301
```

This is an example of the possible output.

```
rlghncxa03w 06-10-10 11:43:04 GMT EAGLE5 37.5.0
The following features have been permanently enabled:

Feature Name          Partnum   Status  Quantity
Origin Based SCCP Routing 893014301 on      ----

The following features have been temporarily enabled:

Feature Name          Partnum   Status  Quantity   Trial Period Left
Zero entries found.

The following features have expired temporary keys:

Feature Name          Partnum
Zero entries found.
```

If the Origin Based SCCP routing feature is enabled, continue the procedure with [Step 11](#) on page 55.

If the Origin Based SCCP routing feature is not enabled, perform the “Activating the Origin Based SCCP Routing Feature” procedure in the *Database Administration Manual - Global Title Translation* to enable the Origin Based SCCP Routing feature. After the Origin Based SCCP Routing feature is enabled, continue the procedure with [Step 11](#) on page 55.

11. The `cggtmod` parameter cannot be specified with the `ent-ls` command unless the AMGTT or AMGTT CgPA Upgrade features are enabled. If the `cggtmod` parameter will be specified with the linkset, enter the `rtrv-ctrl-feat` command to verify the status of the AMGTT or AMGTT CgPA Upgrade features.

Note: If the `cggtmod` parameter will not be specified with the `ent-ls` command, this step does not need to be performed. Continue the procedure with [Step 12](#) on page 56.

This is an example of the possible output.

```
rlghncxa03w 07-08-22 10:58:06 EST 37.0.0
The following features have been permanently enabled:

Feature Name          Partnum   Status  Quantity
```

HC-MIM SLK Capacity	893012707	on	64
Origin-Based MTP Routing	893014201	on	----
Multiple Linkset to APC	893019701	on	----
Proxy Point Code	893018702	on	20
AMGTT CdPA Only	893021802	on	----

The following features have been temporarily enabled:

Feature Name	Partnum	Status	Quantity	Trial Period Left
Zero entries found.				

The following features have expired temporary keys:

Feature Name	Partnum
Zero entries found.	

If the AMGTT feature (shown by the entry AMGTT with the part number 893021801) or the AMGTT CgPA Upgrade feature (shown by the entry AMGTT CgPA Upgrade with the part number 893021803) is enabled, continue the procedure with [Step 12](#) on page 56 .

If the AMGTT or the AMGTT CgPA Upgrade features are not enabled, or if the AMGTT CdPA Only feature is enabled, perform the "Activating the Advanced GT Modification Feature" procedure in the *Database Administration Manual - Global Title Translation* procedure to enable the required feature. After the AMGTT or the AMGTT CgPA Upgrade feature is enabled, continue the procedure with [Step 12](#) on page 56 .

- The `islsrsb` parameter can be specified only if the SLS Bit Rotation by Incoming Linkset feature is enabled. Enter the `rtrv-ctrl-feat` command with the part number of the SLS Bit Rotation by Incoming Linkset feature to verify whether or not the SLS Bit Rotation by Incoming Linkset feature is enabled. Enter this command.

Note: If the `islsrsb` parameter is not being specified for the linkset, continue the procedure with [Step 13](#) on page 57.

```
rtrv-ctrl-feat:partnum=893026501
```

This is an example of the possible output.

```
rlghncxa03w 08-12-10 11:43:04 GMT EAGLE5 40.0.0
The following features have been permanently enabled:
```

Feature Name	Partnum	Status	Quantity
ISLSBR	893026501	on	----

The following features have been temporarily enabled:

Feature Name	Partnum	Status	Quantity	Trial Period Left
Zero entries found.				

The following features have expired temporary keys:

Feature Name	Partnum
Zero entries found.	

If the SLS Bit Rotation by Incoming Linkset feature is enabled, continue the procedure with [Step 13](#) on page 57.

If the SLS Bit Rotation by Incoming Linkset feature is not enabled, perform the "Activating the SLS Bit Rotation by Incoming Linkset Feature" procedure in the *Database Administration Manual*

- SS7 to enabled the SLS Bit Rotation by Incoming Linkset feature. After the SLS Bit Rotation by Incoming Linkset feature is enabled, continue the procedure with [Step 13](#) on page 57.

13. Using the outputs from [Step 1](#) on page 49 through [Step 12](#) on page 56 as a guide, add the new linkset using the `ent-ls` command. The new linkset must meet these conditions.
 - a) The new linkset cannot already be in the database – the linkset configuration is shown in the output of [Step 1](#) on page 49.
 - b) The APC of the new linkset must be in the destination point code table, shown in the output of [Step 5](#) on page 51. The adjacent point code for the X.25 linkset must be an ANSI point code in the X.25 domain.
 - c) The new linkset cannot use an APC assigned to an X.25 address that is assigned to an X.25 route that has the logical channel to network management function turned on (shown by the entry `yes` in the `LC2NM` field in the output of [Step 9](#) on page 54). The output of [Step 8](#) on page 54 shows which X.25 addresses are assigned to the point codes that can be used as APCs for linksets. The output of [Step 9](#) on page 54 shows the X.25 addresses used by the X.25 routes.

For this example, enter these commands.

```
ent-ls:lsn=ls03:apca=007-007-007:lst=a:gwsa=on:scrn=scr1
```

```
ent-ls:lsn=ls04:apca=003-003-003:lst=a:gwsa=on:scrn=scr2:gttmode=cgacdcd
```

When each of these commands have successfully completed, this message should appear.

```
rlghncxa03w 06-10-28 16:23:21 GMT EAGLE5 37.5.0
Link set table is ( 16 of 1024) 2% full
ENT-LS: MASP A - COMPLTD
```

14. Verify the changes using the `rtrv-ls` command with the linkset name that was specified in [Step 13](#) on page 57. For this example, enter these commands.

```
rtrv-ls:lsn=ls03
```

This is an example of the possible output.

```
rlghncxa03w 06-10-28 11:43:04 GMT EAGLE5 37.5.0

LSN          APCA   (X25)  SCRNL3T SLT          GWS GWS GWS
ls03         007-007-007  scr1  1  1  yes a  0  on  off  off  ---  off

          CLLI          TFATCABMLQ MTPRSE  ASL8
          -----          ---          ---  ---

          IPGWAPC MATELSN      IPTPS  LSUSEALM  SLKUSEALM  GTTMODE
          no          -----          ---  ---          ---          CdPA

Link set table is ( 16 of 1024) 2% full
```

```
rtrv-ls:lsn=ls04
```

This is an example of the possible output.

```
rlghncxa03w 06-10-28 08:40:38 GMT EAGLE5 37.5.0

LSN          APCA   (X25)  SCRNL3T SLT          GWS GWS GWS
ls04         003-003-003  scr2  1  1  yes a  0  on  off  off  ---  off
```

```

          CLLI          TFATCABMLQ MTPRSE ASL8
          -----          ---          ---
          IPGWAPC MATELSN      IPTPS LSUSEALM SLKUSEALM GTTMODE
          no          -----          ---          ---          ---          CgPA, AdvCdPA, CdPA

Link set table is ( 16 of 1024) 2% full

```

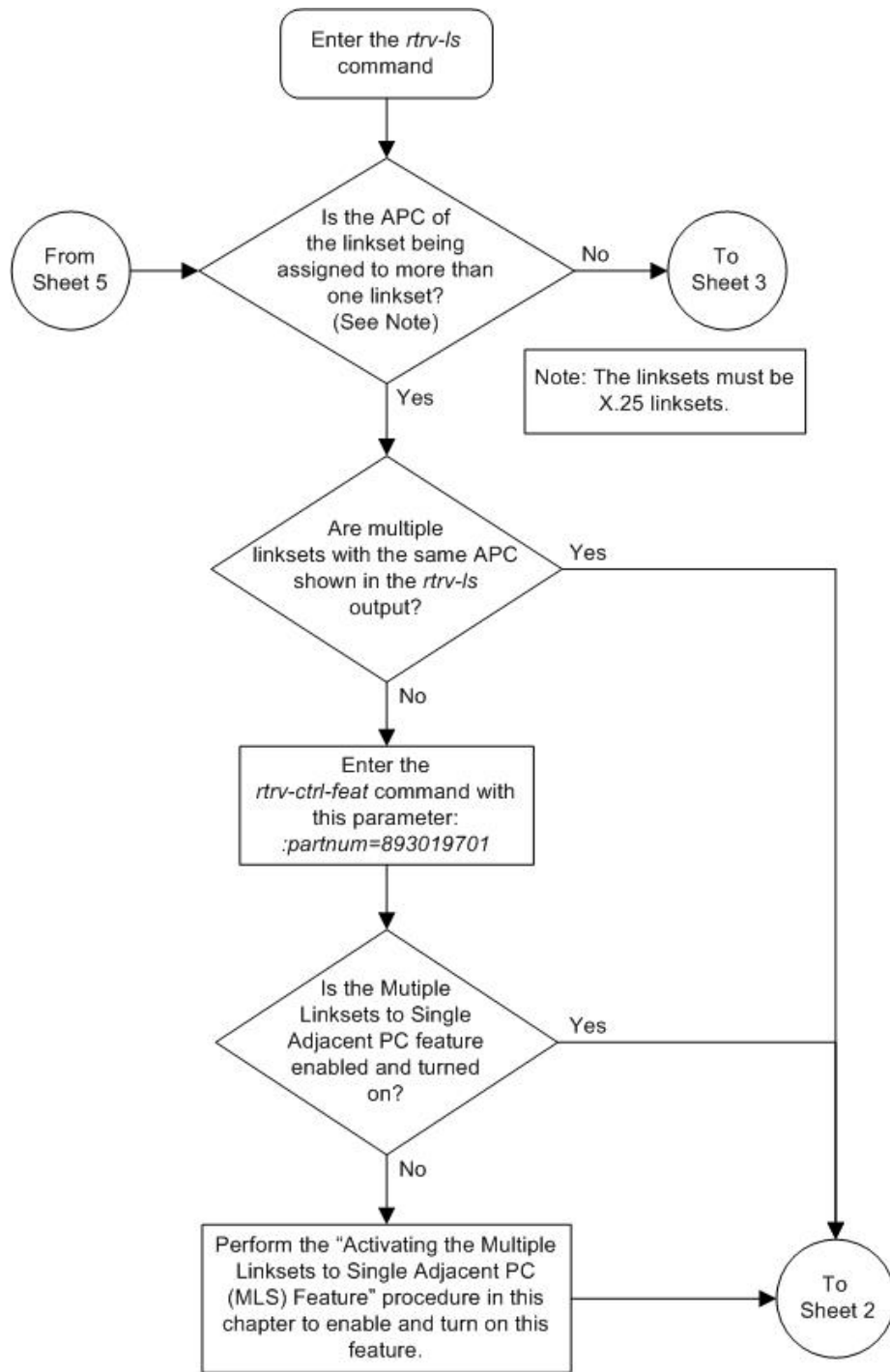
- Backup the new changes using the `chg-db:action=backup:dest=fixed` command. These messages should appear, the active Maintenance and Administration Subsystem Processor (MASP) appears first.

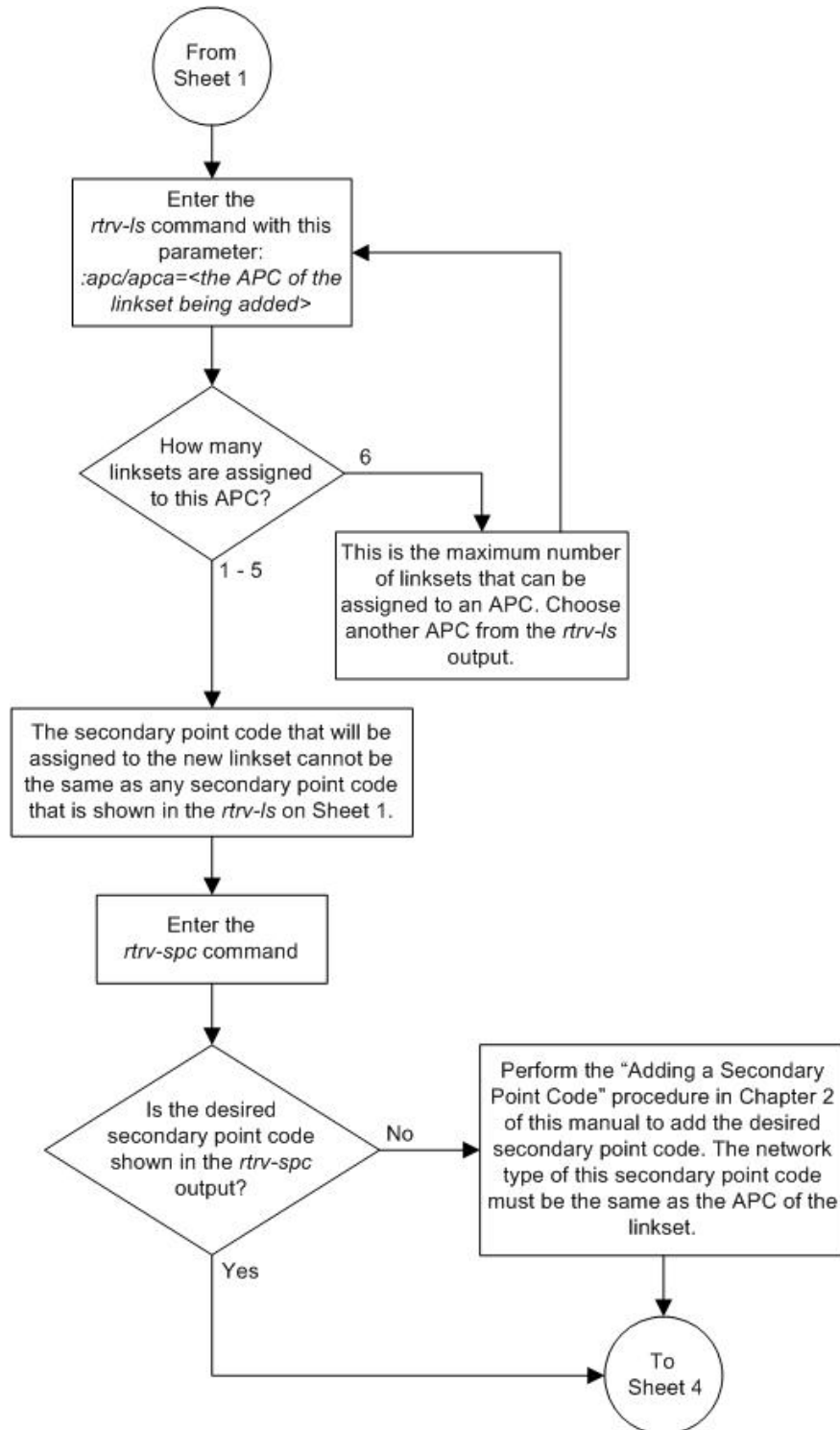
```

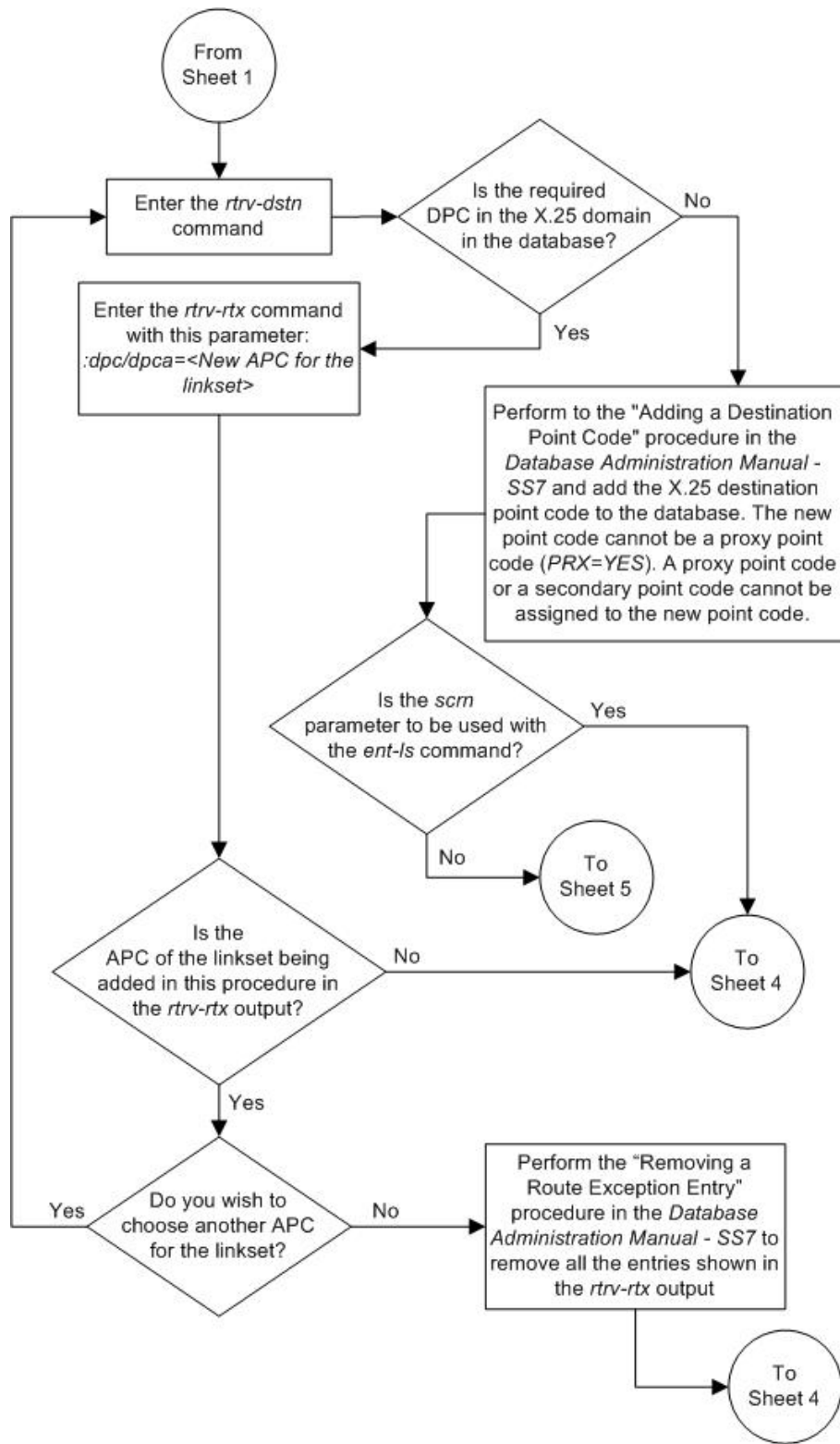
BACKUP (FIXED) : MASP A - Backup starts on active MASP.
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk complete.
BACKUP (FIXED) : MASP A - Backup starts on standby MASP.
BACKUP (FIXED) : MASP A - Backup on standby MASP to fixed disk complete.

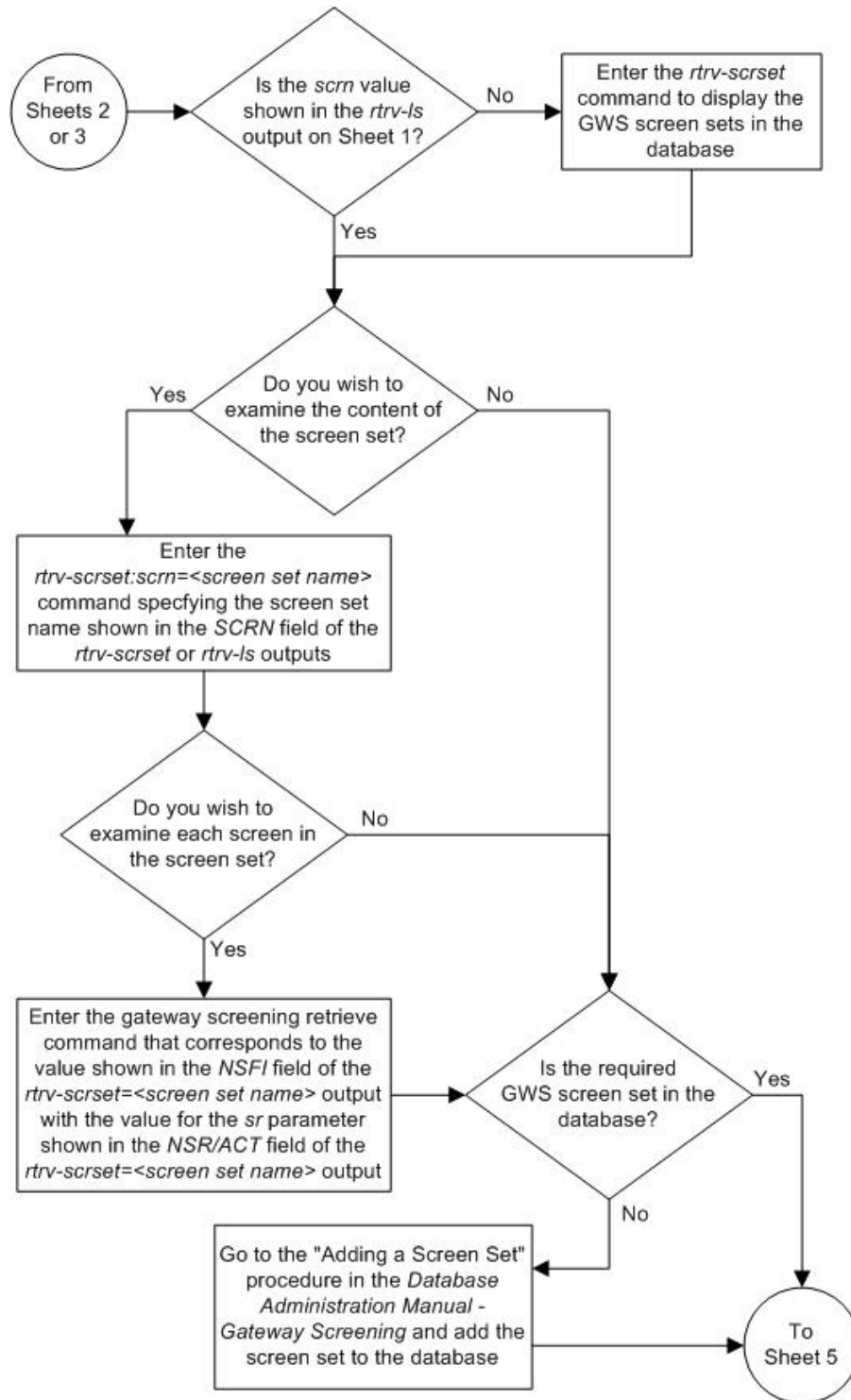
```

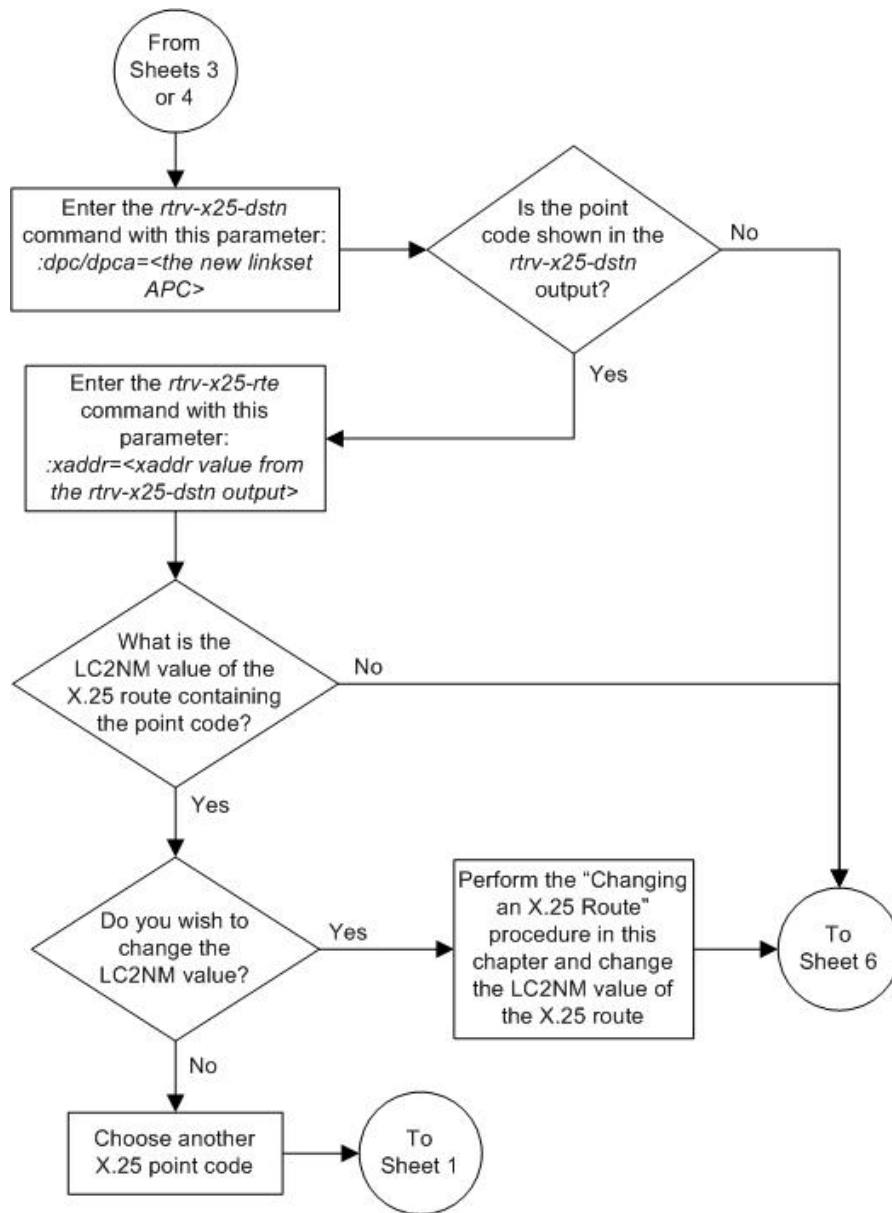
Figure 11: Adding an X.25 Linkset

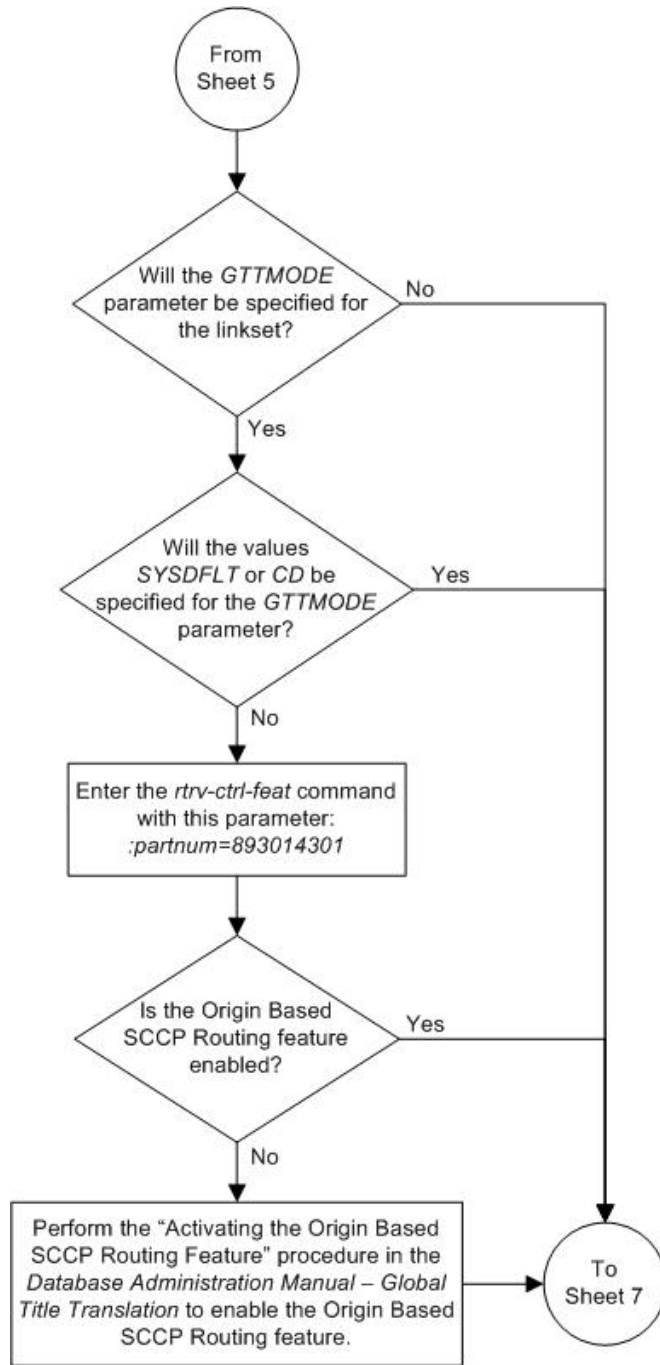


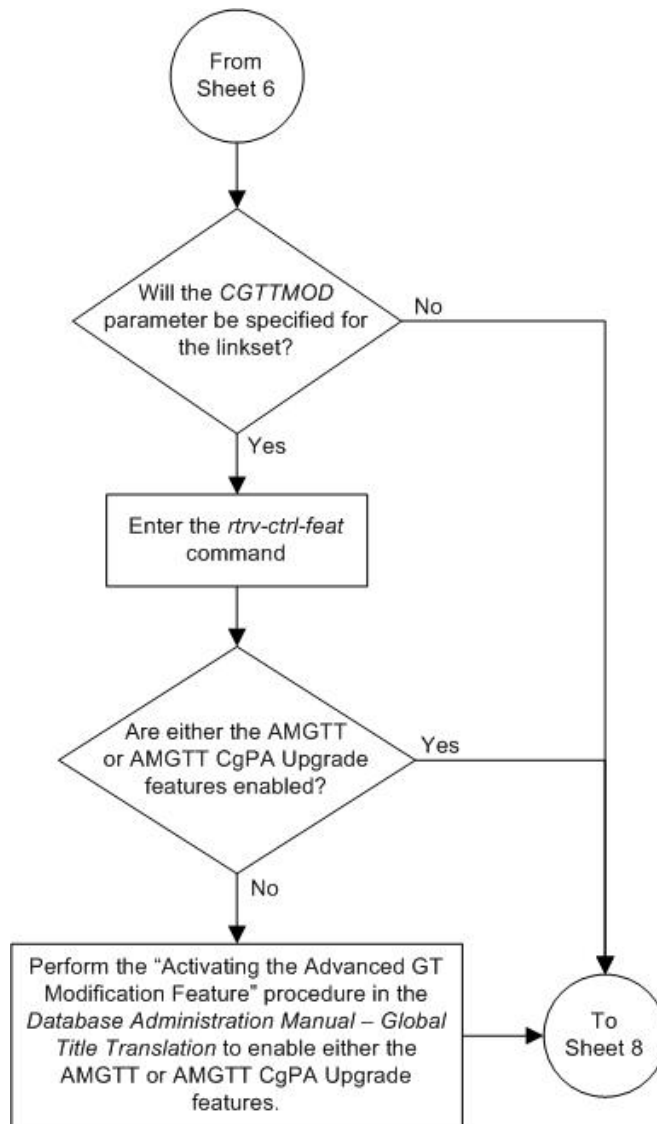


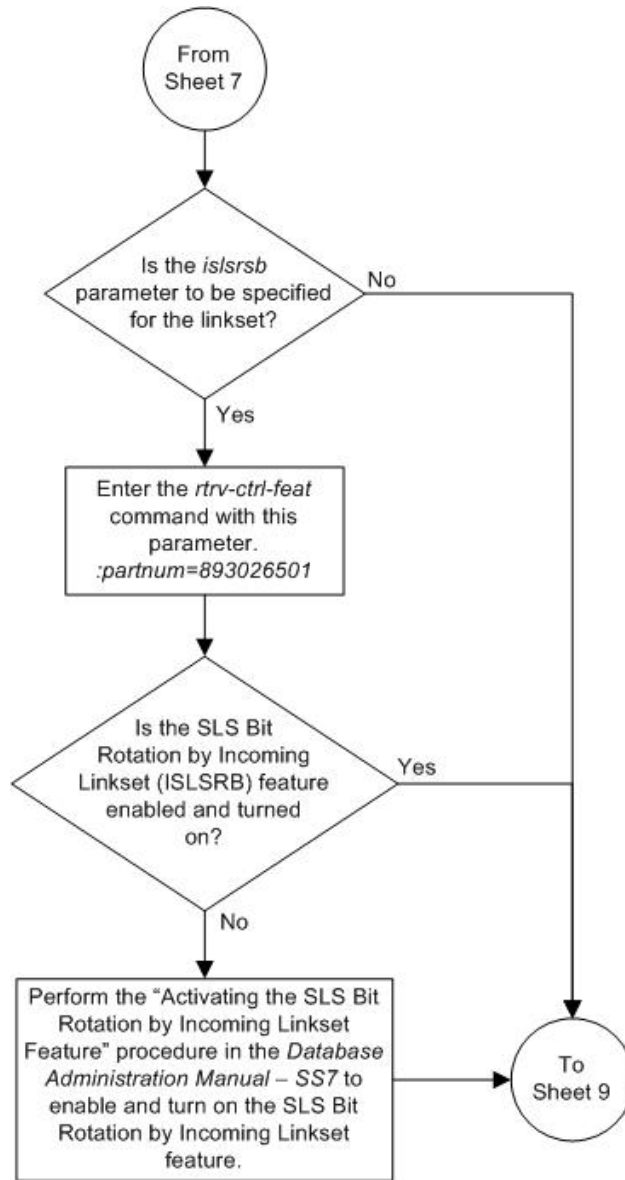


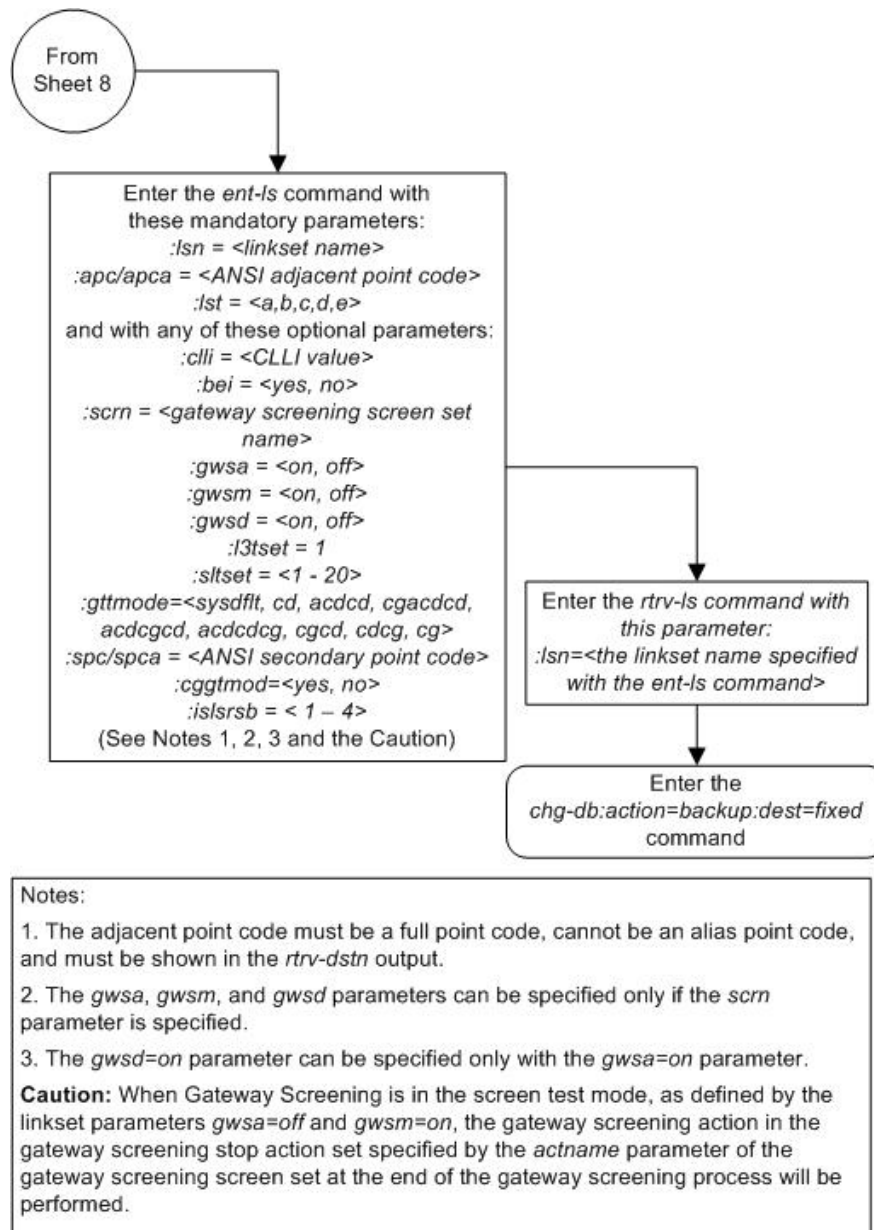












Removing a Linkset Containing X.25 Signaling Links

This procedure is used to remove a linkset with X.25 signaling links from the database using the *dlt-ls* command. To remove linksets with SS7 signaling links, go to the "Removing a Linkset Containing SS7 Signaling Links" procedure in the *Database Administration Manual – SS7*.

The *dlt-ls* command has only one parameter, *lsn*, which is the name of the linkset to be removed from the database.

The examples in this procedure are used to remove linkset *ls04* from the database.

The linkset to be removed must exist in the database. This can be verified in step 1.

To remove a linkset, all links associated with the linkset must be removed. This can be verified in step 2.

All X.25 routes associated with the X.25 signaling links in the linkset must be removed. This can be verified in step 3.

The linkset to be removed cannot be referenced by a routeset. This can be verified in step 5.

Canceling the REPT-STAT-LS and RTRV-LS Commands

Because the `rept-stat-ls` and `rtrv-ls` commands used in this procedure can output information for a long period of time, the `rept-stat-ls` and `rtrv-ls` commands can be canceled and the output to the terminal stopped. There are three ways that the `rept-stat-ls` and `rtrv-ls` commands can be canceled.

- Press the F9 function key on the keyboard at the terminal where the `rept-stat-ls` or `rtrv-ls` commands were entered.
- Enter the `canc-cmd` without the `trm` parameter at the terminal where the `rept-stat-ls` or `rtrv-ls` commands were entered.
- Enter the `canc-cmd:trm=<xx>`, where `<xx>` is the terminal where the `rept-stat-ls` or `rtrv-ls` commands were entered, from another terminal other than the terminal where the `rept-stat-ls` or `rtrv-ls` commands were entered. To enter the `canc-cmd:trm=<xx>` command, the terminal must allow Security Administration commands to be entered from it and the user must be allowed to enter Security Administration commands. The terminal's permissions can be verified with the `rtrv-secu-trm` command. The user's permissions can be verified with the `rtrv-user` or `rtrv-secu-user` commands.

For more information about the `canc-cmd` command, go to the *Commands Manual*.

1. Display the current linkset configuration using the `rtrv-ls` command. This is an example of the possible output.

```

rlghncxa03w 06-10-28 11:43:04 GMT EAGLE5 36.0.0

LSN          APCA   (SS7)  SCRN   L3T  SLT          GWS  GWS  GWS
lsa1         240-020-000  scr1   1    1   yes a    1    off off off no  off
lsa2         240-030-000  scr2   1    2   no  c    3    on  on  on yes off
lsa3         240-040-000  scr3   1    3   yes c    5    off off off yes off
ls01         006-006-006  scr1   1    1   yes a    1    on  off off no  off
ls02         008-008-008  scr1   1    1   yes a    1    on  off off yes off

LSN          APCA   (X25)  SCRN   L3T  SLT          GWS  GWS  GWS
ls03         007-007-007  scr1   1    1   yes a    3    on  off off --- off
ls04         003-003-003  scr2   1    1   yes a    1    on  off off --- off
ls6          244-010-004  scr4   1    4   no  a    6    off off off --- off
ls7          244-012-005  scr5   1    5   no  c    3    on  on  on  --- off
ls8          244-012-006  scr6   1    6   no  c    8    off off off --- off

LSN          APCI   (SS7)  SCRN   L3T  SLT          GWS  GWS  GWS
lsi1         1-111-1      scr1   1    1   yes a    1    off off off --- ---
lsi2         1-111-2      scr2   1    2   no  c    3    on  on  on  --- ---
lsi3         1-111-3      scr3   1    3   yes c    5    off off off --- ---

L3T  SLT          GWS  GWS  GWS

```

```

LSN          APCN   (SS7)  SCRN  SET SET BEI LST LNKS ACT MES DIS SLSCI NIS
lsn1         11111          scr1  1  1  yes a  1  off off off ---  off
lsn2         11112          scr2  1  2  no  c  3  on  on  on  ---  off
lsn3         11113          scr3  1  3  yes c  5  off off off ---  off

Link set table is ( 16 of 1024)  2% full

```

2. Select a linkset whose APC is shown in the output of step 1 and is assigned to the X.25 domain. Display the signaling links in that linkset using the `rtrv-ls` command, specifying the linkset name of the linkset you wish to remove from the database. For this example, enter this command.

```
rtrv-ls:lsn=ls04
```

This is an example of the possible output.

```

rlghncxa03w 06-10-28 11:43:04 GMT EAGLE5 36.0.0

LSN          APCA   (X25)  SCRN  L3T SLT          GWS GWS GWS
ls04         003-003-003  scr2  1  1  yes a  1  on  off off ---  off

          CLLI          TFATCABMLQ MTPRSE ASL8
          rlghncwd40z  ---          ---          ---

          IPGWAPC MATELSN          IPTPS LSUSEALM SLKUSEALM GTTMODE
          no          ----- ---          ---          ---          CdPA

          LOC LINK SLC TYPE          L2T          L1          PCR PCR
          1207 a  0  LIMV35  1  SET BPS          MODE TSET  ECM N1 N2
          1207 a  0  LIMV35  1  56000  DTE ---  BASIC ---  -----

Link set table is ( 16 of 1024)  2% full

```

3. Display the X.25 routes in the database by entering the `rtrv-x25-rte` command. This is an example of the possible output.

```

rlghncxa03w 06-10-28 21:16:37 GMT EAGLE5 36.0.0
X25 ADDR          SS7 ADDR          TYPE LOC PORT LC RT LC2NM
11101             44401             pvc 1205 a  01 xpc no
11102             55501             pvc 1206 a  02 pc  no
22201             44401             pvc 1205 a  02 pc  no
22202             55501             pvc 1206 a  01 xpc yes
33301             44401             svca 1207 a  -- pc  no
33302             55501             svca 1207 a  -- pc  no
X.25 ROUTE TABLE IS 30 % FULL

```

4. If any X.25 routes shown in the output of step 3 are assigned to the X.25 signaling links shown in the output of step 2, remove those X.25 routes by using the `dlt-x25-rte` command. For this example, enter these commands.

```
dlt-x25-rte:xaddr=33301:saddr=44401
```

```
dlt-x25-rte:xaddr=33302:saddr=55501
```

When each of these commands have successfully completed, this message should appear.

```

rlghncxa03w 06-10-28 11:45:17 GMT EAGLE5 36.0.0
DLT-X25-RTE: MASP A - X.25 Route table is 4
DLT-X25-RTE: MASP A - COMPLTD

```

5. Display the routes in the database by using the `rtrv-rte` command, specifying the name of the linkset you wish to remove. For this example, enter this command.

```
rtrv-rte:lsn=ls04
```

This is an example of the possible output.

```
rlghncxa03w 06-10-28 11:43:04 GMT EAGLE5 36.0.0
LSN          DPC          RC
ls04         004-004-004  10
```

If the X.25 linkset is shown in the `rtrv-rte` output, perform to the “Removing a Route” procedure in the Database *Administration Manual - SS7* and remove the routes shown in this step from the database.

6. Deactivate the X.25 signaling links in the linkset using the `dact-slk` command. For this example, enter this command.

```
dact-slk:loc=1207:link=a
```

When this command has successfully completed, this message should appear.

```
rlghncxa03w 06-10-28 08:41:12 GMT EAGLE5 36.0.0
Deactivate Link message sent to card
```

7. Verify that the signaling link status is out of service maintenance disabled (OOS-MT-DSBLD) using the `rept-stat-ls` command. This is an example of the possible output.

```
rlghncxa03w 06-10-28 08:40:38 GMT EAGLE5 36.0.0
LSN          APCA          PST          SST          AST
lsa1         240-020-000   IS-NR        Allowed      -----
lsa2         240-030-000   IS-NR        Allowed      GWS
lsa3         240-040-000   IS-NR        Allowed      -----
ls01         006-006-006   IS-NR        Allowed      GWS
ls02         008-008-008   IS-NR        Allowed      GWS
ls03         007-007-007   IS-NR        Allowed      GWS
ls04         003-003-003   OOS-MT-DSBLD Prohibit     GWS

LSN          APCI          PST          SST          AST
lsi1         1-111-1       IS-NR        Allowed      -----
lsi2         1-111-2       IS-NR        Allowed      -----
lsi3         1-111-3       IS-NR        Allowed      -----

LSN          APCN          PST          SST          AST
lsn1         11111         IS-NR        Allowed      -----
lsn2         11112         IS-NR        Allowed      -----
lsn3         11113         IS-NR        Allowed      -----
Command Completed.
```

8. If any signaling links in the linkset are the last signaling link on a card, the card must be placed out of service before that signaling link can be removed. Verify this by entering the `rtrv-slk` command and specifying each of the card locations shown in the output of step 2. Do not specify the link parameter. For this example, enter this command.

```
rtrv-slk:loc=1207
```

This is an example of the possible output.

```
rlghncxa03w 06-10-28 21:17:04 GMT EAGLE5 36.0.0
                                L2T          L1          PCR   PCR
```

LOC	LINK	LSN	SLC	TYPE	SET	BPS	MODE	TSET	ECM	N1	N2
1207	A	LS04	0	LIMV35	1	56000	DTE	---	BASIC	---	-----

9. If the output of step 9 shows that any of the signaling links in the specified linkset are the last signaling links on the card, place that card out of service by using the `rmv-card` command, specifying the card location to be taken out of service. For this example, enter this command.

```
rmv-card:loc=1207
```

When this command has successfully completed, this message should appear.

```
rlghncxa03w 06-10-28 11:11:28 GMT EAGLE5 36.0.0
Card has been inhibited.
```

10. Remove all X.25 signaling links in the linkset using the `dlt-slk` command. For this example, enter this command.

```
dlt-slk:loc=1207:link=a
```

When this command has successfully completed, this message should appear.

```
rlghncxa03w 06-10-28 08:41:17 GMT EAGLE5 36.0.0
DLT-SLK: MASP A - COMPLTD
```

11. Display any entries in the route exception table whose linkset name is the name of the linkset being removed in this procedure. Enter the `rtrv-rtx` command with the `lsn` parameter. For this example, enter this command.

```
rtrv-rtx:lsn=ls04
```

This is an example of the possible output.

```
rlghncxa03w 06-10-10 11:43:04 GMT EAGLE5 36.0.0

  DPCA          RTX-CRITERIA          LSN          RC          APC
  004-004-004   OPCA
                008-008-008          ls04          40          003-003-003

DESTINATION ENTRIES ALLOCATED: 2000
  FULL DPC(s): 15
  EXCEPTION DPC(s): 5
  NETWORK DPC(s): 0
  CLUSTER DPC(s): 1
  TOTAL DPC(s): 21
  CAPACITY (% FULL): 1%
ALIASES ALLOCATED: 12000
  ALIASES USED: 0
  CAPACITY (% FULL): 0%
X-LIST ENTRIES ALLOCATED: 500
```

If the linkset being removed in this procedure is not assigned to a route exception table entry, no entries are displayed in the `rtrv-rtx` output, but a summary of the point code quantities is displayed.

```
rlghncxa03w 06-10-10 11:43:04 GMT EAGLE5 36.0.0

DESTINATION ENTRIES ALLOCATED: 2000
  FULL DPC(s): 15
  EXCEPTION DPC(s): 5
  NETWORK DPC(s): 0
```

```

CLUSTER DPC(s):          1
TOTAL DPC(s):           21
CAPACITY (% FULL):      1%
ALIASES ALLOCATED:      12000
ALIASES USED:           0
CAPACITY (% FULL):      0%
X-LIST ENTRIES ALLOCATED: 500

```

If the name of the linkset being removed in this procedure shown in the LSN column in this step, perform one of these procedures:

- a) Change the name of the linkset in the entries displayed in this step by performing the "Changing a Route Exception Entry" procedure in the *Database Administration Manual - SS7*.
 - b) Remove all the entries displayed in this step by performing the "Removing a Route Exception Entry" procedure in the *Database Administration Manual - SS7*.
12. Remove the linkset using the `dlt-ls` command with the name of the linkset being removed. For this example, enter this command.

```
dlt-ls:lsn=ls04
```

When this command has successfully completed, this message should appear.

```

rlghncxa03w 06-10-28 16:03:12 GMT  EAGLE5 36.0.0
Link set table is ( 15 of 1024)  1% full
DLT-LS: PSM A - COMPLTD

```

13. Verify the changes using the `rtrv-ls` command and specifying the name of the linkset specified in step 12. For this example, enter this command.

```
rtrv-ls:lsn=ls04
```

The following message should appear indicating that the linkset is not in the database.

```
E2346 Cmd Rej: Linkset not defined
```

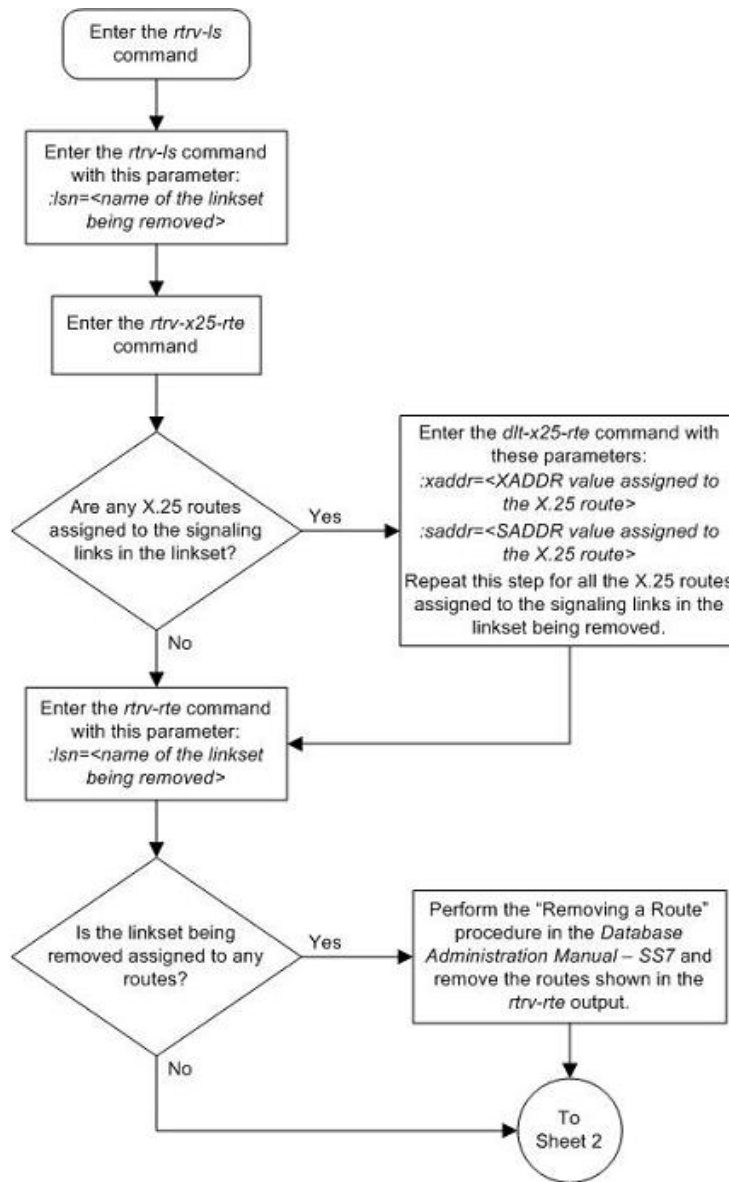
14. Backup the new changes using the `chg-db:action=backup:dest=fixed` command. These messages should appear, the active Maintenance and Administration Subsystem Processor (MASP) appears first.

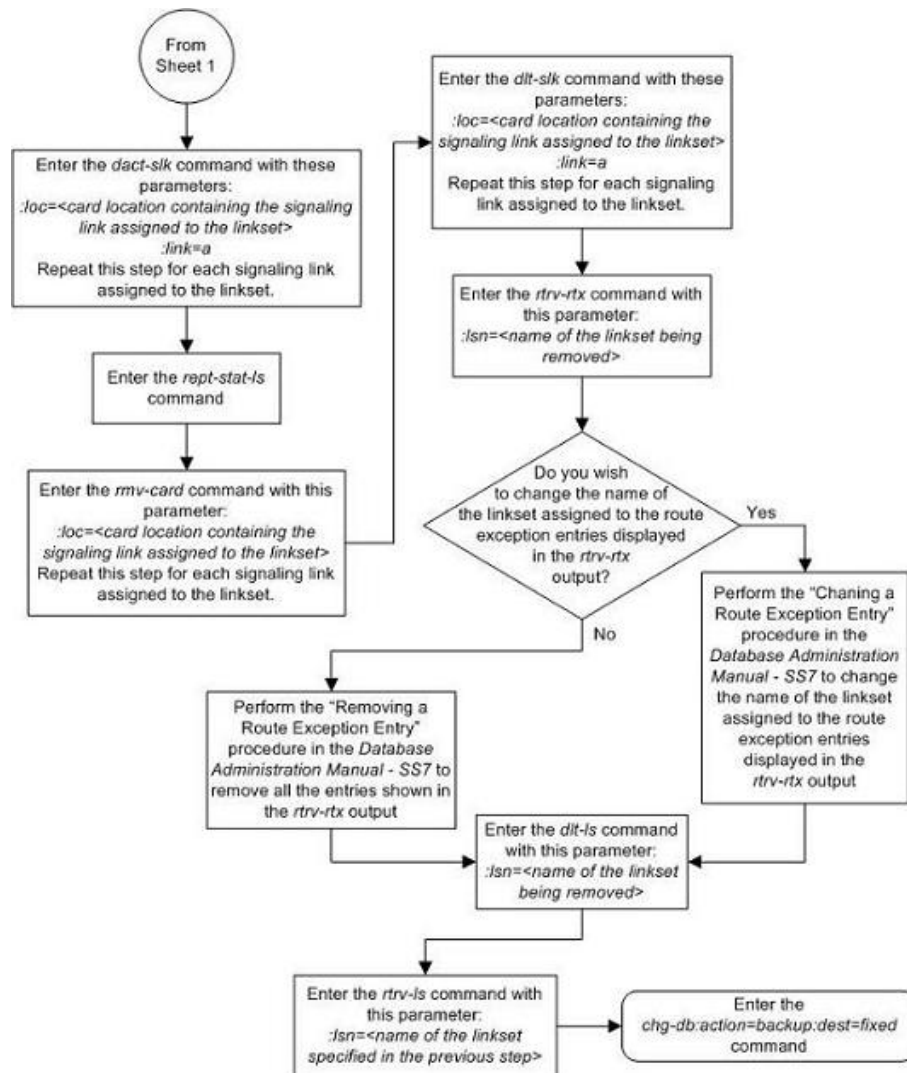
```

BACKUP (FIXED) : MASP A - Backup starts on active MASP.
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk complete.
BACKUP (FIXED) : MASP A - Backup starts on standby MASP.
BACKUP (FIXED) : MASP A - Backup on standby MASP to fixed disk complete.

```

Figure 12: Removing a Linkset Containing X.25 Signaling Links





Changing an X.25 Linkset

This procedure is used to change the definition of linksets that contain X.25 signaling links using the `chg-ls` command. To change SS7 linksets, go to the "Changing an SS7 Linkset" procedure in the *Database Administration Manual – SS7*. The `chg-ls` command uses these parameters.

`:lsn` – The name of the linkset. The linkset name can contain up to 10 characters, with the first character being a letter. However, the SEAS interface supports only eight characters. If this linkset is displayed on the SEAS interface and the linkset name contains more than eight characters, only the first eight characters in the linkset name are shown. If this linkset name contains more than eight characters, and is specified with the linkset commands on the SEAS interface, only the first eight characters can be specified.

`:apc/apca` – ANSI adjacent point code – the point code identifying the node that is next to the EAGLE 5 ISS. ITU point codes cannot be used for an X.25 linkset.

:*spc/spca* – The secondary point code assigned to the linkset. Secondary point codes are used for multiple linksets that have the same APC. Secondary point codes can be used only if the Multiple Linksets to Single Adjacent PC feature is enabled and turned on (shown in the *rtrv-ctrl-feat* output).

Note: See Chapter 2, "Configuring Destination tables," in the *Database Administration Manual - SS7* for a definition of the point code types that are used on the EAGLE 5 ISS.

:*lst* – The linkset type of the specified linkset - A, B, C, D, or E.

:*clli* – The Common Language Location Identifier assigned to this point code. The value of the *clli* parameter is only displayed in the *rtrv-ls* command output when a specific linkset is being displayed with the *rtrv-ls:lsn=<linkset name>* command.

:*sltset* – The signaling link test message record to be associated with the linkset.

:*l3tset* – The level 3 timer set table. This parameter identifies which level three timer set is to be assigned to this linkset. Currently, only one is supported.

:*scrn* – The name of the screenset to be assigned to this linkset if gateway screening is to be used.

:*gwsa* – Gateway screening action determines whether gateway screening (GWS) is on or off for the specified link set.

:*gwsn* – Gateway screening messaging is used to turn on or off the display of messages generated for each screened message. When an MSU is rejected by gateway screening, a message is output to alert personnel of the event.

:*gwsd* – Gateway screening MSU discard is used to turn on or off the discarding of MSUs that bypass the gateway screening function due to load-shedding. Also use this parameter with the redirect function; MSUs that cannot be screened are discarded if you specify *gwsd=on*.

:*bei* – The broadcast exception indicator. This parameter indicates whether TFP (transfer prohibited) messages are allowed to be broadcast on the linkset. The *yes* parameter means TFPs are not broadcast. The *no* parameter means TFPs are broadcast. For an X.25 linkset, the *bei=yes* parameter must be specified, or the *bei* parameter must be omitted.

:*nlsn* – The new name of the linkset

:*gttmode* – The GTT mode/hierarchy identifying the types of global title translation that will be performed on the messages arriving on the specified linkset. The values for this parameter are:

- *sysdflt* – the value of the *dfltgttmode* parameter shown in the *rtrv-sccpopts* command output.
- *cd* - CdPA GTT only
- *cg* - CgPA GTT only
- *acdcd* - Advanced CdPA GTT, CdPA GTT
- *acdcg* - Advanced CdPA GTT, CgPA GTT, CdPA GTT
- *acdcdcg* - Advanced CdPA GTT, CdPA GTT, CgPA GTT
- *cgacdcd* - CgPA GTT, Advanced CdPA GTT, CdPA GTT
- *cgcd* - CgPA GTT, CdPA GTT
- *cdcg* - CdPA GTT, CgPA GTT

For more information on using the *gttmode* parameter, see the Origin Based SCCP Routing Feature section in the *Database Administration Manual - Global Title Translation*.

: `cggtmod` - The calling party GT modification indicator. This parameter specifies whether or not calling party global title modification is required. The values for this parameter are `yes` (calling party global title modification is required) or `no` (calling party global title modification is not required). The default value for the `cggtmod` parameter is `no`. This parameter can be specified only if the AMGTT or AMGTT CgPA Upgrade feature is enabled. Enter the `rtrv-ctrl-feat` command to verify that either the AMGTT or AMGTT CgPA Upgrade feature is enabled. If the AMGTT or AMGTT CgPA Upgrade feature is not enabled, perform the "Activating the Advanced GT Modification Feature" procedure in the *Database Administration Manual - Global Title Translation* procedure to enable the required feature. For more information about the Advanced GT Modification feature, refer to the "Advanced GT Modification Feature" section in the *Database Administration Manual - Global Title Translation*.

: `islsrsb` - selects which bit (1 - 4) of the SLS field to use as the least significant bit for signaling link selection in the link set for all messages on ANSI and ITU linksets on incoming linksets. For more information on the `islsrsb` parameter refer to the "ITU SLS Enhancement" section in the *Database Administration Manual - SS7*. To specify the `islsrsb` parameter, the SLS Bit Rotation by Incoming Linkset feature must be enabled. To enable the SLS Bit Rotation by Incoming Linkset feature, perform the "Activating the SLS Bit Rotation by Incoming Linkset Feature" procedure in the *Database Administration Manual - SS7*.

The linkset to be changed must exist in the database.

If the adjacent point code (APC) is changed, the new APC must be in the destination point code table and must be defined as a true point code in the destination point code table and cannot be an alias point code. The domain of the new APC must be the same as the APC being changed. The new APC of the linkset cannot match the self ID of the EAGLE 5 ISS. The new APC must be a full point code and cannot be a cluster point code.

The signaling link configuration of the linkset can be verified by entering the `rtrv-ls:lsn=<linkset name>` command specifying the linkset name as shown in [Step 15](#) on page 88.

Use the `rtrv-dstn` command to verify that the new APC is in the destination point code table and to verify the domain of the new APC. If the new APC is not shown in the `rtrv-dstn` command output, go to the "Adding a Destination Point Code" in the *Database Administration Manual - SS7* and add the new APC to the destination point code table.

To change the APC of a linkset, all signaling links in the linkset must be in the OOS-MT-DSBLD state.

The domain of the linkset's APC cannot be changed using the `chg-ls` command. For example, if the current domain of the APC is X.25, the new APC must also be in the X.25 domain. To change the domain of the linkset's APC, the linkset must be removed from the database using the `dlt-ls` command and re-entered with the new APC in the different domain using the `ent-ls` command. To remove the X.25 linkset, go to the [Removing a Linkset Containing X.25 Signaling Links](#) on page 67 procedure. To add the X.25 linkset, go to the [Adding an X.25 Linkset](#) on page 45 procedure. To add an SS7 linkset, go to the "Adding an SS7 Linkset" procedure in the *Database Administration Manual - SS7*.

The `gwsa`, `gwsn`, and `gwsd` parameters can only be specified if the `scrn` parameter is defined. Enter the `rtrv-ls` command to verify that the `scrn` parameter is defined for the specified linkset. If the `scrn` parameter is defined, a gateway screening screen set name is shown in the `SCRN` field of the output. This gateway screening screen set name must also be defined as a gateway screening screen set entity. This can be verified with the `rtrv-scrset` command.

The `gwsd` parameter allows the discarding of messages that should have gone through the gateway screening process, but could not. The `gwsd` parameter is only intended to be used with the database transport access (DTA) feature. If you are not using the DTA feature, the `gwsd` parameter should not be specified or should be set to `off` (`gwsd=off`).

If the `gwsa=off` parameter is specified, then the `gwsd=off` parameter must be specified.



CAUTION: When Gateway Screening is in the screen test mode, as defined by the linkset parameters `gwsa=off` and `gwsd=on`, the gateway screening action in the gateway screening stop action set specified by the `actname` parameter of the gateway screening screen set at the end of the gateway screening process will be performed.

An X.25 APC cannot be referenced by an X.25 route that has the logical channel to network management function turned on (`lc2nm=yes`). Use the `rtrv-x25-dstn` command to verify which point codes are assigned to each X.25 address. Use the `rtrv-x25-rte` to verify which X.25 address is assigned to each X.25 route and to verify which X.25 route has the logical channel to network management function turned on, shown by the entry `yes` in the `LC2NM` field.

The word `SEAS` cannot be used as a value for the `scrn` parameter of the `chg-ls` command. The word `SEAS` is used in the `rtrv-ls` command output, in the `SCRN` field, to show gateway linksets created on the SEAS interface. A gateway linkset combines the functions of a gateway screening screen set and an SS7 linkset specifying the `gwsa=on` and `scrn` parameters. Like an EAGLE 5 ISS gateway screening screen set, a gateway linkset defines the screening references that are to be used to screen the messages on the linkset. It also defines the linkset whose messages are to be screened. A gateway linkset can only be configured from a SEAS terminal and not from an EAGLE 5 ISS terminal.

If the `clli` parameter is specified with the `chg-ls` command, the value of the `clli` parameter must match the CLLI value of the adjacent point code of the linkset. The CLLI value of the adjacent point code is shown in the `CLLI` field of the `rtrv-dstn` command.

To provision more than one linkset with the same APC, the Multiple Linksets to Single Adjacent PC feature must be enabled and turned on. The database can contain a maximum of six linksets that have the same APC. A secondary point code (shown in the `rtrv-spc` output) must be specified with the linkset. The network type and format of the secondary point code must be the same as the APC of the linkset. Secondary point codes cannot be assigned to the APC of the linkset when the point code is provisioned in the database with the `ent-dstn` or `chg-dstn` commands. When these linksets are assigned to routes

The secondary point code that is assigned to a linkset can be removed from the linkset by specifying the value `none` for the `spc/spca` parameter. A secondary point code can be removed from only one of the linksets in a group of linksets that have the same APC.

In this procedure, the examples are used to change the definition of a linkset named `ls7`. The attributes of linkset `ls7` that are changed in this example are the APC, the gateway screening screen set name, and to change the linkset type to `A`. For any optional parameters not specified with the `chg-ls` command, the values for those parameters are not changed.

Other Optional Parameters

The `chg-ls` command contains other optional parameters that are not used to configure an X.25 linkset. These parameters are discussed in more detail in the *Commands Manual* or in these sections.

- The [Configuring a Linkset for the GSM MAP Screening Feature](#) on page 309 procedure
- These procedures in the *Database Administration Manual - SS7*

- Adding an SS7 Linkset
- Changing an SS7 Linkset
- These procedures in the *Database Administration Manual - IP⁷ Secure Gateway*
 - Configuring an IPGWx Linkset
 - Adding a Mate IPGWx Linkset to another IPGWx Linkset
 - Removing a Mate IPGWx Linkset from another IPGWx Linkset
 - Changing an IPSG M3UA Linkset
 - Changing an IPSG M2PA Linkset

Canceling the RTRV-DSTN and RTRV-LS Commands

Because the `rtrv-dstn` and `rtrv-ls` commands used in this procedure can output information for a long period of time, the `rtrv-dstn` and `rtrv-ls` commands can be canceled and the output to the terminal stopped. There are three ways that the `rtrv-dstn` and `rtrv-ls` commands can be canceled.

- Press the F9 function key on the keyboard at the terminal where the `rtrv-dstn` or `rtrv-ls` commands were entered.
- Enter the `canc-cmd` without the `trm` parameter at the terminal where the `rtrv-dstn` or `rtrv-ls` commands were entered.
- Enter the `canc-cmd:trm=<xx>`, where `<xx>` is the terminal where the `rtrv-dstn` or `rtrv-ls` commands were entered, from another terminal other than the terminal where the `rtrv-dstn` or `rtrv-ls` commands were entered. To enter the `canc-cmd:trm=<xx>` command, the terminal must allow Security Administration commands to be entered from it and the user must be allowed to enter Security Administration commands. The terminal's permissions can be verified with the `rtrv-secu-trm` command. The user's permissions can be verified with the `rtrv-user` or `rtrv-secu-user` commands.

For more information about the `canc-cmd` command, go to the *Commands Manual*.

1. Display the current linkset configuration using the `rtrv-ls` command. This is an example of the possible output.

```

rlghncxa03w 06-10-28 11:43:04 GMT EAGLE5 37.5.0
                                     L3T SLT          GWS GWS GWS
LSN      APCA   (SS7)  SCRN  SET  SET  BEI  LST  LNKS  ACT  MES  DIS  SLSCI  NIS
lsa1     240-020-000  scr1  1   1   yes a   1   off  off  off  no   off
lsa2     240-030-000  scr2  1   2   no  c   3   on  on  on  yes  off
lsa3     240-040-000  scr3  1   3   yes c   5   off  off  off  yes  off
ls1      240-012-004  scr1  1   1   yes a   4   off  off  off  yes  off
ls2      240-012-005  scr2  1   2   yes c   2   on  on  on  yes  off
ls3      240-012-006  scr3  1   3   yes c   5   off  off  off  no   off
ls01     002-002-002  scr1  1   1   no  c   0   on  off  off  yes  off
ls02     004-004-004  scr1  1   1   no  b   0   on  off  off  no   off
ls03     003-003-003  scr1  1   1   no  d   0   on  off  off  no   off
ls04     001-002-003  scr2  1   1   no  a   0   on  off  on  yes  off
ls06     002-007-008  scr4  1   1   no  a   0   on  off  off  yes  off

                                     L3T SLT          GWS GWS GWS
LSN      APCA   (X25)  SCRN  SET  SET  BEI  LST  LNKS  ACT  MES  DIS  SLSCI  NIS
ls6      244-010-004  scr4  1   4   no  a   6   off  off  off  ---  off
ls7      244-012-005  scr5  1   5   no  c   3   on  on  on  ---  off
ls8      244-012-006  scr6  1   6   no  c   8   off  off  off  ---  off

```

LSN	APCI (SS7)	SCRN	L3T	SLT	BEI	LST	LNKS	ACT	MES	DIS	SLSCI	NIS
lsi1	1-111-1	scr1	1	1	yes	a	1	off	off	off	---	---
lsi2	1-111-2	scr2	1	2	no	c	3	on	on	on	---	---
lsi3	1-111-3	scr3	1	3	yes	c	5	off	off	off	---	---
lsi7	3-150-4	scr1	1	1	no	a	0	on	off	off	---	---

LSN	APCN (SS7)	SCRN	L3T	SLT	BEI	LST	LNKS	ACT	MES	DIS	SLSCI	NIS
lsn1	11111	scr1	1	1	yes	a	1	off	off	off	---	off
lsn2	11112	scr2	1	2	no	c	3	on	on	on	---	off
lsn3	11113	scr3	1	3	yes	c	5	off	off	off	---	off
lsn5	10685	scr3	1	1	no	a	0	on	off	off	---	off

Link set table is (22 of 1024) 2% full

If you wish to change the APC of a linkset to an APC that is assigned to another linkset and multiple linksets with the same APC are shown in the `rtrv-ls` output, continue the procedure with [Step 3](#) on page 80. If multiple linksets with the same APC are not shown in the `rtrv-ls` output, continue the procedure with [Step 2](#) on page 79.

If you wish to change the secondary point code that is assigned to a linkset and multiple linksets with the same APC are shown in the `rtrv-ls` output, continue the procedure with [Step 3](#) on page 80. If multiple linksets with the same APC are not shown in the `rtrv-ls` output, continue the procedure with [Step 2](#) on page 79.

If you wish to change the APC of a linkset to an APC that is not assigned to another linkset or do not wish to change the secondary point code that is assigned to a linkset, continue the procedure with [Step 10](#) on page 85.

If neither the APC of the linkset nor the secondary point code that is assigned to the linkset is being changed, continue the procedure with [Step 12](#) on page 85.

- Verify whether or not the Multiple Linksets to Single Adjacent PC feature is enabled and turned on by entering this command.

```
rtrv-ctrl-feat:partnum=893017901
```

This is an example of the possible output.

```
rlghncxa03w 07-08-21 15:48:20 EST 37.5.0
The following features have been permanently enabled:

Feature Name          Partnum  Status  Quantity
Multiple Linkset to APC 893019701 on      ----

The following features have been temporarily enabled:

Feature Name          Partnum  Status  Quantity  Trial Period Left
Zero entries found.

The following features have expired temporary keys:

Feature Name          Partnum
Zero entries found.
```

If the Multiple Linksets to Single Adjacent PC feature is not enabled or turned on, perform the "Activating the Multiple Linksets to Single Adjacent PC (MLS) Feature" procedure in the *Database Administration Manual - SS7* to enable and turn on this feature. After this feature has been enabled and turned on, and the APC of the linkset is being changed, continue the procedure

with [Step 3](#) on page 80. If only the secondary point code that is assigned to the linkset is being changed, continue the procedure with [Step 4](#) on page 80.

If the Multiple Linksets to Single Adjacent PC feature is enabled and turned on, and the APC of the linkset is being changed, continue the procedure with [Step 3](#) on page 80. If only the secondary point code that is assigned to the linkset is being changed, continue the procedure with [Step 4](#) on page 80.

3. A maximum of six linksets can be assigned to an APC. Verify the number of linksets that are assigned to the new APC of the linkset that is being changed by entering the `rtrv-ls` command with the new APC of the linkset. For this example, enter this command.

```
rtrv-ls:apca=002-002-002
```

This is an example of the possible output.

```
rlghncxa03w 07-08-22 08:09:26 EST 37.5.0
APCA = 002-002-002

LSN          SPCA          SCRN SET SET BEI LST LNKS ACT MES DIS SLSCI NIS
lsn2         001-001-002    none 1 1 no A 2 off off off no off
lsn40        020-020-021    none 1 1 no A 2 off off off no off
lsn41        021-021-021    none 1 1 no A 2 off off off no off
lsn42        022-022-022    none 1 1 no A 3 off off off no off

Link set table is (29 of 1024) 3% full.
```

If six linksets are shown in this step, choose another APC for the linkset from the `rtrv-ls` output and repeat this step.

If one to five linksets are shown in this step, continue this procedure with [Step 4](#) on page 80.

4. Display the linkset that is being changed by entering the `rtrv-ls` command with the name of the linkset. For this example, enter this command.

```
rtrv-ls:lsn=ls04
```

This is an example of the possible output.

```
rlghncxa03w 06-10-17 11:43:04 GMT EAGLE5 37.5.0
LSN          APCA (SS7) SCRN SET SET BEI LST LNKS ACT MES DIS SLSCI NIS
ls04         001-002-003 scr2 1 1 no a 4 off off off yes off

          SPCA          CLLI          TFATCABMLQ MTPRSE ASL8
          -----          -----          ---          no

IPGWAPC MATELSN IPTPS LSUSEALM SLKUSEALM GTTMODE
no          -----          ---          ---          ---          CdPA

          L2T          L1          PCR PCR
          SET BPS MODE TSET ECM N1 N2
1205 b 0 LIMDS0 1 56000 --- --- BASIC ---
1213 b 1 LIMOCU 1 56000 --- --- BASIC ---
1211 a 2 LIMDS0 1 56000 --- --- BASIC ---
1207 b 3 LIMV35 1 64000 DCE OFF BASIC ---

Link set table is ( 24 of 1024) 2% full
```

Changing the APC of the Linkset

If the APC of the linkset is being changed:

- To use the APC displayed in [Step 3](#) on page 80, the secondary point code assigned to the linkset shown in this step cannot be shown in [Step 3](#) on page 80, unless the secondary point code that is assigned to the linkset shown in this step is changed.
 - If you wish to change the secondary point code assigned to the linkset shown in this step, refer to the [Changing the Secondary Point Code of the Linkset](#) on page 81 section in this step.
 - If you do not wish to change the secondary point code assigned to the linkset shown in this step, choose another APC for the linkset from the `rtrv-ls` output in [Step 1](#) on page 78 and repeat this procedure from [Step 2](#) on page 79.
- If the secondary point code assigned to the linkset shown in this step is not shown in [Step 3](#) on page 80, the APC displayed in [Step 3](#) on page 80 can be used as the APC of the linkset that is being changed. The secondary point code that is assigned to the linkset can be changed along with the APC of the linkset.
 - If you wish to change the secondary point code that is assigned to the linkset, refer to the [Changing the Secondary Point Code of the Linkset](#) on page 81 section in this step.
 - If you only wish to change the APC of the linkset, continue the procedure with [Step 10](#) on page 85.

Changing the Secondary Point Code of the Linkset

If the secondary point code assigned to the linkset shown in this step is being changed:

- and a secondary point code is not assigned to the linkset, continue the procedure with [Step 8](#) on page 83.
 - and a secondary point code is assigned to the linkset, the secondary point code can be changed to another secondary point code value or can be removed from the linkset.
 - If you wish to change the secondary point code to another secondary point code value, continue the procedure with [Step 8](#) on page 83.
 - If you wish to remove the secondary point code value from the linkset, continue the procedure with [Step 7](#) on page 83.
5. Only one linkset can be assigned to an APC that does not have a secondary point code. Verify the secondary point codes of the linksets that are assigned to the APC shown in [Step 4](#) on page 80 by entering the `rtrv-ls` command with the APC of the linkset shown in [Step 4](#) on page 80. For this example, enter this command.

```
rtrv-ls:apca=001-002-003
```

This is an example of the possible output.

```
rlghncxa03w 07-08-22 08:09:26 EST 37.5.0
APCA      =      001-002-003
LSN              SPCA              L3T SLT              GWS GWS GWS
ls04      ----- scr2 1 1 no a 4 off off off yes off
Link set table is (29 of 1024) 3% full.
```

If one linkset is shown in this step that does not have a secondary point code, then no secondary point codes can be removed from any of the linksets shown in this step.

- The secondary point code value can be changed to another secondary point code value. If you wish to change the secondary point code value to another secondary point code value, continue the procedure with [Step 6](#) on page 82.
- If the secondary point code value will not be changed to another secondary point code value and the APC of the linkset is being changed, [Step 3](#) on page 80 and [Step 4](#) on page 80 were performed, skip continue the procedure with [Step 10](#) on page 85. If the APC of the linkset is not being changed, continue the procedure with [Step 12](#) on page 85.

If all the linksets shown in this step have a secondary point code, then the secondary point code from one of these linksets can be removed. If the APC of the linkset is also being changed, [Step 3](#) on page 80 and [Step 4](#) on page 80 were performed, continue the procedure with [Step 10](#) on page 85. If the APC of the linkset is not being changed, continue the procedure with [Step 12](#) on page 85.

6. Display the secondary point codes by entering the `rtrv-spc` command. This is an example of the possible output.

```
rlghncxa03w 07-08-22 09:39:30 EST 37.5.0
SPC (Secondary Point Codes)

SPCA
    020-020-020
    020-020-021
    021-021-021
    022-022-022
    026-026-026
    026-026-027
    026-026-028
    026-026-029
    200-010-000

SPC-I
none

SPC-N
    00002

SPC-N24
none

Secondary Point Code table is (10 of 40) 25% full.
```

If the desired secondary point code is shown in this step, continue the procedure with [Step 7](#) on page 83.

If the desired secondary point code is not shown in this step, perform the "Adding a Secondary Point Code" procedure in the *Database Administration Manual - SS7* to add the desired secondary point code. The network type of the new secondary point code must be the same as the APC of the linkset. If the APC of the linkset is being changed, after the secondary point code has been added, continue the procedure with [Step 10](#) on page 85. If the APC of the linkset is not being changed, after the secondary point code has been added, continue the procedure with [Step 12](#) on page 85.

- Verify the secondary point codes of the linksets that are assigned to the APC shown in [Step 4](#) on page 80 by entering the `rtrv-ls` command with the APC of the linkset shown in [Step 4](#) on page 80. For this example, enter this command.

Note: If [Step 5](#) on page 81 was performed, displaying the linksets that are assigned to the APC shown in [Step 4](#) on page 80 does not have to be performed.

```
rtrv-ls:apca=001-002-003
```

This is an example of the possible output.

```
rlghncxa03w 07-08-22 08:09:26 EST 37.5.0
APCA      =      001-002-003

LSN              SPCA              L3T SLT              GWS GWS GWS
ls04            ----- scr2 1 1 no a 4 off off off yes off

Link set table is (29 of 1024) 3% full.
```

The secondary point code value that will be assigned to the linkset that is being changed cannot be assigned to any of the linksets shown in this step or in [Step 5](#) on page 81. Choose another secondary point code by repeating [Step 6](#) on page 82 and [Step 7](#) on page 83.

The secondary point code value that will be assigned to the linkset that is being changed is not assigned to any of the linksets shown in this step or in [Step 5](#) on page 81, continue the procedure with either [Step 10](#) on page 85 or [Step 12](#) on page 85. If the APC of the linkset is also being changed, [Step 3](#) on page 80 and [Step 4](#) on page 80 were performed, continue the procedure with [Step 10](#) on page 85. If the APC of the linkset is not being changed, continue the procedure with [Step 12](#) on page 85.

- Display the point codes in the destination point code table by using the `rtrv-dstn` command. This is an example of the possible output.

```
rlghncxa03w 06-10-28 16:02:05 GMT EAGLE5 37.5.0
DPCA      CLLI      BEI ELEI ALIASI ALIASN DOMAIN
004-004-004 ----- yes --- ----- SS7
005-005-005 ----- yes --- ----- SS7
006-006-006 ----- no --- ----- SS7
008-008-008 ----- no --- ----- SS7
240-012-004 rlghncbb001 yes --- 1-111-1 11111 SS7
240-012-005 rlghncbb002 yes --- 1-112-2 11112 SS7
240-012-006 rlghncbb003 yes --- 1-112-3 11113 SS7
240-012-008 ----- yes --- 1-113-5 11114 SS7
001-001-001 ----- yes --- ----- X25
002-002-002 ----- yes --- ----- X25
003-003-003 ----- yes --- ----- X25
007-007-007 ----- yes --- ----- X25
244-010-004 ls06clli no --- ----- X25
244-012-005 ls07clli no --- ----- X25
244-012-006 ls08clli no --- ----- X25
244-012-007 ----- no --- ----- X25
244-012-008 ----- no --- ----- X25

DPCI      CLLI      BEI ELEI ALIASA ALIASN DOMAIN
2-131-1   rlghncbb023 no --- 222-210-000 12001 SS7
2-131-2   ----- no --- 222-211-001 12002 SS7
2-131-3   ----- no --- 222-211-002 12003 SS7

DPCN      CLLI      BEI ELEI ALIASA ALIASI DOMAIN
11211    rlghncbb013 no --- 222-200-200 2-121-1 SS7
```

```
11212      rlgncbb013 no --- 222-200-201 2-121-2 SS7
```

```
Destination table is (22 of 2000) 1% full
```

If the new APC of the linkset is not shown in the `rtrv-dstn` output, go to the “Adding a Destination Point Code” procedure in the *Database Administration Manual - SS7* and add the point code to the database. Continue the procedure with [Step 11](#) on page 85.

If the new APC of the linkset is shown in the `rtrv-dstn` output, continue the procedure with [Step 9](#) on page 84.

- The adjacent point code of the linkset cannot be the DPC of any exception route. Verify that the adjacent point code of the new linkset is not the DPC of any exception route by entering the `rtrv-rtx` command with the `dpc/dpca` parameter. The `dpc/dpca` parameter value is the adjacent point code value that will be specified for the linkset. For this example, enter this command.

Note: If the adjacent point code was added in [Step 8](#) on page 83, continue the procedure with [Step 10](#) on page 85.

```
rtrv-rtx:dpca=244-012-008
```

This is an example of the possible output.

```
rlghncxa03w 06-10-10 11:43:04 GMT EAGLE5 37.5.0
  DPCA          RTX-CRITERIA          LSN          RC          APC
  244-012-008  OPCA
                   007-008-009          1s01         20         002-002-002
                   008-008-100          1s02         40         004-004-004

DESTINATION ENTRIES ALLOCATED: 2000
  FULL DPC(s):                13
  EXCEPTION DPC(s):           5
  NETWORK DPC(s):              0
  CLUSTER DPC(s):              1
  TOTAL DPC(s):                19
  CAPACITY (% FULL):           1%
ALIASES ALLOCATED:            12000
  ALIASES USED:                 0
  CAPACITY (% FULL):           0%
X-LIST ENTRIES ALLOCATED:     500
```

If the adjacent point code of the linkset is not the DPC of a route exception table entry, no entries are displayed in the `rtrv-rtx` output, but a summary of the point code quantities is displayed, as shown in the following output example.

```
rlghncxa03w 06-10-10 11:43:04 GMT EAGLE5 37.5.0

DESTINATION ENTRIES ALLOCATED: 2000
  FULL DPC(s):                15
  EXCEPTION DPC(s):           5
  NETWORK DPC(s):              0
  CLUSTER DPC(s):              1
  TOTAL DPC(s):                21
  CAPACITY (% FULL):           1%
ALIASES ALLOCATED:            12000
  ALIASES USED:                 0
```

```

CAPACITY (% FULL):          0%
X-LIST ENTRIES ALLOCATED:   500

```

If the point code specified in this step is shown in the DPCA column in this step, the point code value cannot be used as an adjacent point code unless one of two actions are taken:

- a) Choose another adjacent point code value and repeat this procedure from [Step 1](#) on page 78 .
 - b) Remove all the entries displayed in this step by performing the “Removing a Route Exception Entry” procedure in the *Database Administration Manual - SS7* .
10. Display the X.25 destinations in the database by entering the `rtrv-x25-dstn` command with the point code shown in the `rtrv-dstn` output in [Step 8](#) on page 83.

```
rtrv-x25-dstn:dpca=244-012-008
```

This is an example of the possible output.

```

rlghncxa03w 06-10-28 11:43:04 GMT EAGLE5 37.5.0
X25 ADDR          SS7 DPC          SSN
234234231         244-012-008  113
X.25 DSTN TABLE IS  30 % FULL

```

If the new APC of the linkset is not shown in the `rtrv-x25-dstn` output, continue the procedure with [Step 12](#) on page 85.

If the new APC of the linkset is shown in the `rtrv-x25-dstn` output, continue the procedure with [Step 11](#) on page 85.

11. Display the X.25 routes by entering the `rtrv-x25-rte` command with the `xaddr` parameter value shown in [Step 10](#) on page 85. For this example, enter this command.

```
rtrv-x25-rte:xaddr=234234231
```

This is an example of the possible output.

```

rlghncxa03w 06-10-28 21:16:37 GMT EAGLE5 37.5.0
X25 ADDR          SS7 ADDR          TYPE LOC  PORT  LC  RT  LC2NM
234234231         44401              pvc  1205  a    01  xpc  no
X.25 ROUTE TABLE IS  30 % FULL

```

If the LC2NM value in the X.25 route is no, continue the procedure with [Step 12](#) on page 85.

If the LC2NM value in the X.25 route is yes, the new linkset APC cannot be used in the X.25 linkset. To use the new linkset APC in the X.25 linkset, the LC2NM value of the X.25 route associated with the new linkset APC must be no. The LC2NM value must be changed to no, or another X.25 point code must be chosen.

To chose another X.25 point code, repeat this procedure from [Step 1](#) on page 78 .

To change the LC2NM value, perform the [Changing an X.25 Route](#) on page 138 procedure. Then continue the procedure with [Step 12](#) on page 85.

12. Verify that the gateway screening screen set that is to be assigned to the linkset is in the database by entering the `rtrv-scrset` command.

Note: If the screen set assigned to the linkset is not being changed, or if the screen set that you wish to assign to the linkset is assigned to other linksets (shown in the SCRNM field of the `rtrv-ls` command output in [Step 1](#) on page 78), continue the procedure with [Step 13](#) on page 87.

This is an example of the possible output.

```
rlghncxa03w 06-10-28 16:37:05 GMT EAGLE5 37.5.0
ENTIRE GWS DATABASE IS 1% FULL
CDPA + AFTPC TABLES ARE 1% FULL
THERE ARE 243 SCREEN SETS AVAILABLE

THE FOLLOWING ARE OVER 80% FULL:
SCRN  NSFI      NSR/ACT  FULL  RULES  TABLES  DESTFLD
SCRN  NSFI      NSR/ACT  FULL  RULES  TABLES  DESTFLD
fld1  OPC        fld2      1%    5      4        NO
gws1  OPC        gws4      1%    9      7        NO
gws2  BLKOPC     gws5      1%    5      4        NO
ls01  SIO        ls02      1%    3      3        YES
scr1  OPC        opc1      1%    37     10       YES
scr2  OPC        opc2      2%    75     22       YES
scr3  OPC        opc3      2%    75     22       YES
scr4  OPC        opc1      51%   2075   22       NO
scr5  OPC        opc1      51%   2075   22       YES
scr6  OPC        opc1      51%   2075   22       NO
ss28  OPC        opc1      51%   2075   22       YES
wrld1 SIO        iec       1%    6      5        YES
```

If you wish to examine the contents of a particular screen set, enter the `rtrv-scrset:scrn=<screen set name>` command specifying a screen set name shown in the SCRN field of either the `rtrv-scrset` command executed in this step or the `rtrv-ls` command executed in [Step 1](#) on page 78.

For this example, enter the `rtrv-scrset:scrn=scr1` command.

This is an example of the possible output.

```
rlghncxa03w 06-10-14 16:39:04 GMT EAGLE5 37.5.0
SCRN  NSFI      NSR/ACT  RULES  DESTFLD
scr1  OPC        opc1      3      Y
      BLKDPC   bkd2      2
      CGPA     cgp1      3
      TT      tt1       3
      TT      tt2       3
      TT      tt3       4
      CDPA    cdp1      3
      CDPA    cdp2      3
      CDPA    cdp3      4
      AFTPC   end1      9
```

The output of this command shows the screens that make up the screen set. These screens can be examined by entering the gateway screening retrieve command corresponding to the value in the NSFI field and specifying the screening reference name shown in the NSR/ACT field. For this example, you enter these commands to examine the screens in the screen set.

```
rtrv-scr-opc:sr=opc1
```

```
rtrv-scr-blkdpc:sr=bkd2
```

```
rtrv-scr-cgpa:sr=cgp1
```

```
rtrv-scr-tt:sr=tt1
```

```
rtrv-scr-tt:sr=tt2
```

```
rtrv-scr-tt:sr=tt3
```

```
rtrv-scr-cdpa:sr=cdp1
rtrv-scr-cdpa:sr=cdp2
rtrv-scr-cdpa:sr=cdp3
rtrv-scr-aftpc:sr=end1
```

If the screen set that you wish to assign to the linkset is not in the database, go to the "Adding a Screen Set" procedure in the Database *Administration Manual - Gateway Screening* and add the screen set to the database.

13. Remove the current screen set assigned to this linkset by entering the `chg-ls` command with the `scrn=none` parameter. For this example, enter this command.

Note: If the linkset being changed does not have a screen set assigned to it (the `SCRN` value for the linkset is `NONE`), continue the procedure with [Step 14](#) on page 87.

```
chg-ls:lsn=ls7:scrn=none
```

When this command has successfully completed, this message should appear.

```
rlghncxa03w 06-10-07 08:38:45 GMT EAGLE5 37.5.0
Link set table is ( 24 of 1024) 2% full
CHG-LS: MASP A - COMPLTD
```

14. The `gttmode` parameter can be specified with the values `acdc`, `cgacdc`, `acdcg`, `acdcg`, `cgcd`, `cdcg`, or `cg` only if the Origin Based SCCP Routing feature is enabled. Enter the `rtrv-ctrl-feat` command with the part number of the Origin Based SCCP Routing feature to verify whether or not the Origin Based SCCP Routing feature is enabled. Enter this command.

Note: If the `gttmode` parameter is not being specified for the linkset, continue the procedure with [Step 15](#) on page 88.

Note: If the `gttmode` parameter is being specified for the linkset with either the `sysdf1t` or `cd` values, continue the procedure with [Step 15](#) on page 88.

```
rtrv-ctrl-feat:partnum=893014301
```

This is an example of the possible output.

```
rlghncxa03w 06-10-10 11:43:04 GMT EAGLE5 37.5.0
The following features have been permanently enabled:

Feature Name          Partnum   Status  Quantity
Origin Based SCCP Routing 893014301 on      ----

The following features have been temporarily enabled:

Feature Name          Partnum   Status  Quantity   Trial Period Left
Zero entries found.

The following features have expired temporary keys:

Feature Name          Partnum
Zero entries found.
```

If the Origin Based SCCP routing feature is enabled, continue the procedure with [Step 15](#) on page 88.

If the Origin Based SCCP routing feature is not enabled, perform the "Activating the Origin Based SCCP Routing Feature" procedure in the Database *Administration Manual - Global Title*

Translation to enabled the Origin Based SCCP Routing feature. After the Origin Based SCCP Routing feature is enabled, continue the procedure with [Step 15](#) on page 88.

15. Display the current linkset configuration of the linkset to be changed using the `rtrv-ls` command with the linkset name. For this example, enter this command.

```
rtrv-ls:lsn=ls7
```

This is an example of the possible output.

```
rlghncxa03w 06-10-28 11:43:04 GMT EAGLE5 37.5.0
                                L3T SLT                                GWS GWS GWS
LSN          APCA  (X25)  SCRN  SET SET BEI LST LNKS ACT MES DIS SLSCI NIS
ls7          244-012-005  scr5  1  5  no  c  3  on  on  on  ---  off

                                CLLI                                TFATCABMLQ MTPRSE ASL8
ls07clli    ---                                ---                                ---

IPGWAPC MATELSN          IPTPS LSUSEALM SLKUSEALM GTTMODE
no          -----          ---          ---          ---          CdPA

                                L2T                                L1                                PCR PCR
LOC LINK SLC TYPE          SET BPS MODE TSET ECM N1 N2
1205 A  0  LIMV35  -  56000 DTE  --  BASIC ---  ----
1206 A  1  LIMV35  -  56000 DTE  --  BASIC ---  ----
1207 A  2  LIMV35  -  64000 DTE  --  BASIC ---  ----

Link set table is ( 22 of 1024) 2% full
```

16. The `cggtmod` parameter cannot be specified with the `chg-ls` command unless the AMGTT or AMGTT CgPA Upgrade feature is enabled. If the CGGTMOD column is shown in the `rtrv-ls` output, the AMGTT or AMGTT CgPA Upgrade feature is enabled.
 - If the `cggtmod` parameter will not be specified with the `chg-ls` command, continue the procedure with [Step 17](#) on page 88 .
 - If the CGGTMOD column is shown in the `rtrv-ls` output in [Step 15](#) on page 88, and you wish to specify the `cggtmod` parameter with the `chg-ls` command, continue the procedure with [Step 17](#) on page 88 .
 - If the CGGTMOD column is not shown in the `rtrv-ls` output in [Step 15](#) on page 88, and you wish to specify the `cggtmod` parameter with the `chg-ls` command, perform the "Activating the Advanced GT Modification Feature" procedure in the *Database Administration Manual - Global Title Translation* procedure to enable the required feature. After the AMGTT or AMGTT CgPA Upgrade feature is enabled, continue the procedure with [Step 17](#) on page 88 .
17. The `islsrsb` parameter can be specified only if the SLS Bit Rotation by Incoming Linkset feature is enabled. Enter the `rtrv-ctrl-feat` command with the part number of the SLS Bit Rotation by Incoming Linkset feature to verify whether or not the SLS Bit Rotation by Incoming Linkset feature is enabled. Enter this command.

Note: If the `islsrsb` parameter is not being specified for the linkset, continue the procedure with [Step 18](#) on page 89.

```
rtrv-ctrl-feat:partnum=893026501
```

This is an example of the possible output.

```
rlghncxa03w 08-12-10 11:43:04 GMT EAGLE5 40.0.0
The following features have been permanently enabled:
```



```
Feature Name      Partnum  Status  Quantity
ISLSBR           893026501 on      ----
```

The following features have been temporarily enabled:

```
Feature Name      Partnum  Status  Quantity  Trial Period Left
Zero entries found.
```

The following features have expired temporary keys:

```
Feature Name      Partnum
Zero entries found.
```

If the SLS Bit Rotation by Incoming Linkset feature is enabled, continue the procedure with [Step 18](#) on page 89.

If the SLS Bit Rotation by Incoming Linkset feature is not enabled, perform the “Activating the SLS Bit Rotation by Incoming Linkset Feature” procedure in the *Database Administration Manual - SS7* to enable the SLS Bit Rotation by Incoming Linkset feature. After the SLS Bit Rotation by Incoming Linkset feature is enabled, continue the procedure with [Step 18](#) on page 89.

- Deactivate the signaling links in the linkset using the `dact-slk` command. For this example, enter these commands.

```
dact-slk:loc=1205:link=a
dact-slk:loc=1206:link=a
dact-slk:loc=1207:link=a
```

When each of these commands have successfully completed, this message should appear.

```
rlghncxa03w 06-10-28 08:41:12 GMT  EAGLE5 37.5.0
Deactivate Link message sent to card
```

- Change the linkset configuration using the `chg-ls` command. For this example, enter this command.

```
chg-ls:lsn=ls7:apca=244-012-008:scrn=scr7:lst=a:gttmode=cgacdcd
```

This command example changes the APC of the linkset to 244-012-008, changes the gateway screening screen set name to `scr7`, changes the linkset type to `A`, and changes the GTT mode to `CgPA GTT, Advanced CdPA GTT, CdPA GTT`.

.When this command has successfully completed, this message should appear.

```
rlghncxa03w 06-10-28 08:38:45 GMT  EAGLE5 37.5.0
Link set table is ( 22 of 1024) 2% full
CHG-LS:  MASP A - COMPLTD
```

- Verify the changes using the `rtrv-ls` command, specifying the linkset name that was changed in [Step 19](#) on page 89. For this example, enter this command.

```
rtrv-ls:lsn=ls7
```

This is an example of the possible output.

```
rlghncxa03w 06-10-28 11:43:04 GMT  EAGLE5 37.5.0
LSN          APCA  (X25)  SCRN  SET  SET  BEI  LST  LNKS  ACT  MES  DIS  SLSCI  NIS
ls7          244-012-008  scr7  1    5    no  a    3    on  on  on  ---  off
```

```

          CLLI          TFATCABMLQ MTPRSE ASL8
          -----          ---          ---          ---

          IPGWAPC MATELSN          IPTPS LSUSEALM SLKUSEALM GTTMODE
          no          -----          ---          ---          ---          CgPA,AdvCdPA,CdPA

          LOC LINK SLC TYPE          L2T          L1          PCR PCR
          1205 A 0 LIMV35          SET BPS          MODE TSET ECM N1 N2
          1206 A 1 LIMV35          - 56000 DTE -- BASIC --- ----
          1207 A 2 LIMV35          - 64000 DTE -- BASIC --- ----

Link set table is ( 22 of 1024) 2% full

```

21. Activate the signaling links that were deactivated in [Step 18](#) on page 89 using the `act-slk` command. For this example, enter these commands.

```
act-slk:loc=1205:link=a
```

```
act-slk:loc=1206:link=a
```

```
act-slk:loc=1207:link=a
```

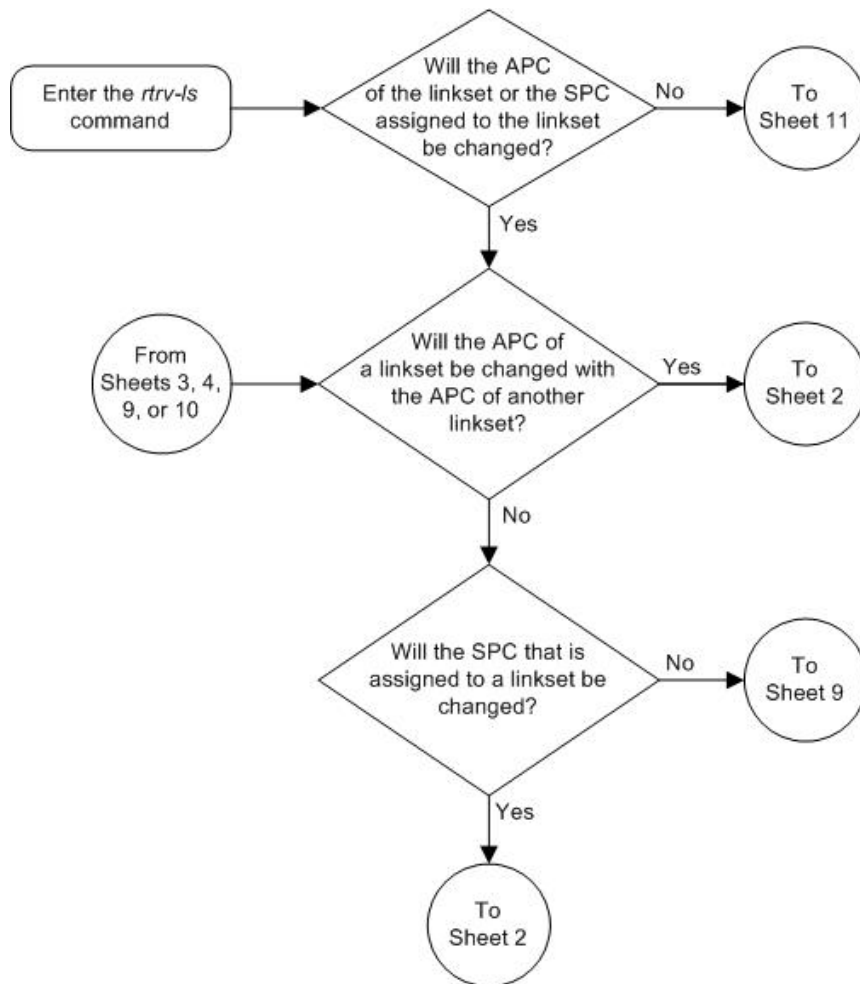
When each of these commands have successfully completed, this message should appear.

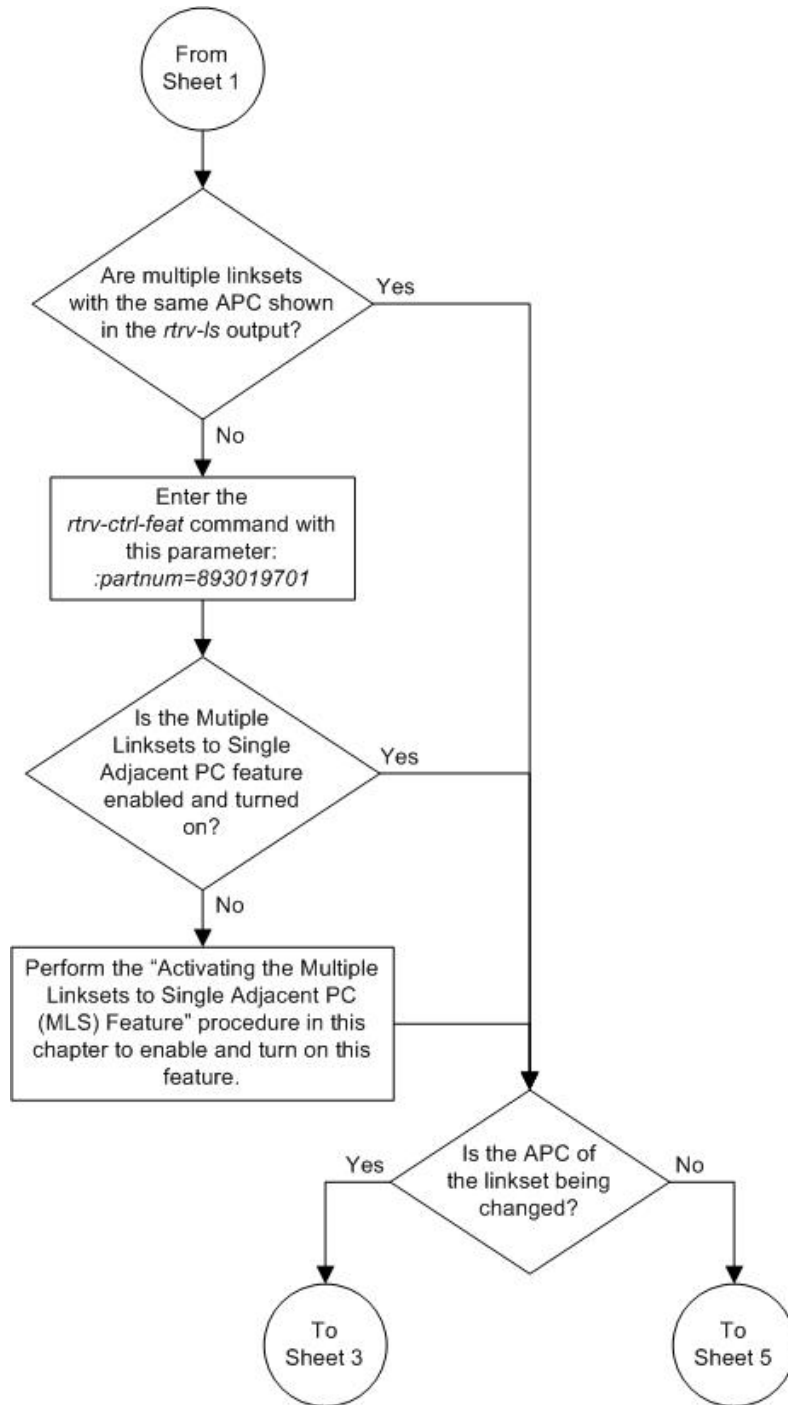
```
rlghncxa03w 06-10-28 08:41:12 GMT EAGLE5 37.5.0
Activate Link message sent to card
```

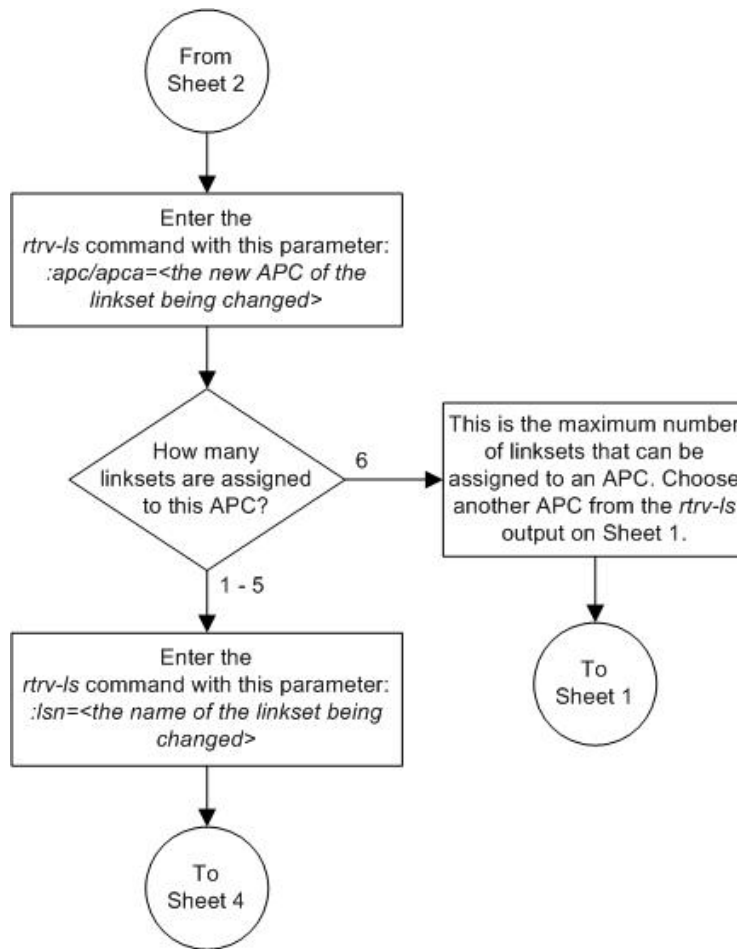
22. Backup the new changes using the `chg-db:action=backup:dest=fixed` command. These messages should appear, the active Maintenance and Administration Subsystem Processor (MASP) appears first.

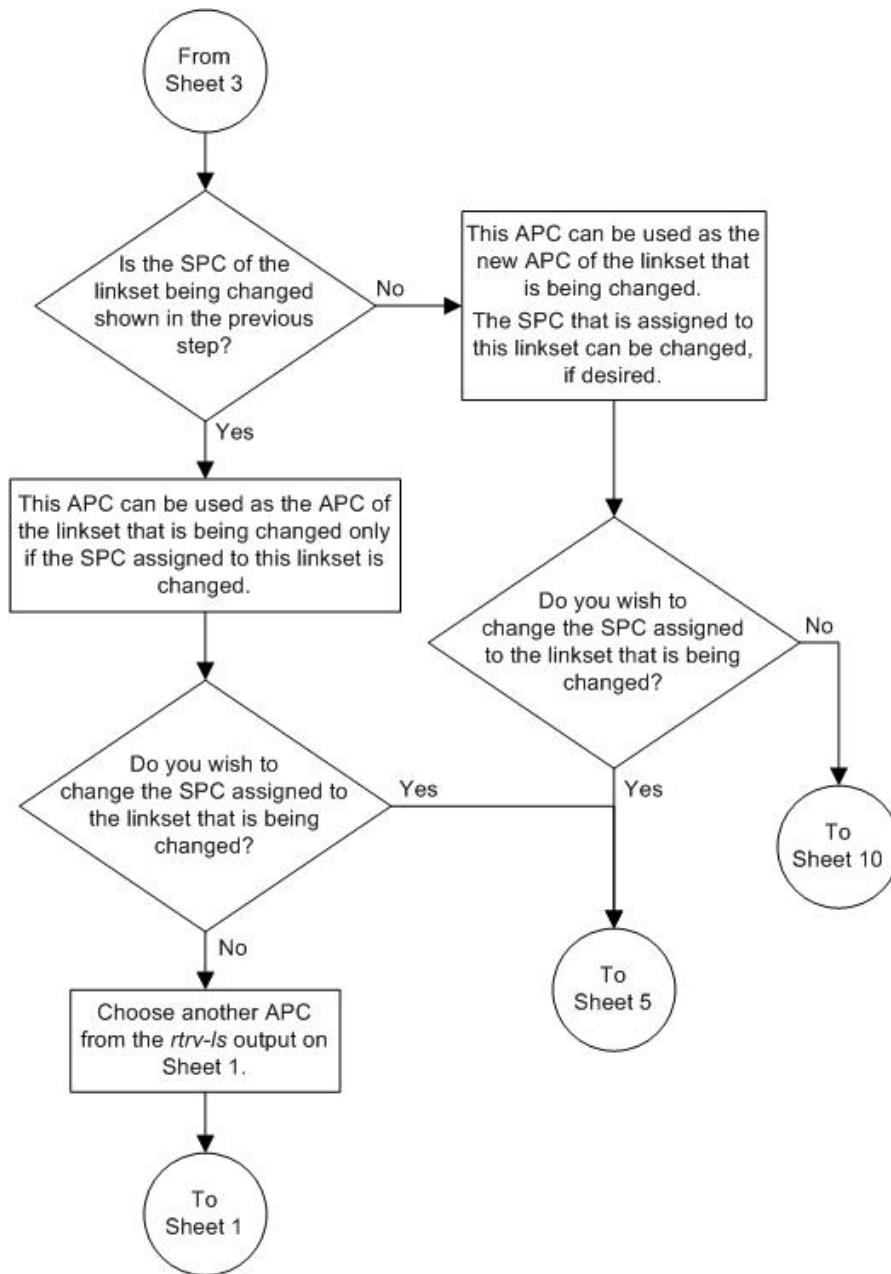
```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk complete.
BACKUP (FIXED) : MASP A - Backup starts on standby MASP.
BACKUP (FIXED) : MASP A - Backup on standby MASP to fixed disk complete.
```

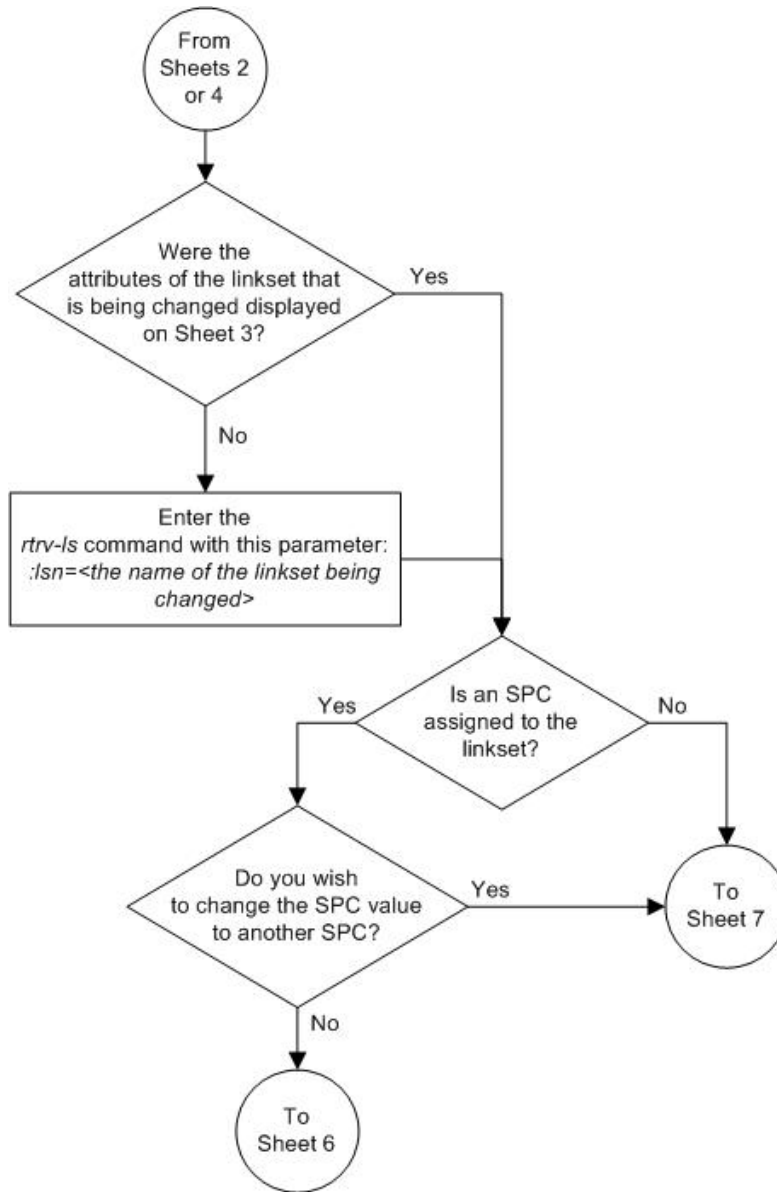
Figure 13: Changing an X.25 Linkset

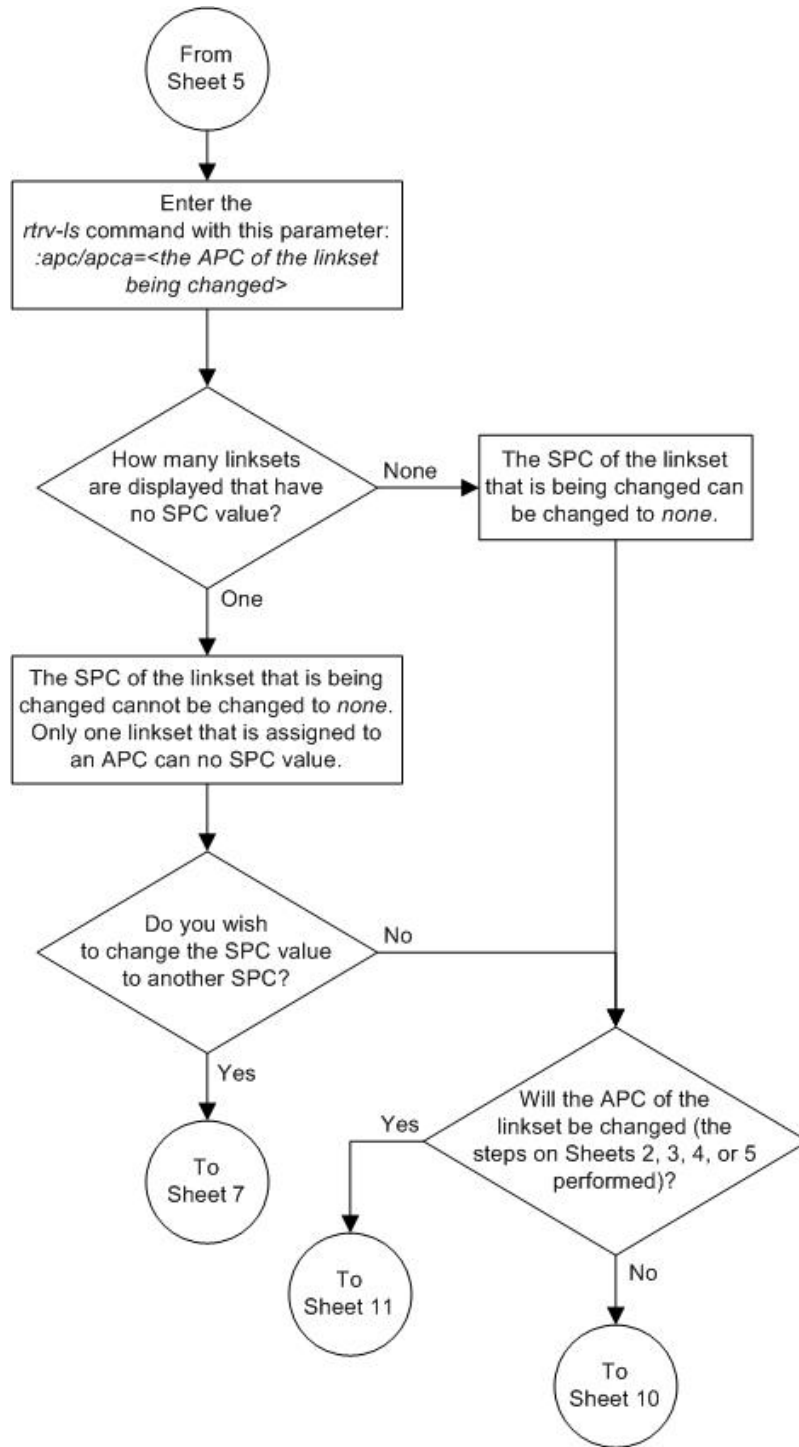


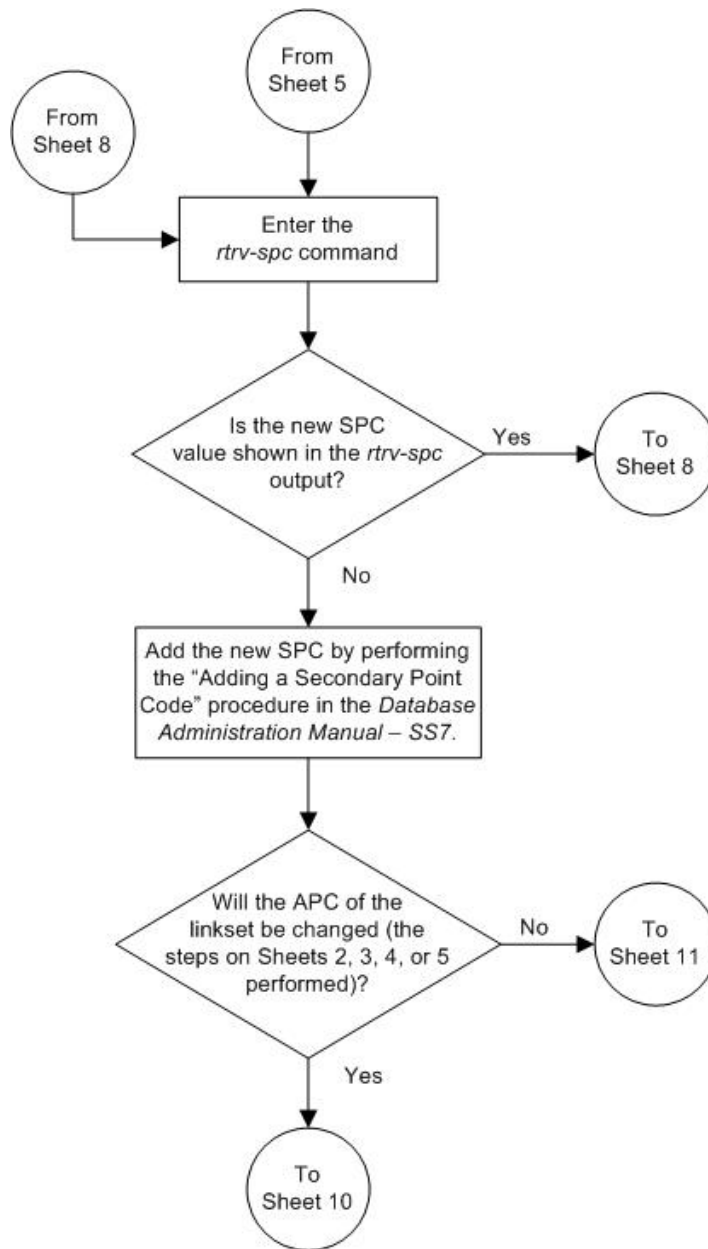


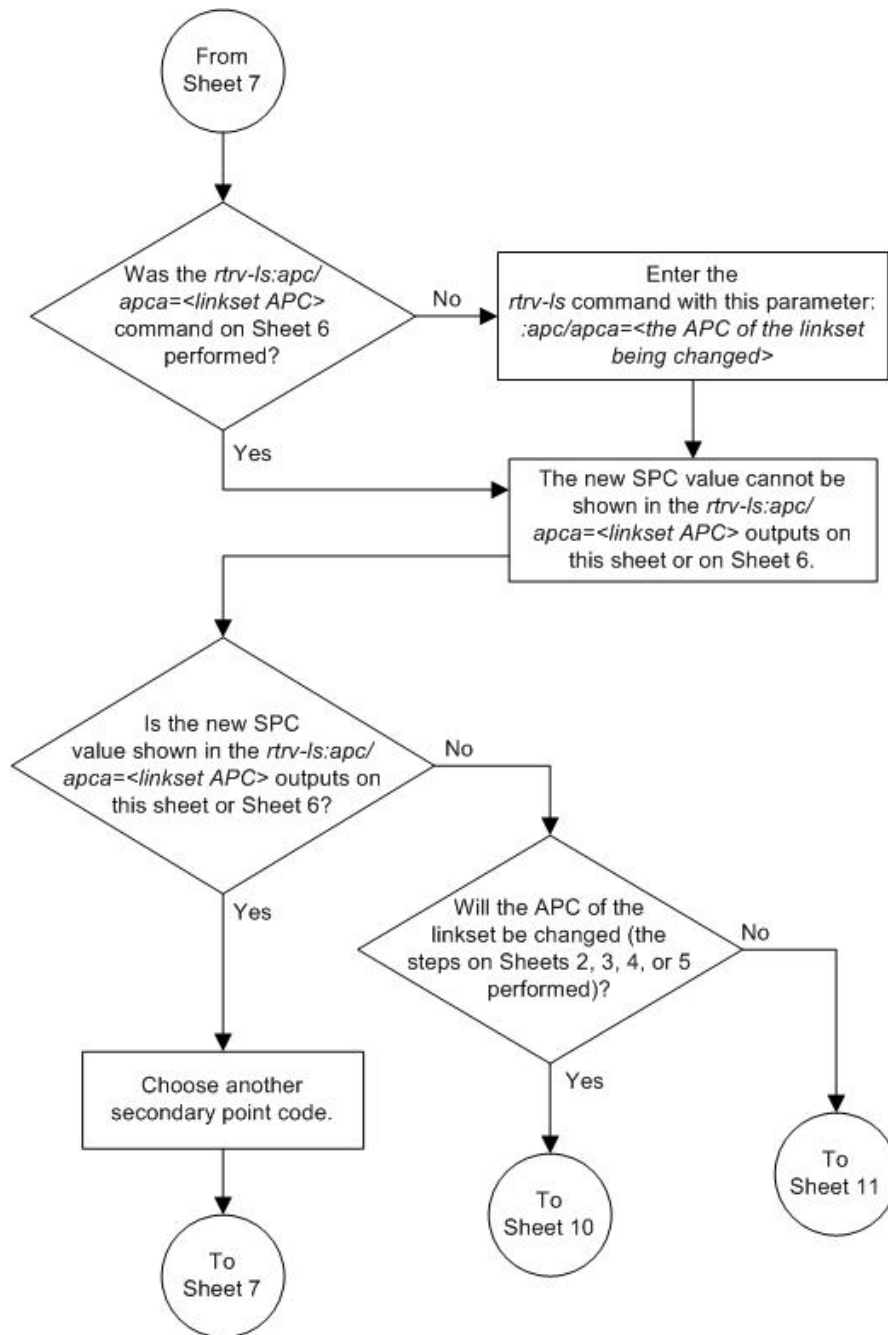


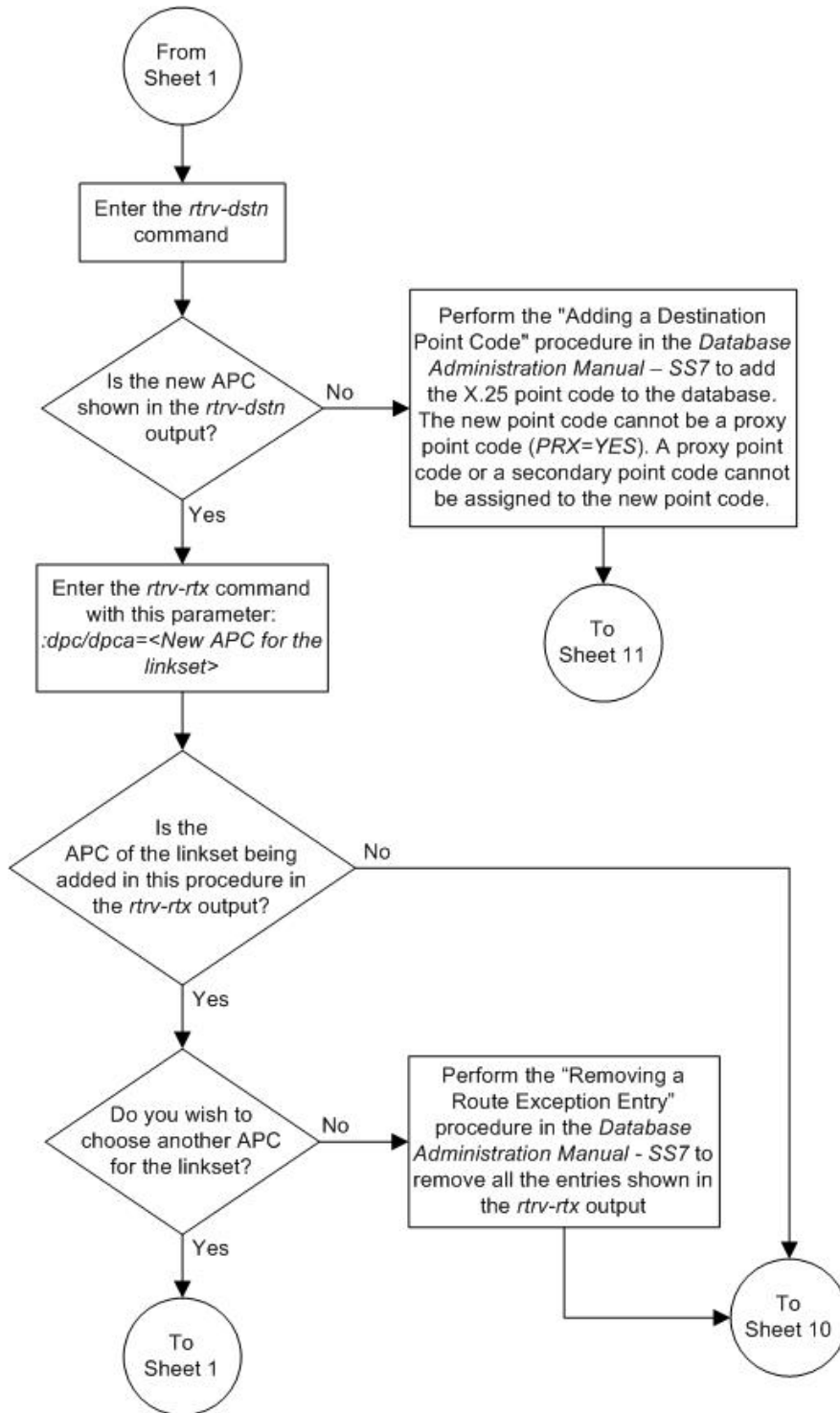


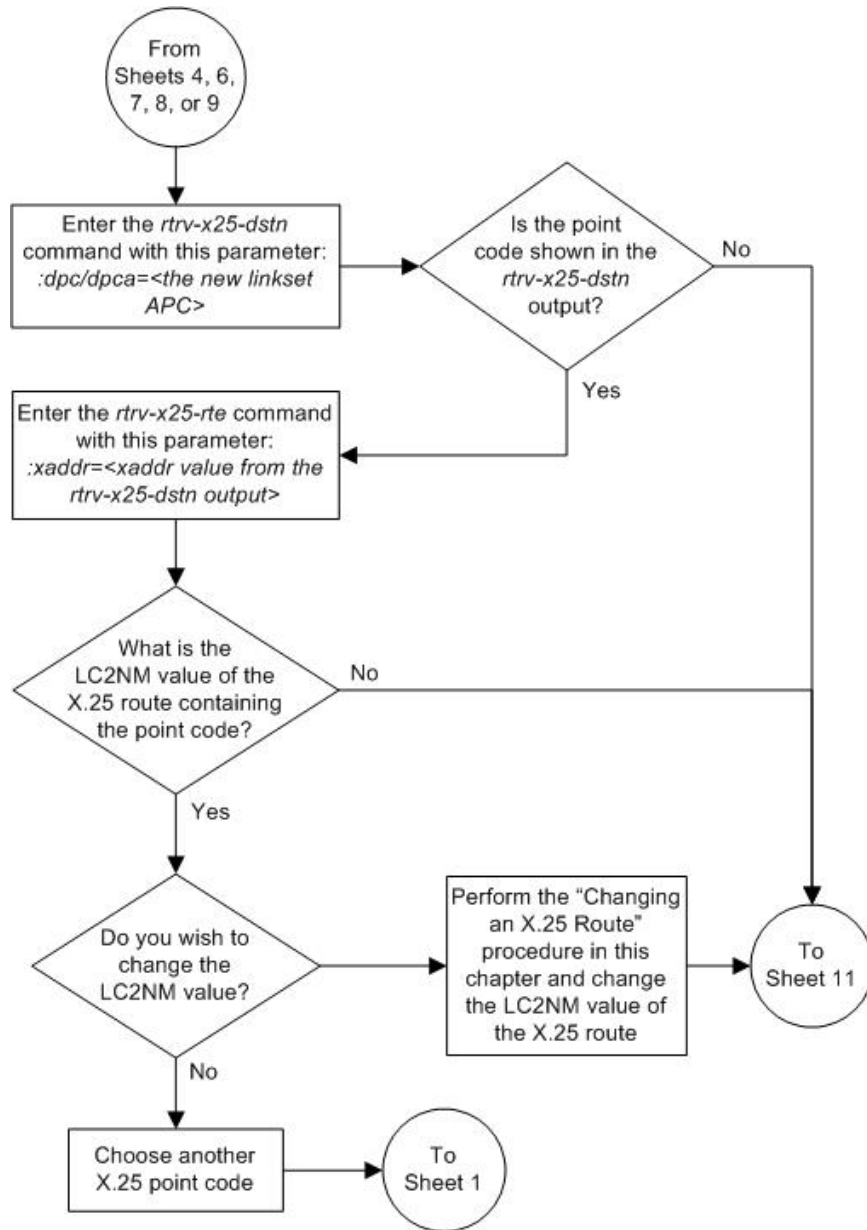


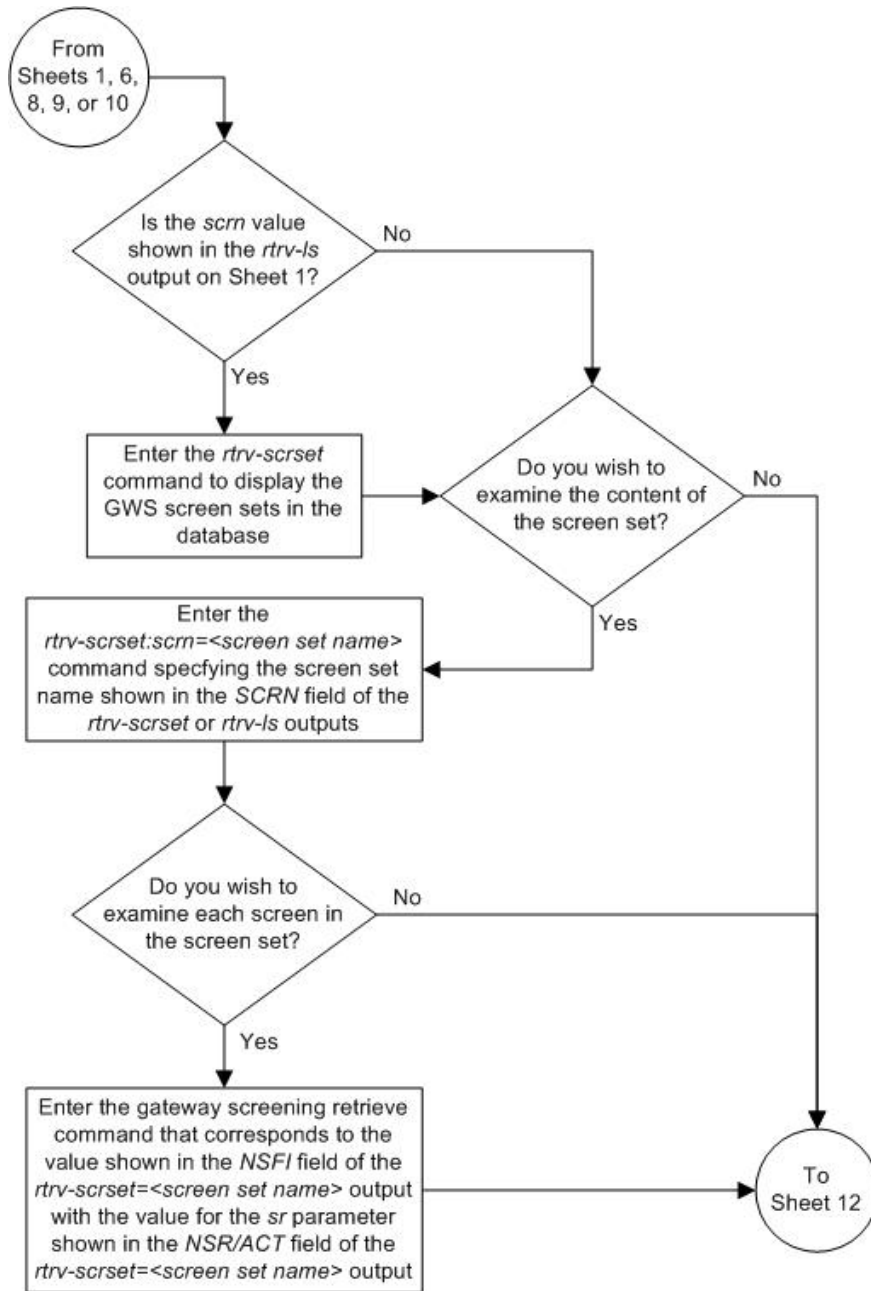


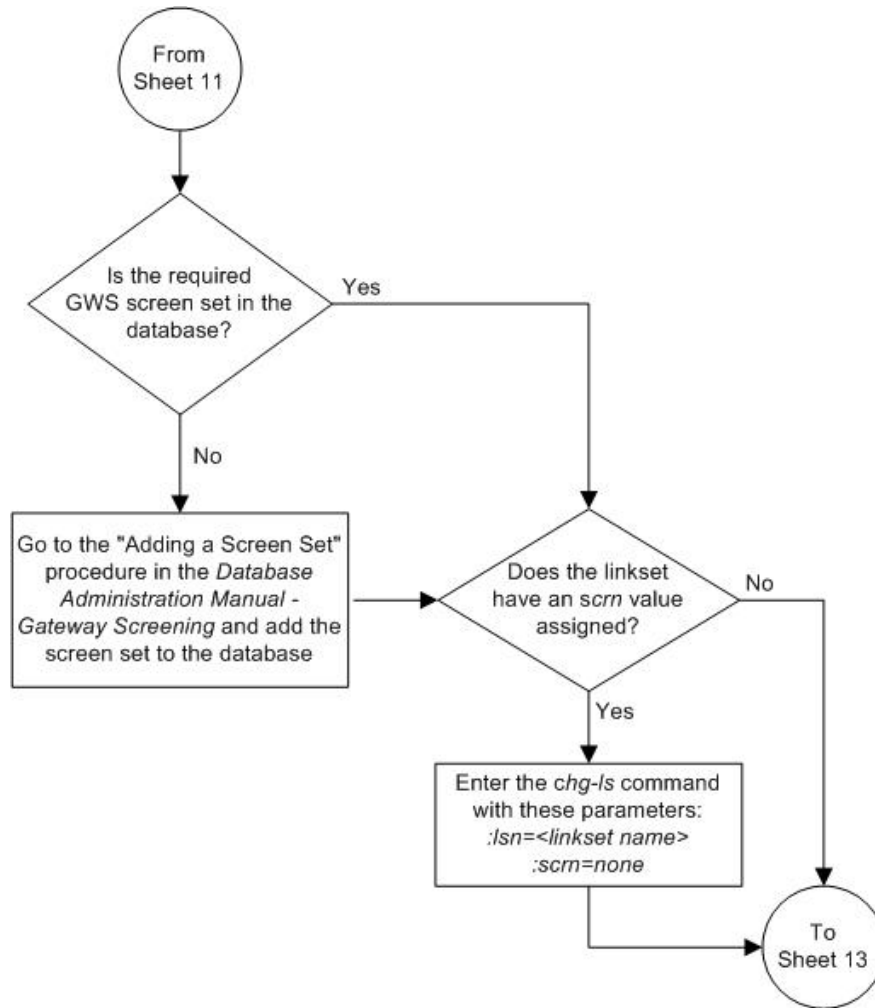


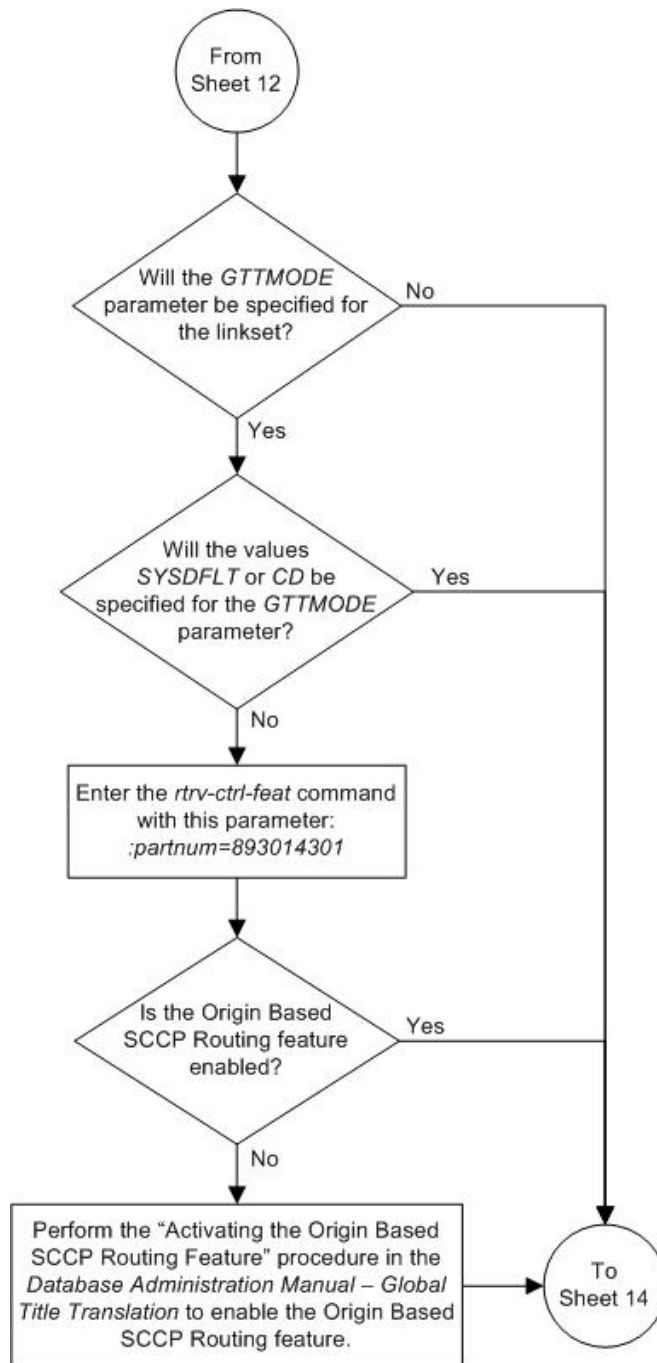


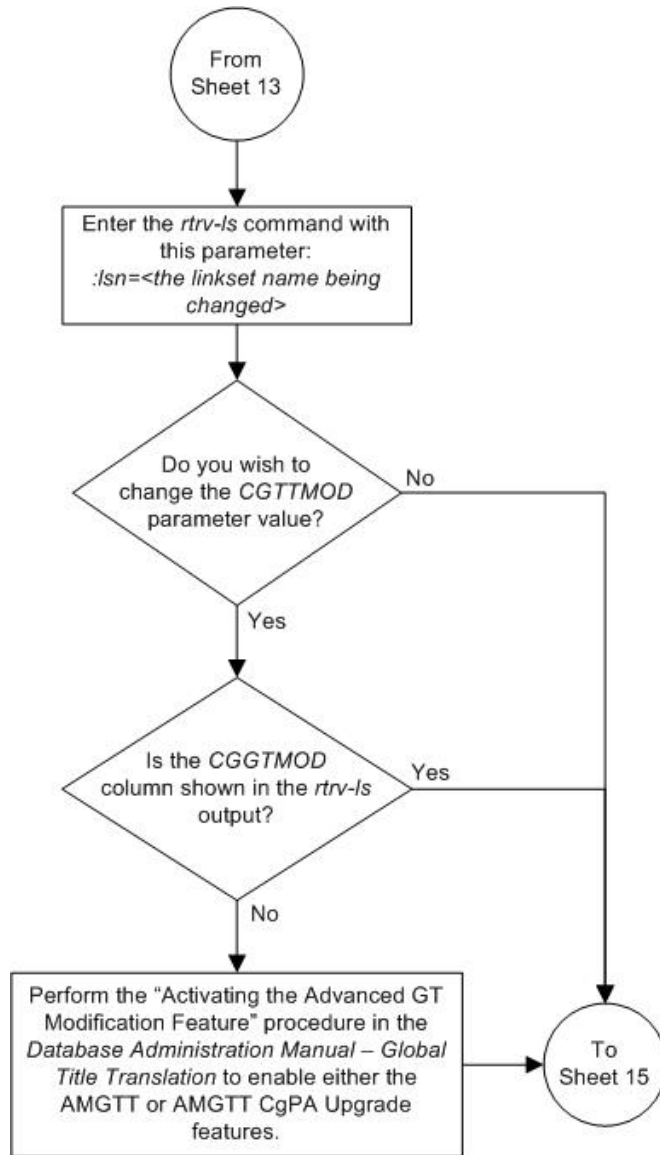


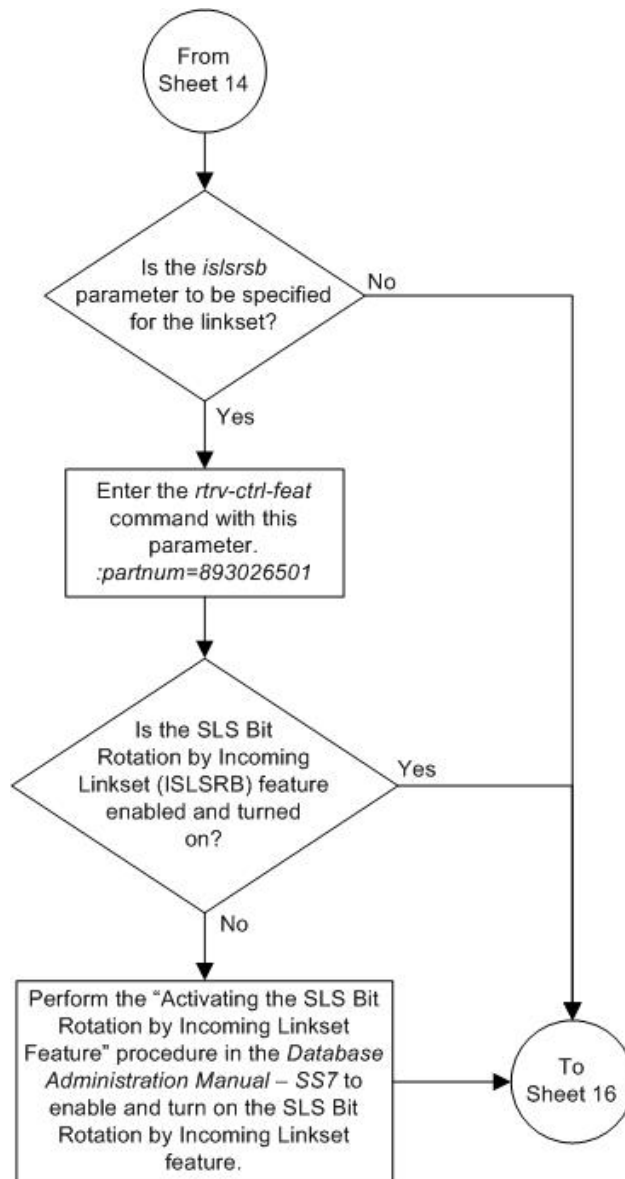


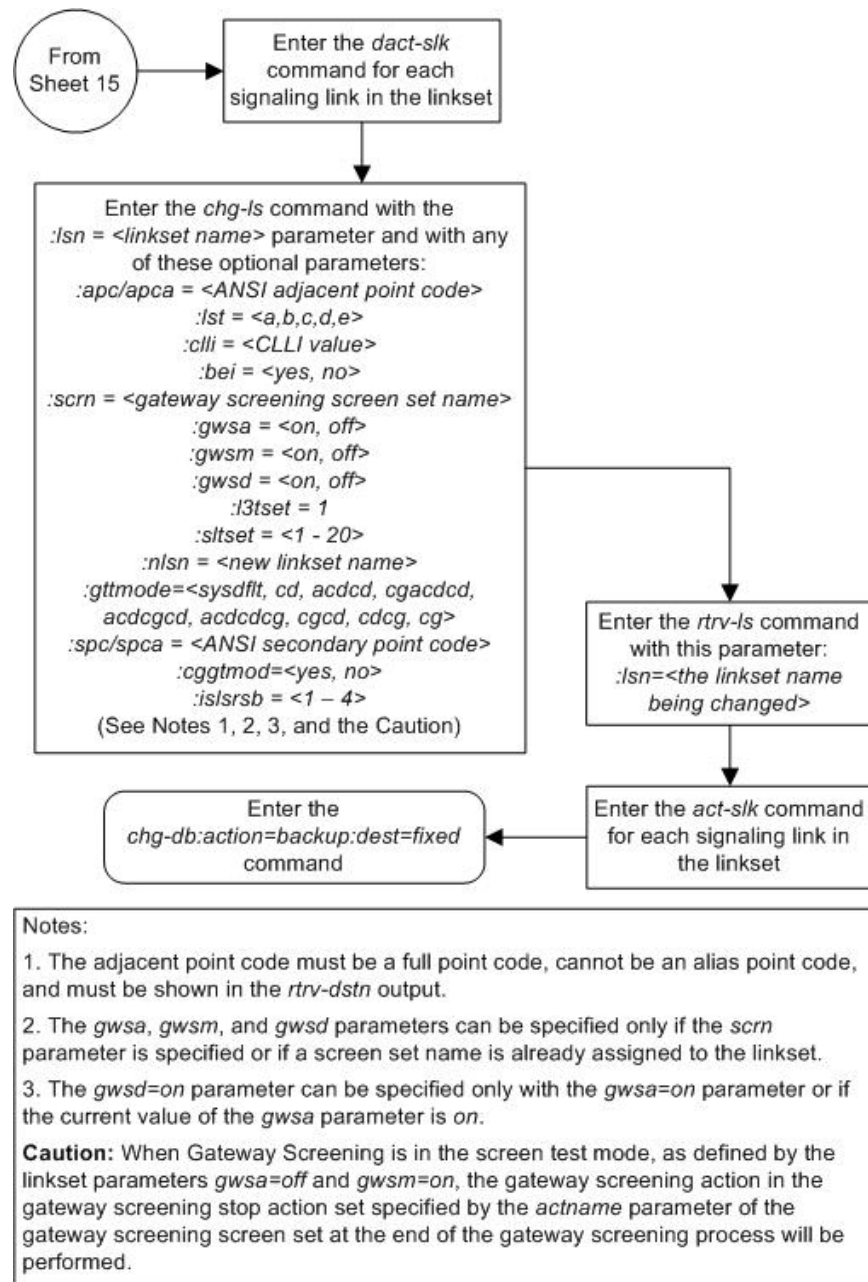












Adding an X.25 Signaling Link

This procedure is used to add an X.25 signaling link to the database using the *ent-slk* command. To add SS7 signaling links to the database, go to the “Adding an SS7 Signaling Link” procedure in the *Database Administration Manual – SS7*.

The *ent-slk* command uses these parameters to configure an X.25 signaling link.

- :loc – The card location of the LIM that the X.25 signaling link will be assigned to.
- :link – The signaling link on the card specified in the loc parameter. For an X.25 signaling link, this parameter value is A.
- :lsn – The name of the linkset that will contain the signaling link.
- :slc – The signaling link code. The SLC must be unique within the linkset. It must be the same at both the EAGLE 5 ISS location and the distant node.
- :llmode – The mode of operation used to select the link clocking source at layer 1. One end of a V.35 link must be DTE and the other end must be DCE.
- :bps – The transmission rate for the link in bits per second.
- :tset – Transmitter signal element timing.
- :ecm – Error correction method.
- :pcrn1 – The threshold of the number of MSUs available for retransmission. If the error correction method being used is PCR, and this threshold is reached, no new MSUs or FISUs are sent. The retransmission cycle is continued up to the last MSU entered into the retransmission buffer in the order in which they were originally transmitted.
- :pcrn2 – The threshold of the number of MSU octets available for retransmission. If the error correction method being used is PCR, and this threshold is reached, no new MSUs or FISUs are sent. The retransmission cycle is continued up to the last MSU entered into the retransmission buffer in the order in which they were originally transmitted.

The ent-slk command contains other optional parameters that are not used to configure an X.25 signaling link. These parameters are discussed in more detail in the *Commands Manual* or in these sections.

- These procedures in the *Database Administration Manual - SS7*
 - Adding an SS7 Signaling Link
 - Adding an E1 Signaling Link
 - Adding a T1 Signaling Link
 - Adding an ATM High-Speed Signaling Link
- These procedures in the *Database Administration Manual - IP⁷ Secure Gateway*
 - Adding an IPGWx Signaling Link
 - Adding an IPLIMx Signaling Link
 - Adding an IPSG M3UA Signaling Link
 - Adding an IPSG M2PA Signaling Link

The examples in this procedure are based on the example network shown in [Figure 5: Typical X.25/SS7 Gateway Configuration](#) on page 22 and [Table 7: X.25 Signaling Link Configuration Table](#) on page 107 and are used to add X.25 signaling links to cards 1205, 1206, and 1207.

Table 7: X.25 Signaling Link Configuration Table

SLK LOC	SLK LINK	LSN	SLC	TYPE	BPS
1205	A	LS03	0	LIMV35	56000

SLK LOC	SLK LINK	LSN	SLC	TYPE	BPS
1206	A	LS03	1	LIMV35	56000
1207	A	LS04	0	LIMV35	64000

These items must be provisioned in the database before an X.25 signaling link can be added:

- A shelf – see the "Adding a Shelf" procedure in the *Database Administration Manual – System Management*.
- An LIM (card type `limocu`, `limds0`, or `limv35`) assigned to the `ss7gx25` application – see [Adding an X.25 LIM](#) on page 23.
- A destination point code (DPC) assigned to the X.25 domain – see the "Adding a ANSI Destination Point Code" procedure in the *Database Administration Manual – SS7*.
- A linkset whose adjacent point code (APC) is in the X.25 domain – see [Adding an X.25 Linkset](#) on page 45

Verify that the X.25 signaling link has been physically installed (all cable connections have been made).

If the `l1mode` or `tset` parameters are specified, the card type must be `limv35`.

The `tset` parameter can only be specified with the `l1mode=dce` parameter. When `l1mode=dce` is specified and the `tset` parameter is not specified, the value of the `tset` parameter is set to `off`, and dashes are shown in the `TSET` column in the `rtrv-slk` output. The default value for the `l1mode` parameter is `dte`.

The transmission rate of the X.25 signaling link can be either 4800 (`bps=4800`), 9600 (`bps=9600`), 19200 (`bps=19200`), 56000 (`bps=56000`), or 64000 (`bps=64000`) bits per second. If the card type is either `limds0` or `limocu`, the transmission rate of the X.25 signaling link can be either 56000 or 64000. The transmission rates 4800, 9600, or 19200 can be specified only if the card type is `limv35`. The default value for the X.25 signaling link transmission rate is 56000.

The `l2tset` parameter cannot be specified for an X.25 signaling link, but its value is defaulted to `l1` and is shown in the `L2TSET` column in the `rtrv-slk` output.

The linkset must be in the database. The number of signaling links in a linkset cannot exceed 16. The number of signaling links in the linkset is shown in the `LNKS` column of the `rtrv-ls` command output.

The APC of the linkset assigned to the signaling link must be in the X.25 domain. Use the `rtrv-dstn` command to verify the domain of the APC of the linkset.

Requirements for EAGLE 5 ISSs Containing more than 700 Signaling Links

To provision an EAGLE 5 ISS with more than 700 signaling links (currently the EAGLE 5 ISS can have maximum capacities of 1200, 1500, or 2000 signaling links), the following additional requirements must be met:

- The Measurements Platform feature must be enabled. Perform these procedures in the *Database Administration Manual - System Management* to enable the Measurements Platform feature:
 - "Adding an MCPM"
 - "Configuring the IP Communications Link for the Measurements Platform"

- "Adding an FTP Server"
- To provision more than 1200 signaling links, the Large System # Links controlled feature must be enabled for 1500 or 2000 signaling links. For more information on enabling this feature, go to [Enabling the Large System # Links Controlled Feature](#) on page 153.

Note:

An X.25 signaling link cannot be assigned to a Multiport LIM.

For more information on these hardware components, go to the *Installation Manual - EAGLE 5 ISS*

Determining the Number of High-Speed and Low-Speed Signaling Links

An EAGLE 5 ISS containing either 1200, 1500, or 2000 signaling links can contain the following quantities of signaling links:

- 180 high-speed ATM signaling links assigned to the ATMANSI application. If there are any high-speed ATM signaling links assigned to the ATMITU application, the maximum number of high-speed ATM signaling links is 115.
- 100 signaling links assigned to either the IPLIM or IPLIMI applications.
- 64 signaling links assigned to either the SS7IPGW or IPGWI application, or combinations of the SS7IPGW and IPGWI applications.
- 64 unchannelized E1 signaling links.

The following hardware and applications are the only signaling link hardware and applications supported for an EAGLE 5 ISS containing more than 1500 signaling links.

- E1/T1 MIM running the `ccs7itu` application.
- HC-MIM running the `ccs7itu` application.
- E5-E1T1 running the `ccs7itu` application.
- Single-slot EDCM running either the `iplimi` or `ipgwi` applications.
- E5-ENET running either the `iplimi` or `ipgwi` applications.
- ATM high-speed LIM running the `atmitu` application.

Canceling the REPT-STAT-SLK and RTRV-SLK Commands

Because the `rept-stat-slk` and `rtrv-slk` commands used in this procedure can output information for a long period of time, the `rept-stat-slk` and `rtrv-slk` commands can be canceled and the output to the terminal stopped.

There are three ways that the `rept-stat-slk` and `rtrv-slk` commands can be canceled.

- Press the F9 function key on the keyboard at the terminal where the `rept-stat-slk` or `rtrv-slk` commands were entered.
- Enter the `canc-cmd` without the `trm` parameter at the terminal where the `rept-stat-slk` or `rtrv-slk` commands were entered.
- Enter the `canc-cmd:trm=<xx>`, where `<xx>` is the terminal where the `rept-stat-slk` or `rtrv-slk` commands were entered, from another terminal other than the terminal where the `rept-stat-slk` or `rtrv-slk` commands were entered. To enter the `canc-cmd:trm=<xx>` command, the terminal must allow Security Administration commands to be entered from it and the user must be allowed to enter Security Administration commands. The terminal's

permissions can be verified with the `rtrv-secu-trm` command. The user's permissions can be verified with the `rtrv-user` or `rtrv-secu-user` commands.

For more information about the `canc-cmd` command, go to the *Commands Manual*.

1. Display the cards in the database using the `rtrv-card` command.

The X.25 LIMs are shown by the entry `SS7GX25` in the `APPL` field. This is an example of the possible output.

```

rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0
CARD   TYPE      APPL      LSET NAME      LINK SLC LSET NAME      LINK SLC
1101   TSM        SCCP
1113   GPDM      EOAM
1114   TDM-A
1115   GPDM      EOAM
1116   TDM-B
1117   MDAL
1201   LIMDS0    SS7ANSI   sp2             A    0    sp1            B    0
1202   LIMV35    SS7GX25
1203   LIMDS0    SS7ANSI   sp3             A    0
1204   LIMDS0    SS7ANSI   sp3             A    1
1206   LIMDS0    SS7ANSI   nsp3            A    1    nsp4           B    1
1207   LIMV35    SS7GX25   nsp1            A    0
1208   LIMV35    SS7GX25   nsp1            A    1
1216   ACMENET   STPLAN
1301   TSM        SCCP
1308   LIMDS0    SS7ANSI   sp6             A    1    sp7            B    0
1314   LIMDS0    SS7ANSI   sp7             A    1    sp5            B    1
1317   ACMENET   STPLAN
    
```

If the required card is not in the database, go to [Adding an X.25 LIM](#) on page 23 and add the card to the database.

2. Display the current linkset configuration using the `rtrv-ls` command.

This is an example of the possible output.

```

rlghncxa03w 06-10-28 11:43:04 GMT EAGLE5 36.0.0

LSN          APCA   (SS7)  SCRNL3T  SLT          GWS  GWS  GWS
lsa1         240-020-000  scr1  1  1  yes  a  1  off off off no  off
lsa2         240-030-000  scr2  1  2  no   c  3  on  on  on  yes off
lsa3         240-040-000  scr3  1  3  yes  c  5  off off off yes  off
ls01         006-006-006  scr1  1  1  yes  a  1  on  off off no  off
ls02         008-008-008  scr1  1  1  yes  a  1  on  off off yes  off

LSN          APCA   (X25)  SCRNL3T  SLT          GWS  GWS  GWS
ls6          244-010-004  scr4  1  4  no   a  6  off off off --- off
ls7          244-012-005  scr5  1  5  no   c  3  on  on  on  --- off
ls8          244-012-006  scr6  1  6  no   c  8  off off off --- off

LSN          APCI   (SS7)  SCRNL3T  SLT          GWS  GWS  GWS
lsi1         1-111-1      scr1  1  1  yes  a  1  off off off --- ---
lsi2         1-111-2      scr2  1  2  no   c  3  on  on  on  --- ---
lsi3         1-111-3      scr3  1  3  yes  c  5  off off off --- ---

LSN          APCN   (SS7)  SCRNL3T  SLT          GWS  GWS  GWS
lsn1         11111        scr1  1  1  yes  a  1  off off off --- off
    
```

```
lsn2          11112          scr2  1  2  no  c  3  on  on  on  ---  off
lsn3          11113          scr3  1  3  yes c  5  off off off ---  off

Link set table is ( 14 of 1024) 1% full
```

If the required linkset is not in the database, go to [Adding an X.25 Linkset](#) on page 45 and add the linkset to the database.

3. Display the current signaling link configuration using the `rtrv-slk` command.

This is an example of the possible output.

```
rlghncxa03w 06-10-28 21:16:37 GMT EAGLE5 36.0.0

LOC LINK LSN          SLC TYPE      SET  BPS      MODE TSET  ECM  N1  N2
1201 A   lsn1201a        0 LIMDS0      1   56000    ---  ---  BASIC ---  ---
1201 B   lsn1201b        0 LIMDS0      1   56000    ---  ---  PCR   76  3800
1202 A   lsn1202a        0 LIMV35      -   64000    DTE  ---  BASIC ---  ---
1202 B   lsn1202b        1 LIMV35      3   64000    DCE  ON   BASIC ---  ---
1203 A   lsn1203a        0 LIMV35      1   56000    DCE  ON   BASIC 76  3800
1203 B   lsn1203b        0 LIMV35      1   56000    DCE  OFF  PCR  120 5034
1204 A   lsn1204a        1 LIMV35      3   64000    DCE  ON   PCR   76  3800
1204 B   lsn1204b        1 LIMV35      3   64000    DCE  ON   PCR   76  3800
1301 A   lsn1301a        0 LIMDS0      -   56000    ---  --  BASIC ---  ---

LOC LINK LSN          SLC TYPE      LP  SET  BPS      ATM  TSEL  VCI  VPI  LL
1302 A   atmansi0        0 LIMATM      3   1544000  INTERNAL 35   15   0
1305 A   atmansi1        0 LIMATM      4   1544000  INTERNAL 100  20   2
1318 A   atmansi0        1 LIMATM      9   1544000  LINE    150  25   4

SLK table is (12 of 1200) 1% full.
```

If the `rtrv-slk` output shows that the maximum number of signaling links is 2000, go to step 4.

If the `rtrv-slk` output shows that the maximum number of signaling links is 1200, and the signaling link being added increases the number beyond 1200, perform the [Enabling the Large System # Links Controlled Feature](#) on page 153 procedure and enable the Large System # Links controlled feature for either 1500 signaling links or 2000 signaling links. Then go to step 4.

If the `rtrv-slk` output shows that the maximum number of signaling links is 1500, and the signaling link being added increases the number beyond 1500, perform the [Enabling the Large System # Links Controlled Feature](#) on page 153 procedure and enable the Large System # Links controlled feature for 2000 signaling links. Then go to step 4.

If the addition of the new signaling link will not exceed the maximum number of signaling links, go to step 4.

4. Add the X.25 signaling link using the `ent-slk` command. For this example, enter these commands.

```
ent-slk:loc=1205:link=a:lsn=ls03:slc=0
ent-slk:loc=1206:link=a:lsn=ls03:slc=1
ent-slk:loc=1207:link=a:lsn=ls04:slc=0:bps=64000
```

When each of these commands have successfully completed, this message should appear.

```
rlghncxa03w 06-10-28 08:29:03 GMT EAGLE5 36.0.0
ENT-SLK: MASP A - COMPLTD
```

- Verify the changes using the `rtrv-slk` command with the card location specified in step 5. For this example, enter these commands.

```
rtrv-slk:loc=1205
```

This is an example of the possible output.

```
rlghncxa03w 06-10-28 21:16:37 GMT EAGLE5 36.0.0
                                L2T      L1
LOC  LINK  LSN          SLC TYPE  SET  BPS  MODE TSET  ECM  N1  N2
1205 A   ls03          0  LIMV35  11  56000 DTE  ---  BASIC ---  -----
```

```
rtrv-slk:loc=1206
```

This is an example of the possible output.

```
rlghncxa03w 06-10-28 21:16:37 GMT EAGLE5 36.0.0
                                L2T      L1
LOC  LINK  LSN          SLC TYPE  SET  BPS  MODE TSET  ECM  N1  N2
1206 A   ls03          1  LIMV35  11  56000 DTE  ---  BASIC ---  -----
```

```
rtrv-slk:loc=1207
```

This is an example of the possible output.

```
rlghncxa03w 06-10-28 21:16:37 GMT EAGLE5 36.0.0
                                L2T      L1
LOC  LINK  LSN          SLC TYPE  SET  BPS  MODE TSET  ECM  N1  N2
1207 A   ls04          0  LIMV35  11  64000 DTE  ---  BASIC ---  -----
```

Note: If the X.25 signaling link parameters for the newly added X.25 signaling link are not being changed, skip steps 6 through 8 and go to step 9.

- Display the values of the X.25 signaling link you wish to change using the `rtrv-x25-slk` command. This is an example of the possible output.

```
rlghncxa03w 06-10-28 21:16:37 GMT EAGLE5 36.0.0
LOC  PORT  T1  N1   N2  K  L3MODE  PVC  SVC  WIN  MPS
1202 A    9   1080 13  6  DTE    255  0   2   128
1205 A    5   2104 10  7  DTE     0   1   3   256
1206 A    5   2104 10  7  DTE     0   1   3   256
1207 A    5   2104 10  7  DTE     0   1   3   256
1301 A    5   1080 10  7  DTE     0  255  3   128
```

- Change the X.25 signaling link parameter values using the `chg-x25-slk` command. For this example, enter these commands.

```
chg-x25-slk:loc=1205:port=a:t1=2:n1=1080:n2=5:k=1:l3mode=dte
:pvc=2:svc=0:win=6:mps=128
```

```
chg-x25-slk:loc=1206:port=a:t1=4:n1=2104:n2=12:k=3:l3mode=dce
:pvc=2:svc=0:win=3:mps=256
```

```
chg-x25-slk:loc=1207:port=a:t1=8:n1=2104:n2=7:k=6:l3mode=dce
:pvc=0:svc=2:win=2:mps=256
```

When each of these commands have successfully completed, this message should appear.

```
rlghncxa03w 06-10-28 11:43:04 GMT EAGLE5 36.0.0
CHG-X25-SLK: MASP A - COMPLTD
```


8. Verify the changes using the `rtrv-x25-slk` command. This is an example of the possible output.

```
rlghncxa03w 06-10-28 21:16:37 GMT EAGLE5 36.0.0
LOC  PORT  T1  N1    N2  K  L3MODE  PVC  SVC  WIN  MPS
1202 A     9   1080  13  6  DTE    255  0   2   128
1205 A     2   1080  5   1  DTE     2   0   6   128
1206 A     4   2104  12  3  DCE     2   0   3   256
1207 A     8   2104  7   6  DCE     0   2   2   256
1301 A     5   1080  10  7  DTE     0   255 3   128
```

9. Put the X.25 LIMs in service using the `rst-card` command with the card location specified in step 5. For this example, enter these commands.

```
rst-card:loc=1205
rst-card:loc=1206
rst-card:loc=1207
```

When each of these commands have successfully completed, this message should appear.

```
rlghncxa03w 06-10-28 08:21:07 GMT EAGLE5 36.0.0
Card has been allowed.
```

10. Activate the X.25 signaling links using the `act-slk` command with the card location and the signaling link specified in step 5. For this example, enter these commands.

```
act-slk:loc=1205:link=a
act-slk:loc=1206:link=a
act-slk:loc=1207:link=a
```

When each of these commands have successfully completed, this message should appear.

```
rlghncxa03w 06-10-28 08:31:24 GMT EAGLE5 36.0.0
Activate Link message sent to card
```

11. Check the status of the X.25 signaling link using the `rept-stat-slk` command with the card location and the signaling link specified in step 5 for each X.25 signaling link added in step 5. The state of the X.25 signaling link should be in service normal (IS-NR) after the link has completed alignment (shown in the `PST` field). For this example, enter these commands.

```
rept-stat-slk:loc=1205:link=a
```

This is an example of the possible output.

```
rlghncxa03w 06-10-28 17:00:36 GMT EAGLE5 36.0.0
SLK   LSN     CLLI      PST           SST           AST
1205,A  ls03    -----  IS-NR        Avail        ----
  ALARM STATUS      = No alarm
  UNAVAIL REASON    =
Command Completed.
```

```
rept-stat-slk:loc=1206:link=a
```

This is an example of the possible output.

```
rlghncxa03w 06-10-28 17:00:36 GMT EAGLE5 36.0.0
SLK   LSN     CLLI      PST           SST           AST
```

```
1206,A  ls03  ----- IS-NR      Avail  ----
ALARM STATUS      = No alarm
UNAVAIL REASON    =
Command Completed.
```

rept-stat-slk:loc=12075:link=a

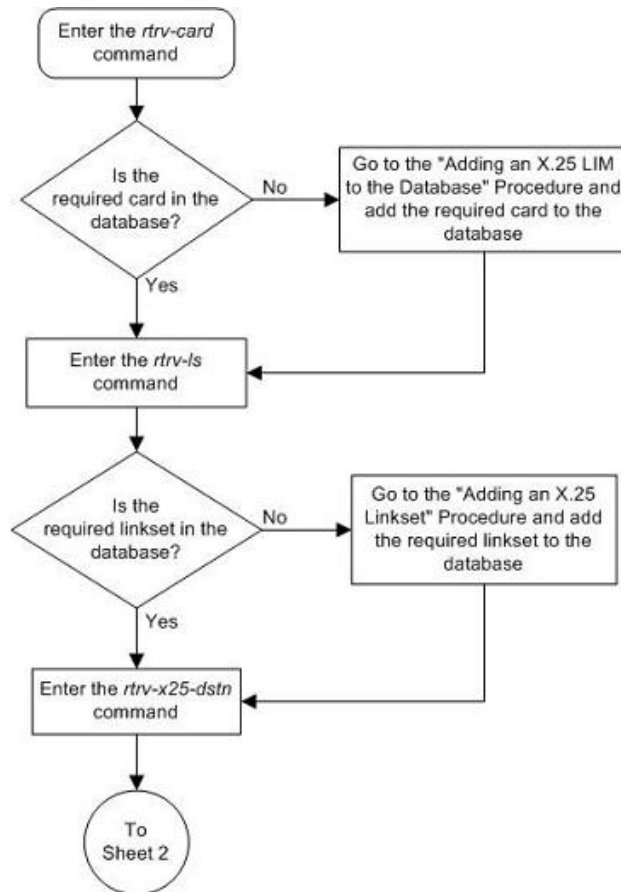
This is an example of the possible output.

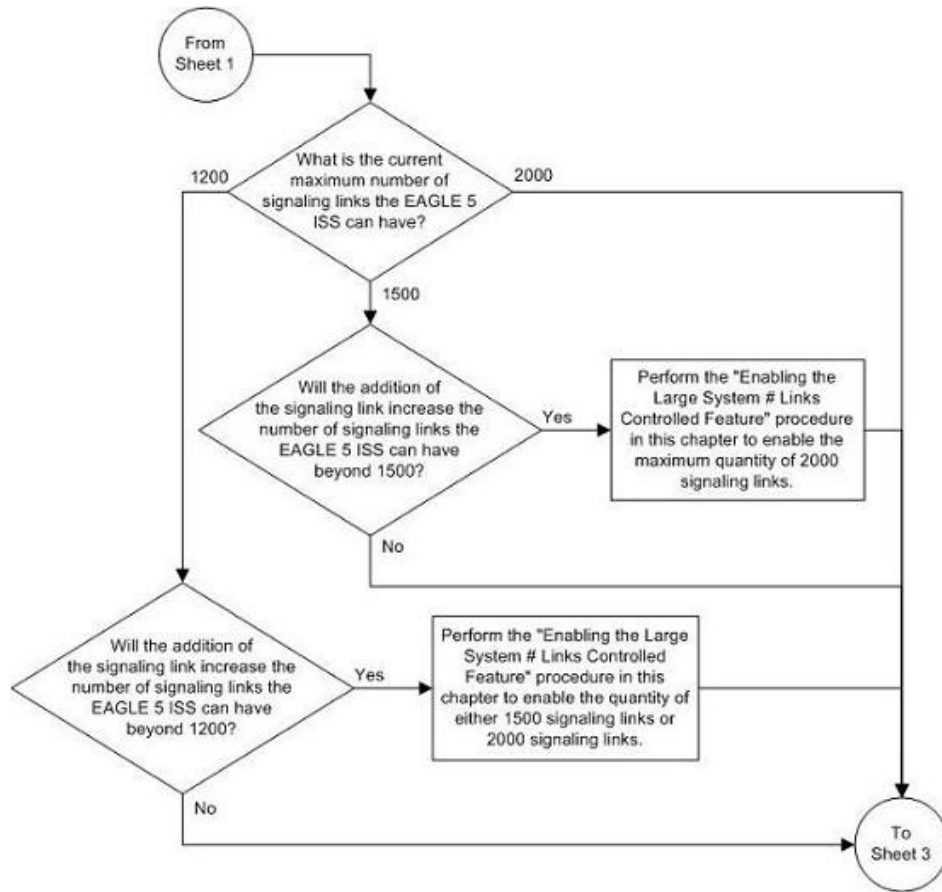
```
rlghncxa03w 06-10-28 17:00:36 GMT  EAGLE5 36.0.0
SLK      LSN      CLLI      PST      SST      AST
1207,A  ls04  ----- IS-NR      Avail  ----
ALARM STATUS      = No alarm
UNAVAIL REASON    =
Command Completed.
```

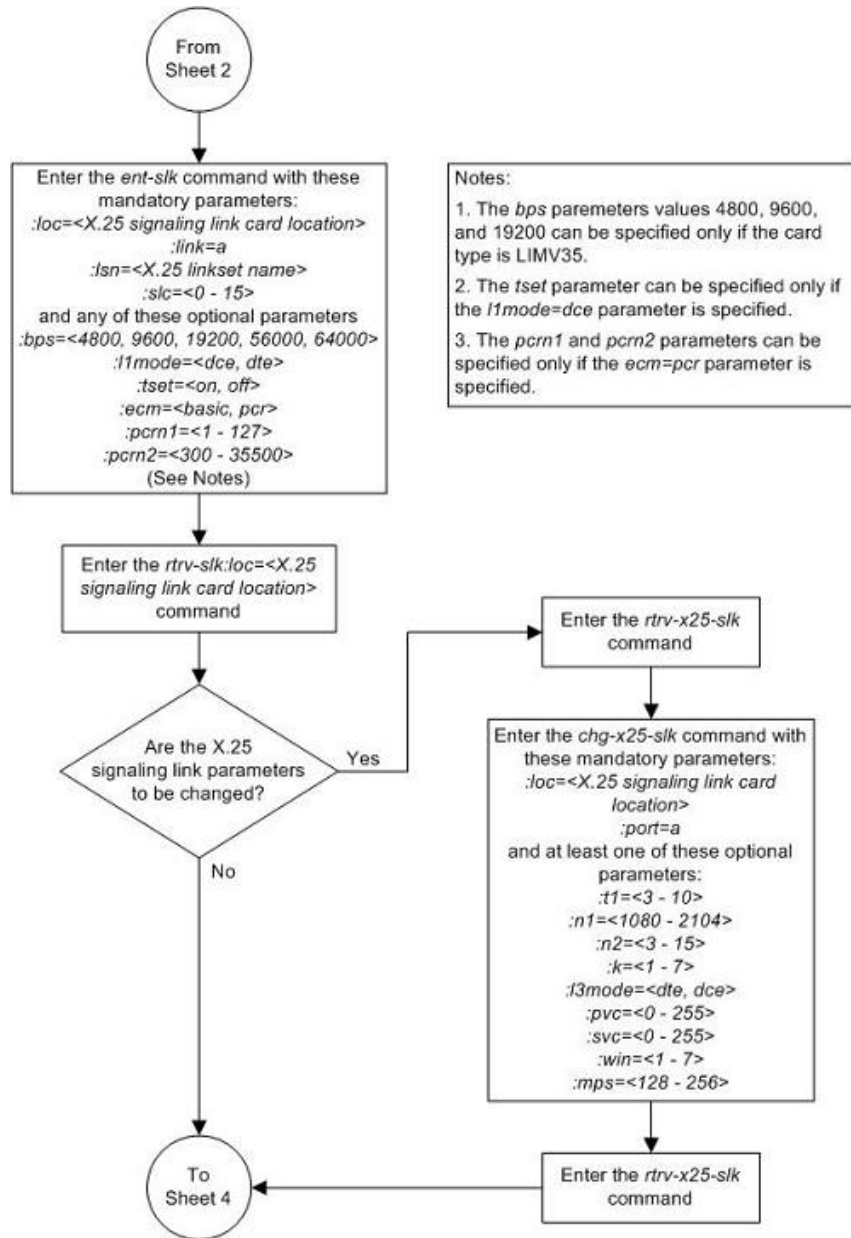
- Backup the new changes using the `chg-db:action=backup:dest=fixed` command. These messages should appear, the active Maintenance and Administration Subsystem Processor (MASP) appears first.

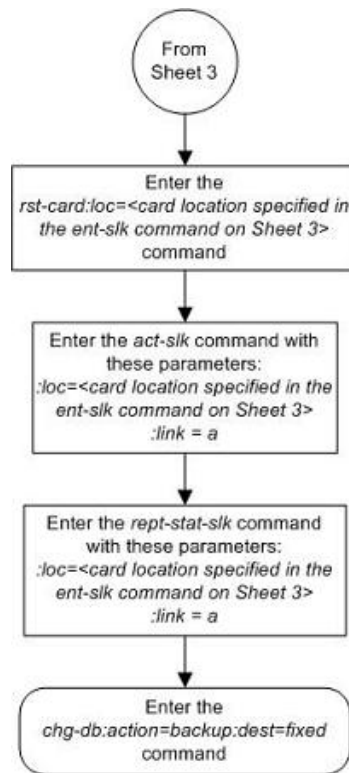
```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk complete.
BACKUP (FIXED) : MASP A - Backup starts on standby MASP.
BACKUP (FIXED) : MASP A - Backup on standby MASP to fixed disk complete.
```

Figure 14: Adding an X.25 Signaling Link









Removing an X.25 Signaling Link

This procedure is used to remove an X.25 signaling link from the database using the `dlt-slk` command. To remove SS7 signaling links from the database, go to the "Removing an SS7 Signaling Link" procedure in the *Database Administration Manual – SS7*.

The `dlt-slk` command uses these parameters.

`:loc` – The card location of the LIM that the X.25 signaling link is assigned to.

`:link` – The signaling link on the card location specified in the `loc` parameter. For an X.25 signaling link, this parameter value is A.

`:force` – This parameter must be used to remove the last link in a linkset without having to remove all of the routes that referenced the linkset.

The examples in this procedure are used to remove the X.25 signaling link assigned to card 1207 from the database.

The X.25 signaling link to be removed must exist in the database.

All X.25 routes associated with this link must be removed before the X.25 signaling link can be removed. See the [Removing an X.25 Route](#) on page 136 procedure.

Canceling the RTRV-SLK Command

Because the `rtrv-slk` command used in this procedure can output information for a long period of time, the `rtrv-slk` command can be canceled and the output to the terminal stopped. There are three ways that the `rtrv-slk` command can be canceled.

- Press the F9 function key on the keyboard at the terminal where the `rtrv-slk` command was entered.
- Enter the `canc-cmd` without the `trm` parameter at the terminal where the `rtrv-slk` command was entered.
- Enter the `canc-cmd:trm=<xx>`, where `<xx>` is the terminal where the `rtrv-slk` command was entered, from another terminal other than the terminal where the `rtrv-slk` command was entered. To enter the `canc-cmd:trm=<xx>` command, the terminal must allow Security Administration commands to be entered from it and the user must be allowed to enter Security Administration commands. The terminal's permissions can be verified with the `rtrv-secu-trm` command. The user's permissions can be verified with the `rtrv-user` or `rtrv-secu-user` commands.

For more information about the `canc-cmd` command, go to the *Commands Manual*.

1. Display the current link configuration using the `rtrv-slk` command. This is an example of the possible output.

```
rlghncxa03w 06-10-28 21:16:37 GMT EAGLE5 36.0.0
```

LOC	LINK	LSN	SLC	TYPE	L2T SET	BPS	L1 MODE	TSET	ECM	PCR N1	PCR N2
1201	A	lsn1201a	0	LIMDS0	1	56000	---	---	BASIC	---	-----
1201	B	lsn1201b	0	LIMDS0	1	56000	---	---	PCR	76	3800
1202	A	lsn1202a	0	LIMV35	-	64000	DTE	---	BASIC	---	-----
1202	B	lsn1202b	1	LIMV35	3	64000	DCE	ON	BASIC	---	-----
1203	A	lsn1203a	0	LIMV35	1	56000	DCE	ON	BASIC	76	3800
1203	B	lsn1203b	0	LIMV35	1	56000	DCE	OFF	PCR	120	5034
1204	A	lsn1204a	1	LIMV35	3	64000	DCE	ON	PCR	76	3800
1204	B	lsn1204b	1	LIMV35	3	64000	DCE	ON	PCR	76	3800
1205	A	ls03	0	LIMV35	-	56000	DTE	--	BASIC	---	-----
1206	A	ls03	1	LIMV35	-	56000	DTE	--	BASIC	---	-----
1207	A	ls04	0	LIMV35	-	64000	DTE	--	BASIC	---	-----
1301	A	lsn1301a	0	LIMDS0	-	56000	---	--	BASIC	---	-----

LOC	LINK	LSN	SLC	TYPE	LP SET	BPS	ATM TSEL	VCI	VPI	LL
1302	A	atmansio	0	LIMATM	3	1544000	INTERNAL	35	15	0
1305	A	atmansil	0	LIMATM	4	1544000	INTERNAL	100	20	2
1318	A	atmansio	1	LIMATM	9	1544000	LINE	150	25	4

SLK table is (15 of 1200) 1% full.

2. Deactivate the X.25 signaling link to be removed using the `dact-slk` command, using the output from step 1 to obtain the card location and the signaling link to be removed. For this example, enter this command.

```
dact-slk:loc=1207:link=a
```

When this command has successfully completed, this message should appear.

```
rlghncxa03w 06-10-28 08:41:12 GMT EAGLE5 36.0.0
Deactivate Link message sent to card
```

- Verify that the X.25 signaling link is out of service - maintenance (OOS-MT) using the `rept-stat-slk` command, using the card location and the signaling link. For this example, enter this command.

```
rept-stat-slk:loc=1207:link=a
```

This is an example of the possible output.

```
rlghncxa03w 06-10-28 17:00:36 GMT EAGLE5 36.0.0
SLK      LSN      CLLI      PST      SST      AST
1207,A   ls04      -----  OOS-MT   Unavail   ----
ALARM STATUS      = *    0221 REPT-LKF: X25 link unavailable
UNAVAIL REASON    = X25FL
Command Completed.
```

- Before the X.25 signaling link can be removed from the database, any X.25 routes associated with the X.25 signaling link must be removed from the database. Enter the `rtrv-x25-rte` command to display the X.25 routes in the database. This is an example if the possible output.

```
rlghncxa03w 06-10-28 21:16:37 GMT EAGLE5 36.0.0
X25 ADDR      SS7 ADDR      TYPE LOC  PORT  LC  RT  LC2NM
11101         44401         pvc 1205  a    01  xpc  no
11102         55501         pvc 1206  a    02  pc   no
22201         44401         pvc 1205  a    02  pc   no
22202         55501         pvc 1206  a    01  xpc  yes
33301         44401         svca 1207  a    --  pc   no
33302         55501         svca 1207  a    --  pc   no
X.25 ROUTE TABLE IS 30 % FULL
```

- If any X.25 routes shown in the output of step 5 are assigned to the X.25 signaling links shown in the output of step 4, remove those X.25 routes by using the `dlt-x25-rte` command. For this example, enter these commands.

```
dlt-x25-rte:xaddr=33301:saddr=44401
```

```
dlt-x25-rte:xaddr=33302:saddr=55501
```

When each of these commands have successfully completed, this message should appear.

```
rlghncxa03w 06-10-28 11:43:04 GMT EAGLE5 36.0.0
DLT-X25-RTE: MASP A - X.25 Route table 30% full
DLT-X25-RTE: MASP A - COMPLTD
```

- Verify the changes using the `rtrv-x25-rte` command. This is an example of the possible output.

```
rlghncxa03w 06-10-28 21:16:37 GMT EAGLE5 36.0.0
X25 ADDR      SS7 ADDR      TYPE LOC  PORT  LC  RT  LC2NM
11101         44401         pvc 1205  a    01  xpc  no
11102         55501         pvc 1206  a    02  pc   no
22201         44401         pvc 1205  a    02  pc   no
22202         55501         pvc 1206  a    01  xpc  yes
X.25 ROUTE TABLE IS 30 % FULL
```

- Because there can only be one X.25 signaling link assigned to a LIM, that card must be inhibited. Enter the `rmv-card` command and specify the location of the card to be inhibited. The card location is shown in the output of `rept-stat-slk` command executed in step 4. For this example, enter this command.

```
rmv-card:loc=1207
```

When this command has successfully completed, this message should appear.

```
rlghncxa03w 06-10-28 08:41:12 GMT EAGLE5 36.0.0
Card has been inhibited.
```

- Remove the X.25 signaling link from the database using the `dlt-slk` command. If this X.25 signaling link is the last link in a linkset, the `force=yes` parameter must be specified. For this example, enter this command.

```
dlt-slk:loc=1207:link=a:force=yes
```

When this command has successfully completed, this message should appear.

```
rlghncxa03w 06-10-28 08:41:17 GMT EAGLE5 36.0.0
DLT-SLK: MASP A - COMPLTD
```

- Verify the changes using the `rtrv-slk` command. This is an example of the possible output.

```
rlghncxa03w 06-10-28 21:16:37 GMT EAGLE5 36.0.0
```

LOC	LINK	LSN	SLC	TYPE	L2T SET	BPS	L1 MODE	TSET	ECM	PCR N1	PCR N2
1201	A	lsn1201a	0	LIMDS0	1	56000	---	---	BASIC	---	-----
1201	B	lsn1201b	0	LIMDS0	1	56000	---	---	PCR	76	3800
1202	A	lsn1202a	0	LIMV35	-	64000	DTE	---	BASIC	---	-----
1202	B	lsn1202b	1	LIMV35	3	64000	DCE	ON	BASIC	---	-----
1203	A	lsn1203a	0	LIMV35	1	56000	DCE	ON	BASIC	76	3800
1203	B	lsn1203b	0	LIMV35	1	56000	DCE	OFF	PCR	120	5034
1204	A	lsn1204a	1	LIMV35	3	64000	DCE	ON	PCR	76	3800
1204	B	lsn1204b	1	LIMV35	3	64000	DCE	ON	PCR	76	3800
1205	A	ls03	0	LIMV35	-	56000	DTE	--	BASIC	---	-----
1206	A	ls03	1	LIMV35	-	56000	DTE	--	BASIC	---	-----
1301	A	lsn1301a	0	LIMDS0	-	56000	---	--	BASIC	---	-----

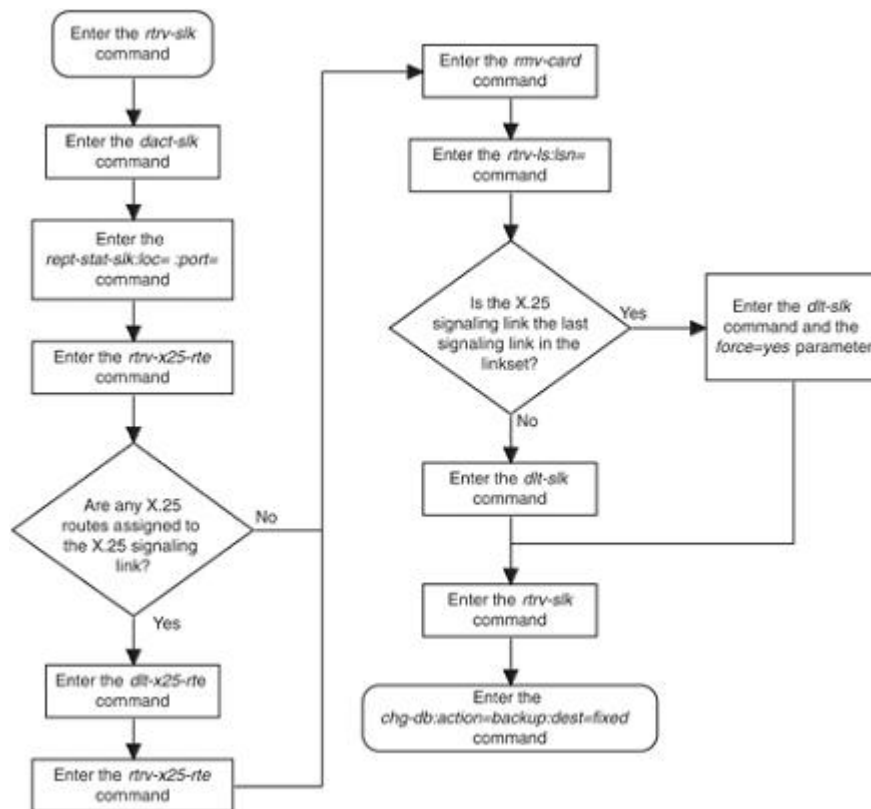
LOC	LINK	LSN	SLC	TYPE	LP SET	BPS	ATM TSEL	VCI	VPI	LL
1302	A	atmansio	0	LIMATM	3	1544000	INTERNAL	35	15	0
1305	A	atmansil	0	LIMATM	4	1544000	INTERNAL	100	20	2
1318	A	atmansio	1	LIMATM	9	1544000	LINE	150	25	4

```
SLK table is (15 of 1200) 1% full.
```

- Backup the new changes using the `chg-db:action=backup:dest=fixed` command. These messages should appear, the active Maintenance and Administration Subsystem Processor (MASP) appears first.

```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk complete.
BACKUP (FIXED) : MASP A - Backup starts on standby MASP.
BACKUP (FIXED) : MASP A - Backup on standby MASP to fixed disk complete.
```

Figure 15: Removing an X.25 Signaling Link



Adding an X.25 Route

This procedure is used to add an X.25 route to the database using the `ent-x25-rte` command.

The `ent-x25-rte` command uses these parameters.

`:xaddr` – The X.25 address assigned to the X.25 destination entity on the X.25 side of the circuit.

`:saddr` – The dummy X.25 address assigned to the SS7 destination entity on the SS7 side of the circuit.

`:type` – The type of X.25 connection that the link is expected to maintain.

`:loc` – The card location of the LIM containing the X.25 signaling link that will maintain the connection. For an automatic virtual circuit, this link is the link on which the EAGLE 5 ISS initially attempts the connection. However, if this attempt fails, the connection may be established by the X.25 destination entity on any other link in this link's linkset.

`:port` – The signaling link on the card specified in the `loc` parameter. For an X.25 signaling link, this parameter value is A.

`:lc` – The number of the logical channel on the X.25 signaling link to which the PVC connection is assigned. This parameter is mandatory if the `type=pvc` parameter is specified. If the `type=svca` or `type=svcr` parameters are specified, the logical channel number is arbitrary and cannot be specified.

:rt – The type of routing to perform for messages originating in the SS7 domain and destined for the X.25 domain. Two types of routing are available: (1) Route on X.25 destination point code (XPC) and (2) Route using X.25 origination and destination point code combinations (PC).

:lc2nm – Invokes network management for failures and recoveries of logical channels. When the logical channel being used to carry data fails, network management reroutes traffic to an alternate route. The logical channel to network management mapping (LC2NM) feature handles this process.

The examples in this procedure are based on the example network shown in [Figure 5: Typical X.25/SS7 Gateway Configuration](#) on page 22 and [Table 8: X.25/SS7 Gateway Route Configuration](#) on page 122 and are used to add X.25 signaling links to cards 1205, 1206, and 1207.

Table 8: X.25/SS7 Gateway Route Configuration

Conn #	X.25 Address	SS7 Address	X.25 Point Code/SSN	SS7 Point Code/SSN	Connection Type	Location	Port	Logical Channel
1	11101	44401	1-1-1/5	4-4-4/5	PVC	1205	A	1
2	11102	55501	1-1-1/5	5-5-5/5	PVC	1206	A	2
3	22201	44401	2-2-2/5	4-4-4/5	PVC	1205	A	2
4	22202	55501	2-2-2/10	5-5-5/10	PVC	1206	A	1
5	33301	44401	3-3-3/6	4-4-4/6	Auto-SVC	1207	A	--
6	33302	55501	3-3-3/7	5-5-5/7	Auto-SVC	1207	A	--

These items must be provisioned in the database before an X.25 route can be added:

- A LIM assigned to the `ss7gx25` application – see [Adding an X.25 LIM](#) on page 23 .
- An destination point code (DPC) assigned to the X.25 domain and a DPC assigned to the SS7 domain – see the "Adding a Destination Point Code" procedure in the *Database Administration Manual – SS7* .

Note:

ITU international or ITU national point codes cannot be assigned to the X.25 domain.

- An X.25 destination – see [Adding an X.25 Gateway Destination](#) on page 32
- A linkset whose adjacent point code (APC) is in the X.25 domain – see [Adding an X.25 Linkset](#) on page 45 procedure
- A signaling link assigned to a linkset containing an X.25 APC – see [Adding an X.25 Signaling Link](#) on page 106
- A route assigned to the linkset containing the X.25 APC – see the "Adding a Route Containing an X.25 DPC" procedure in the *Database Administration Manual – SS7* .

The X.25 gateway route to be added cannot already be in the database. The combination of the two X.25 addresses must be unique in the X.25 route table. The combination of point code/SSNs assigned to the two X.25 addresses must be unique in the X.25 route table. This can be verified with the `rtrv-x25-rte` command.

The point codes assigned to each of the X.25 destinations must also be assigned to a route. This can be verified with the `rtrv-rte` command.

The point codes assigned to each of the X.25 destinations must be a full point code. Cluster point codes and network routing point codes cannot be specified for X.25 destinations. For more information on cluster point codes, go to the "Cluster Routing and Management Diversity" section in the *Database Administration Manual – SS7*. For more information on network routing point codes, go to the "Network Routing" section in the *Database Administration Manual – SS7*.

Two new parameters have been added to the `ent-x25-rte` command, `rt` and `lc2nm`. The `rt` parameter defines the type of routing to perform on messages originating in the SS7 domain and destined for the X.25 domain. This parameter has two values, `xpc` and `pc`. The `rt=xpc` parameter routes the message based on the X.25 destination point code. The `rt=pc` parameter routes the message based on the X.25 origination and destination point code combination.

If the `rt=xpc` parameter is specified, the point code associated with the X.25 address used for this X.25 route cannot be in the X.25 route table. This can be verified with the `rtrv-x25-rte` command.

The X.25 network is connection oriented. All traffic from one node to another node uses one and only one logical channel. Once a logical channel is mapped to a pair of nodes, it cannot be used by any other pair of nodes.

When a logical channel on a particular X.25 route can no longer carry traffic between two nodes, the traffic between those two nodes can be rerouted to alternate routes with the logical channel to network management function and is specified by the `lc2nm` parameter. This function maps logical channel failures and recoveries to SS7 network management messages so that the alternate routing for the X.25 routes can be managed.

If the `lc2nm=yes` parameter is specified, then network management for logical channel failures and recoveries is performed. If the `lc2nm=no` parameter is specified, there is no network management for logical channel failures and recoveries.

If the X.25 route has the `lc2nm` parameter set to `yes`, and this X.25 route contains an X.25 destination whose X.25 destination point code is a member of a cluster, make sure that the `bei` parameter of the cluster containing the X.25 destination point code is set to `no`. Enter the `rtrv-x25-dstn` command to verify the destination point code that is assigned to the X.25 destination. Enter the `rtrv-dstn` command to verify that the X.25 destination point code is a member of a cluster and to verify the value of the `bei` parameter of the cluster. If the X.25 destination point code is not a member of a cluster, and you wish to use the `lc2nm=yes` parameter with the X.25 route, enter the `rtrv-dstn` command to verify that the value of the `bei` parameter for that X.25 destination point code is set to `no`. To change the existing value the `bei` parameter, go to the "Changing a Destination Point Code procedure in the *Database Administration Manual – SS7*". For more information on the interaction of X.25 destination point codes and clusters, go to the "Adding a Destination Point Code" procedure in the *Database Administration Manual – SS7*.

To specify the `lc2nm=yes` parameter, the `rt=xpc` parameter must be specified, and the point code that the message is to be routed on (`xpc`) cannot be an adjacent point code. This can be verified by first entering the `rtrv-x25-dstn` command to find the point code and X.25 address association, then the `rtrv-ls` command to display the linksets and the adjacent point codes they are assigned to. Any X.25 address that is associated with an adjacent point code, comparing the

outputs of the `rtrv-x25-dstn` and `rtrv-ls` commands, cannot be used if the `ent-x25-rte` command specifies the `lc2nm=yes` parameter.

If the `lc2nm=yes` parameter is specified for the X.25 route in the linkset and the linkset has gateway screening associated with it, gateway screening must be configured to allow TFA and TFP network management messages on this linkset to pass through the EAGLE 5 ISS. Go to the *Database Administration Manual - Gateway Screening* for details on how to create a screen that allows network management messages.

To allow TFA messages to pass through the EAGLE 5 ISS on this linkset, the allowed SIO screen must contain these parameters: `si=0`, `h0=4`, `h1=5`. To allow TFP messages to pass through the EAGLE 5 ISS on this linkset, the allowed SIO screen must contain these parameters: `si=0`, `h0=4`, `h1=1`. This can be verified with the `rtrv-scr-sio` command. If the allowed SIO screen that allows TFA and TFP messages is not in the database, go to the “Adding an Allowed SIO Screen” procedure in the *Database Administration Manual - Gateway Screening* to add the allowed SIO screen with these parameters. If the required allowed SIO screen does not contain the parameters to allow the TFA and TFP messages, go to the “Changing an Allowed SIO Screen” procedure in the *Database Administration Manual - Gateway Screening* to change the parameters of this allowed SIO screen.

1. Display the current X.25 route configuration using the `rtrv-x25-rte` command.

This is an example of the possible output.

```
rlghncxa03w 06-10-28 21:16:37 GMT EAGLE5 36.0.0
X25 ADDR          SS7 ADDR          TYPE LOC PORT LC RT LC2NM
2510010011234567 342342341234567   pvc 1201 a 02 xpc yes
251001002         234234231         pvc 1201 a 04 pc  no
51200105          34223422845       svca 1202 a -- pc  no
2510103          232330            pvc 1201 a 06 xpc yes
2510103          232330            svcr ---- - -- pc  no
2516019002       24247235          svca 3205 a -- pc  no
345454           4545434           svca 1201 a -- pc  no
X.25 ROUTE TABLE IS 30 % FULL
```

2. Add the X.25 route using the `ent-x25-rte` command.

For this example, enter these commands.

```
ent-x25-rte:xaddr=11101:saddr=44401:type=pvc:loc=1205:port=a:lc=1
ent-x25-rte:xaddr=11102:saddr=55501:type=pvc:loc=1206:port=a:lc=2
ent-x25-rte:xaddr=22201:saddr=44401:type=pvc:loc=1205:port=a:lc=2
ent-x25-rte:xaddr=22201:saddr=55501:type=pvc:loc=1206:port=a:lc=1
ent-x25-rte:xaddr=33301:saddr=44401:type=svca:loc=1207:port=a
ent-x25-rte:xaddr=33302:saddr=55502:type=svca:loc=1207:port=a
```

When each of these commands have successfully completed, this message should appear.

```
rlghncxa03w 06-10-28 11:43:04 GMT EAGLE5 36.0.0
ENT-X25-RTE: MASP A - X.25 Route table 32% full
ENT-X25-RTE: MASP A - COMPLTD
```

3. Verify the changes using the `rtrv-x25-rte` command.

This is an example of the possible output.

```

rlghncxa03w 06-10-28 21:16:37 GMT EAGLE5 36.0.0
X25 ADDR          SS7 ADDR          TYPE LOC  PORT  LC  RT  LC2NM
11101             44401             pvc 1205  a    01  pc  no
11102             55501             pvc 1206  a    02  pc  no
22201             44401             pvc 1205  a    02  pc  no
22202             55501             pvc 1206  a    01  pc  no
2510010011234567 342342341234567  pvc 1201  a    02  xpc yes
251001002         234234231         pvc 1201  a    04  pc  no
2510103           232330            pvc 1201  a    06  xpc yes
2510103           232330            svcr ---- -    --  pc  no
2516019002       24247235          svca 3205  a    --  pc  no
33301             44401             svca 1207  a    --  pc  no
33302             55501             svca 1207  a    --  pc  no
345454           4545434           svca 1201  a    --  pc  no
51200105         34223422845       svca 1202  a    --  pc  no
6389012          57982             pvc 1301  a    01  xpc yes
X.25 ROUTE TABLE IS 30 % FULL

```

4. Backup the new changes using the `chg-db:action=backup:dest=fixed` command.

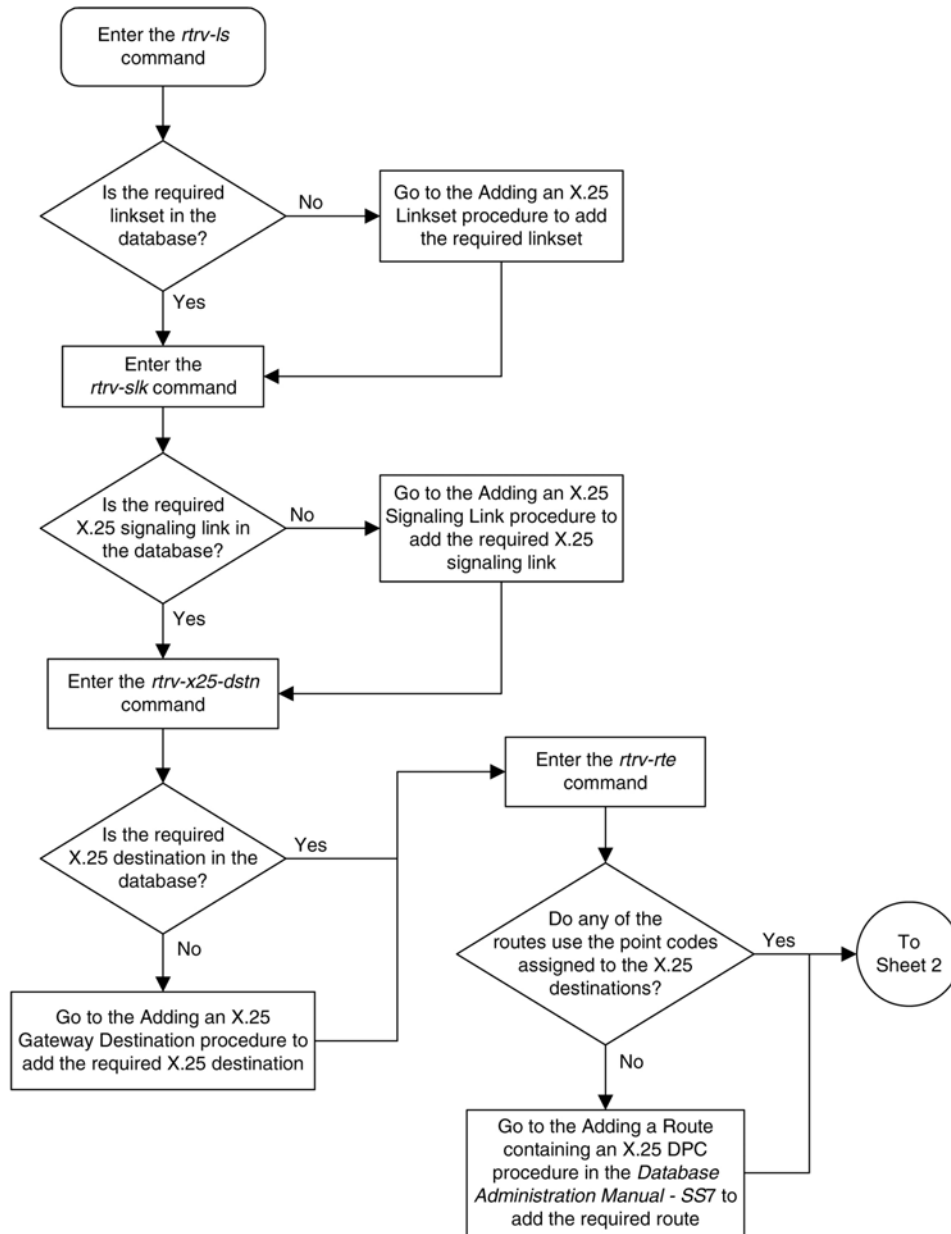
These messages should appear, the active Maintenance and Administration Subsystem Processor (MASP) appears first.

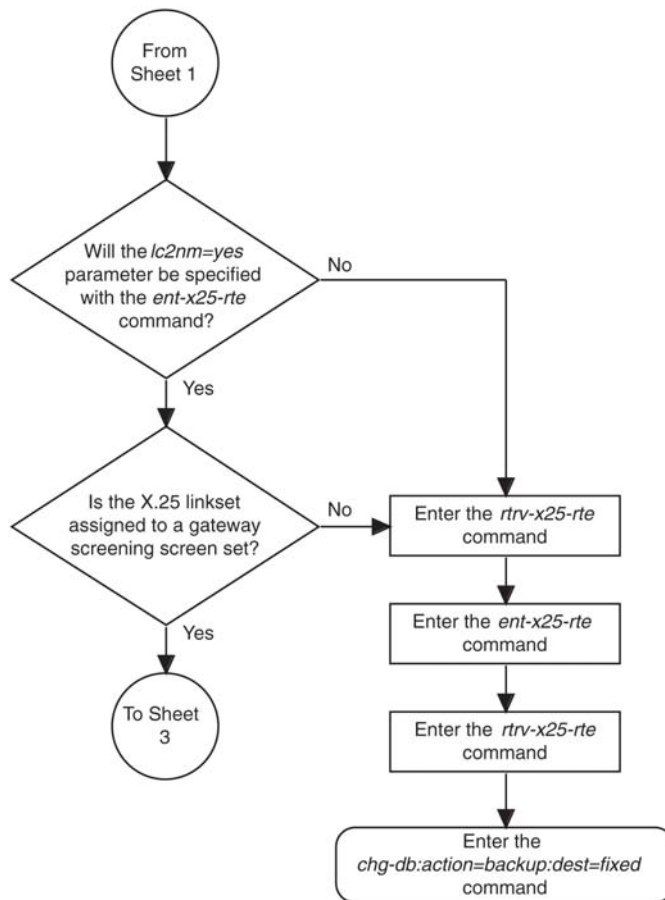
```

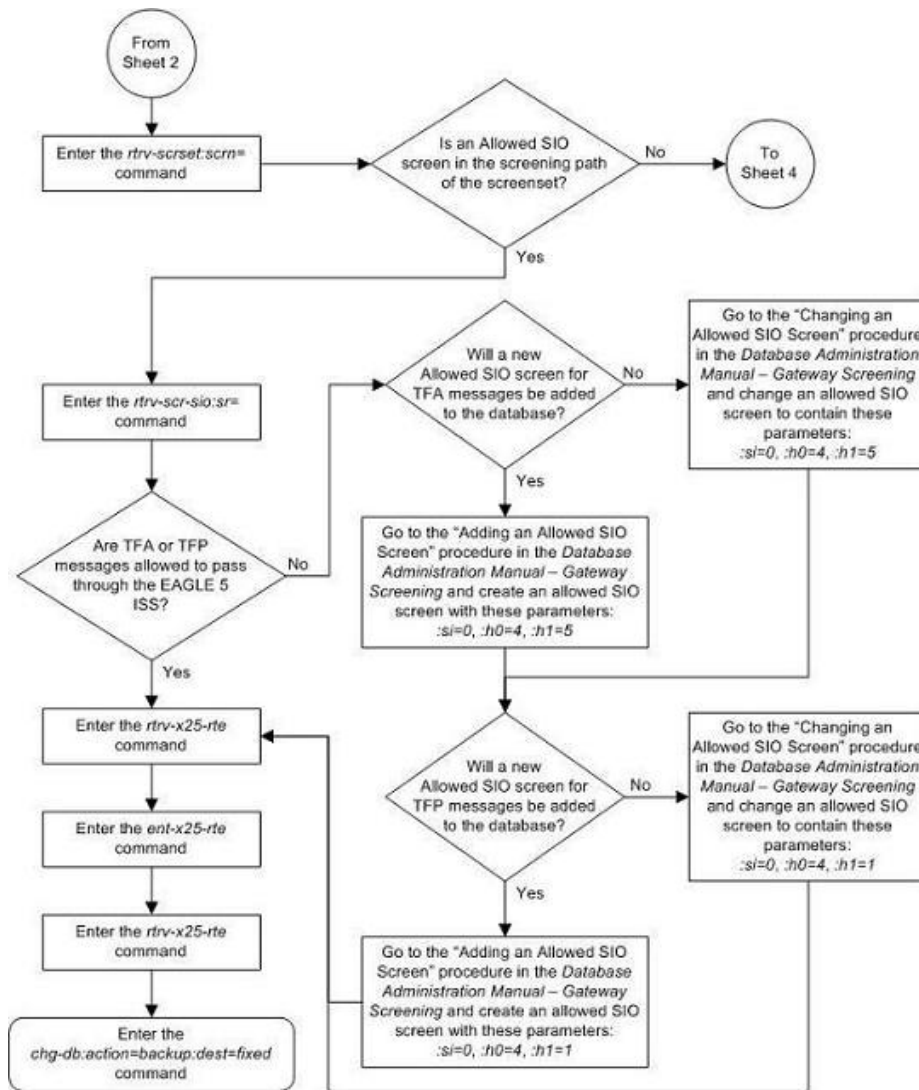
BACKUP (FIXED) : MASP A - Backup starts on active MASP.
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk complete.
BACKUP (FIXED) : MASP A - Backup starts on standby MASP.
BACKUP (FIXED) : MASP A - Backup on standby MASP to fixed disk complete.

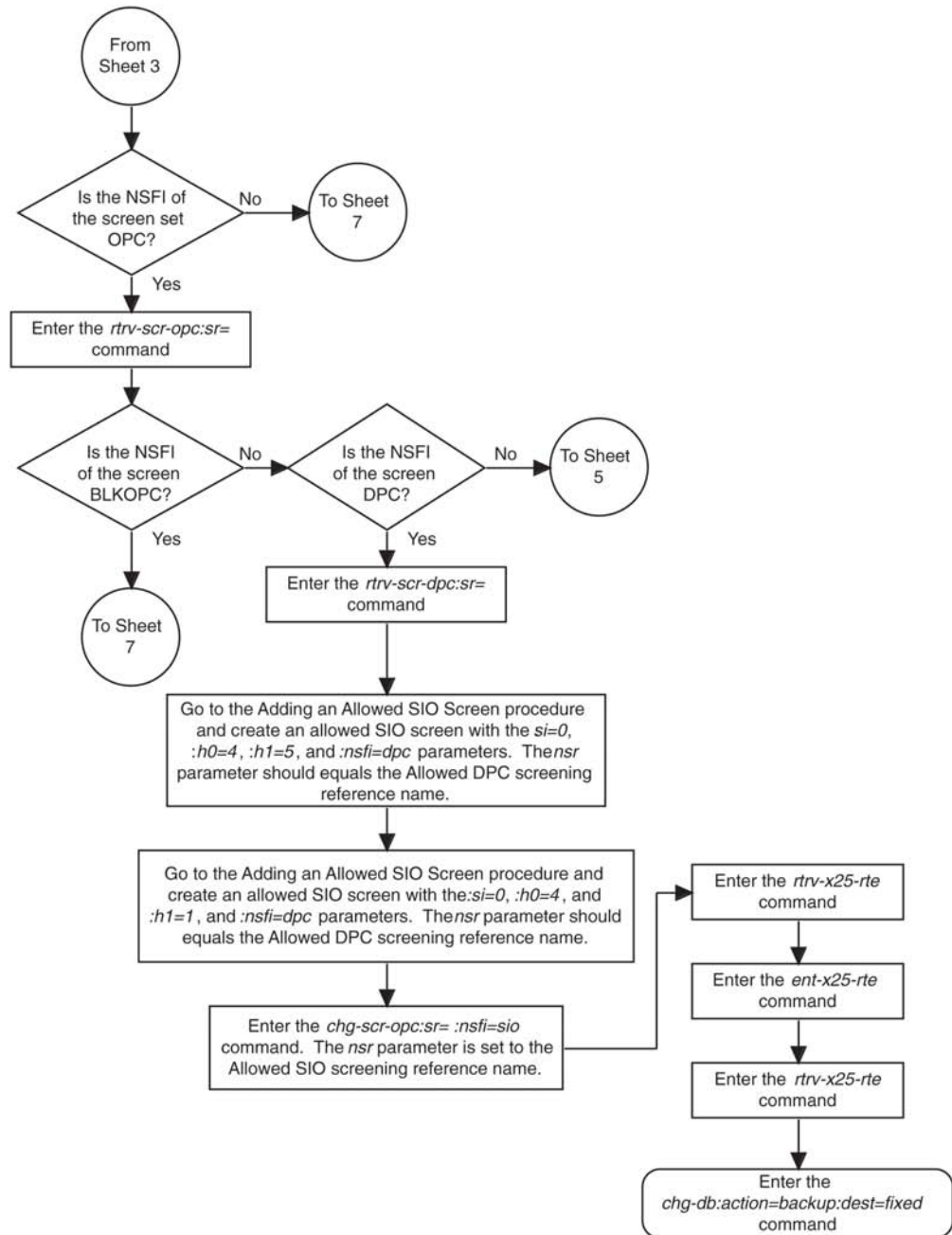
```

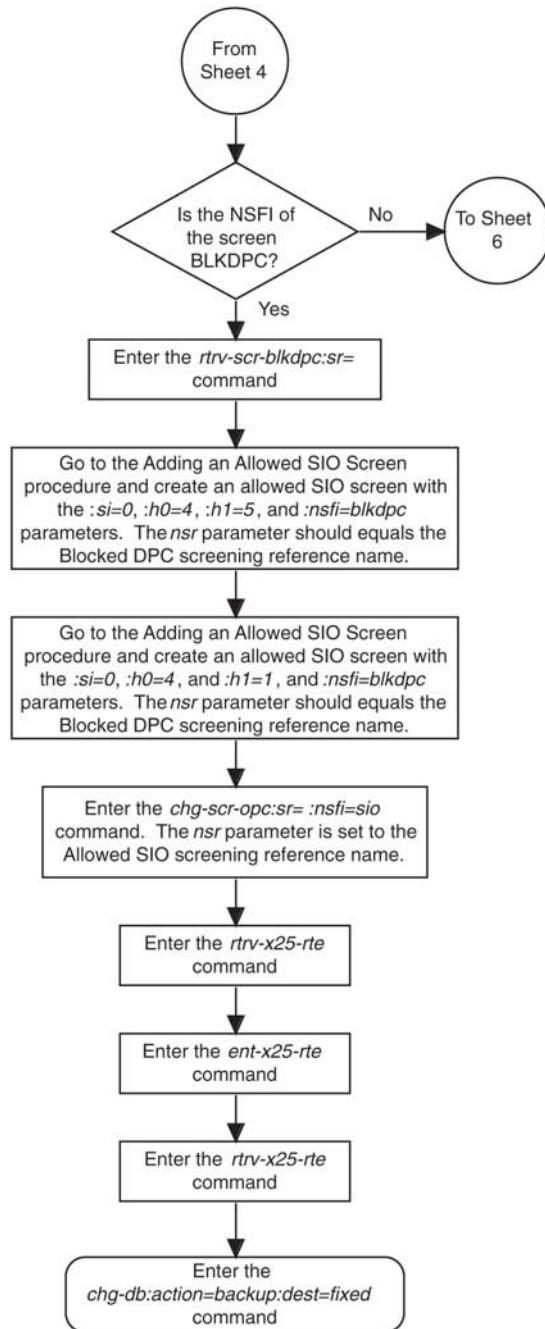
Figure 16: Adding an X.25 Route

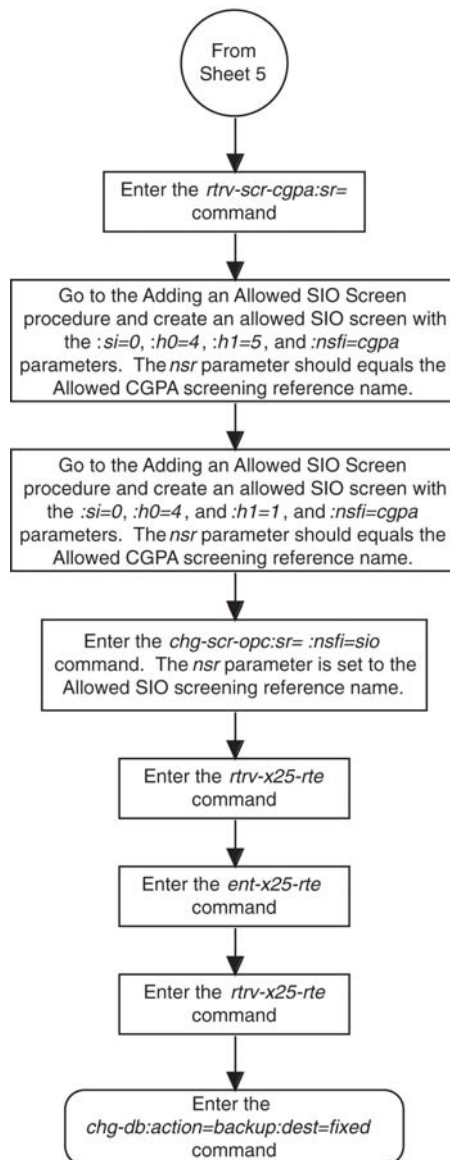


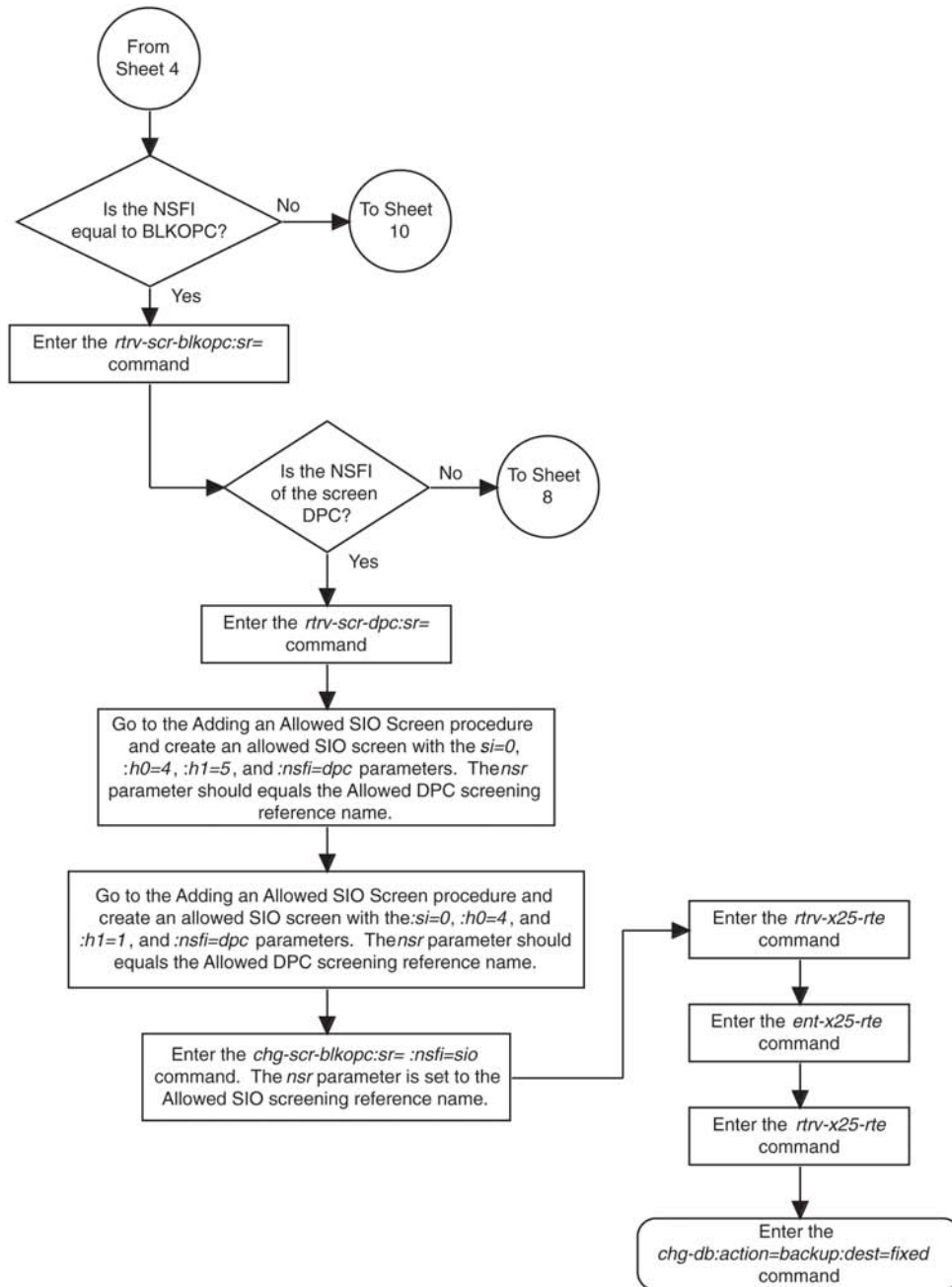


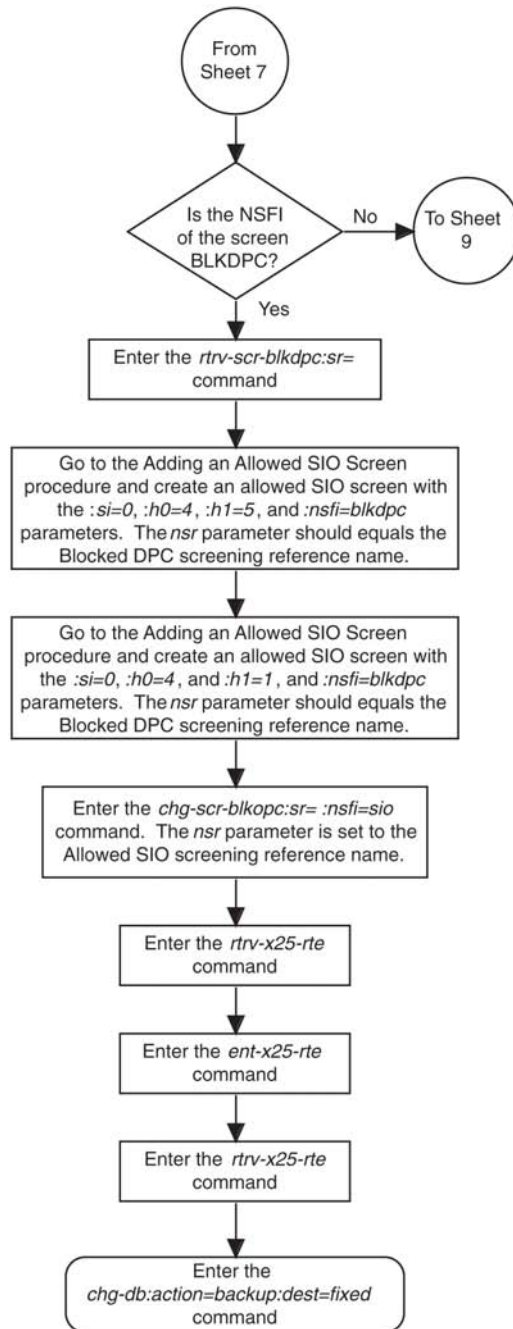


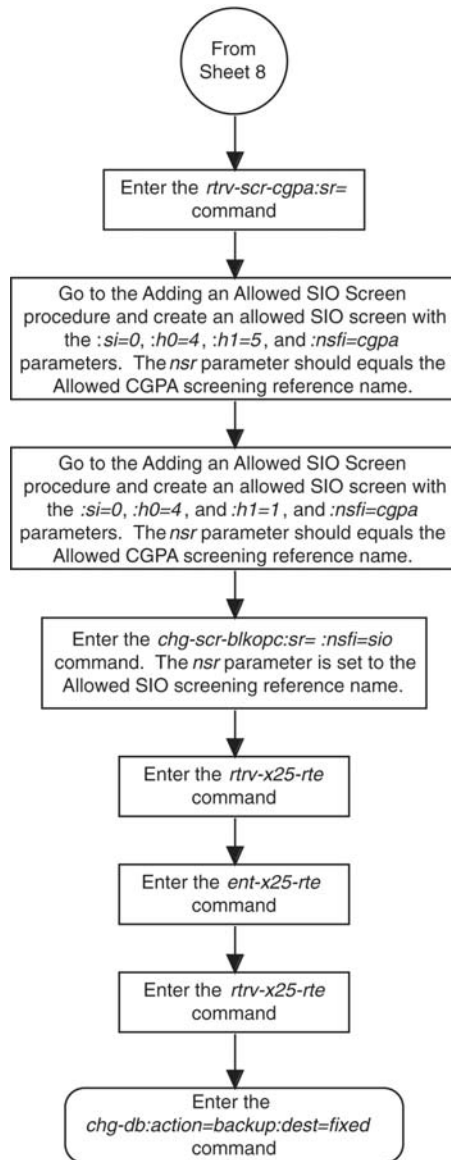


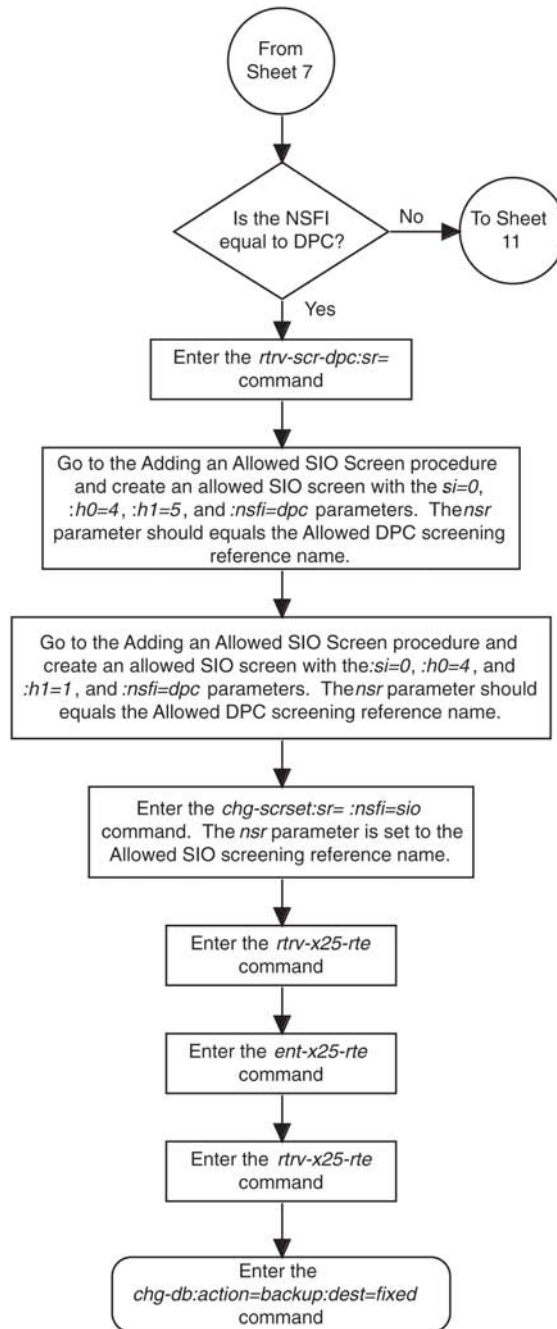


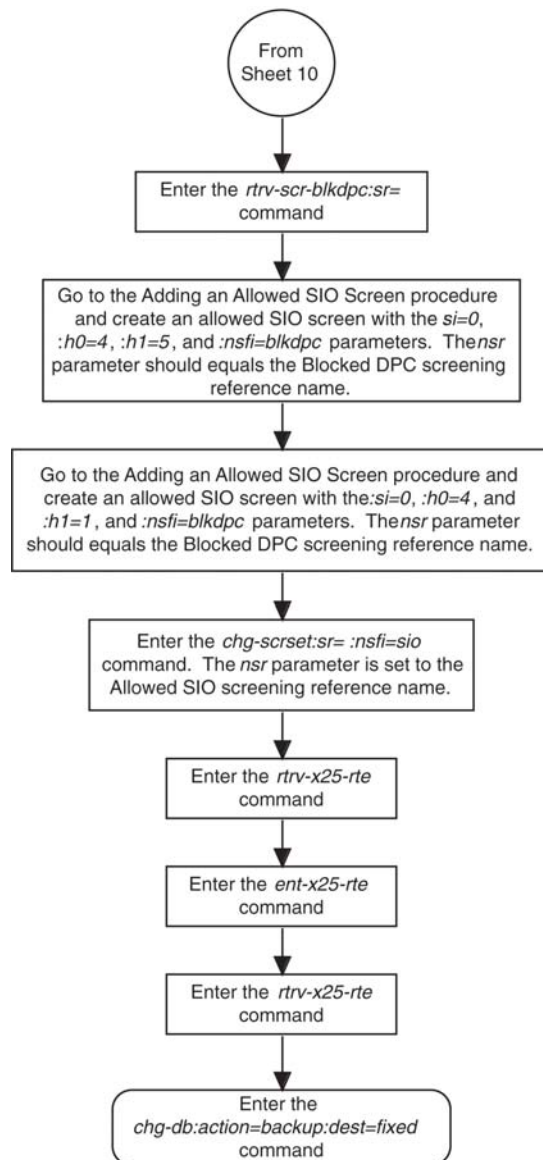












Removing an X.25 Route

This procedure is used to remove an X.25 route from the database using the *dlt-x25-rte* command.

The *dlt-x25-rte* command uses these parameters.

:xaddr – The X.25 address assigned to the X.25 destination entity on the X.25 side of the circuit.

:saddr – The dummy X.25 address assigned to the SS7 destination entity on the SS7 side of the circuit.

The examples in this procedure are used to remove the X.25 route with the X.25 address (xaddr) of 22202 and an SS7 address (saddr) of 55501.

The X.25 route to be removed must be in the database. This can be verified in step 1.

1. Display the current X.25 route configuration using the `rtrv-x25-rte` command.

This is an example of the possible output.

```
rlghncxa03w 06-10-28 21:16:37 GMT EAGLE5 36.0.0
X25 ADDR          SS7 ADDR          TYPE  LOC  PORT  LC  RT  LC2NM
11101             44401             pvc   1205 a    01  pc  no
11102             55501             pvc   1206 a    02  pc  no
22201             44401             pvc   1205 a    02  pc  no
22202             55501             pvc   1206 a    01  pc  no
2510010011234567 342342341234567  pvc   1201 a    02  xpc yes
251001002         234234231         pvc   1201 a    04  pc  no
2510103           232330            pvc   1201 a    06  xpc yes
2510103           232330            svcr   ---- -    --  pc  no
2516019002       24247235          svca   3205 a    --  pc  no
33301             44401             svca   1207 a    --  pc  no
33302             55501             svca   1207 a    --  pc  no
345454           4545434           svca   1201 a    --  pc  no
51200105         34223422845      svca   1202 a    --  pc  no
6389012          57982             pvc   1301 a    01  xpc yes
X.25 ROUTE TABLE IS 30 % FULL
```

2. Remove the X.25 route using the `dlt-x25-rte` command.

For this example, enter this command.

```
dlt-x25-rte:xaddr=22202:saddr=55501
```

When this command has successfully completed, this message should appear.

```
rlghncxa03w 06-10-28 11:43:04 GMT EAGLE5 36.0.0
DLT-X25-RTE: MASP A - X.25 Route table 30% full
DLT-X25-RTE: MASP A - COMPLTD
```

3. Verify the changes using the `rtrv-x25-rte` command.

This is an example of the possible output.

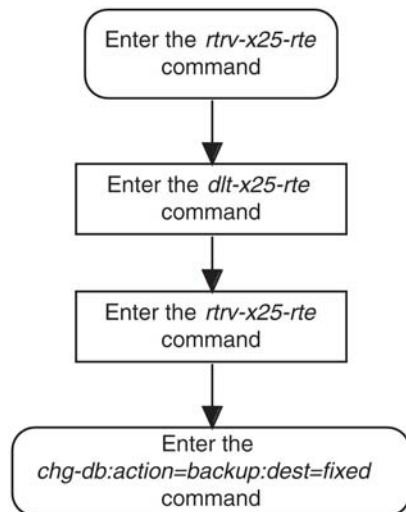
```
rlghncxa03w 06-10-28 21:16:37 GMT EAGLE5 36.0.0
X25 ADDR          SS7 ADDR          TYPE  LOC  PORT  LC  RT  LC2NM
11101             44401             pvc   1205 a    01  pc  no
11102             55501             pvc   1206 a    02  pc  no
22201             44401             pvc   1205 a    02  pc  no
2510010011234567 342342341234567  pvc   1201 a    02  xpc yes
251001002         234234231         pvc   1201 a    04  pc  no
2510103           232330            pvc   1201 a    06  xpc yes
2510103           232330            svcr   ---- -    --  pc  no
2516019002       24247235          svca   3205 a    --  pc  no
33301             44401             svca   1207 a    --  pc  no
33302             55501             svca   1207 a    --  pc  no
345454           4545434           svca   1201 a    --  pc  no
51200105         34223422845      svca   1202 a    --  pc  no
6389012          57982             pvc   1301 a    01  xpc yes
X.25 ROUTE TABLE IS 30 % FULL
```

4. Backup the new changes using the `chg-db:action=backup:dest=fixed` command.

These messages should appear, the active Maintenance and Administration Subsystem Processor (MASP) appears first.

```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk complete.
BACKUP (FIXED) : MASP A - Backup starts on standby MASP.
BACKUP (FIXED) : MASP A - Backup on standby MASP to fixed disk complete.
```

Figure 17: Removing an X.25 Route



Changing an X.25 Route

This procedure is used to change the attributes of an X.25 route in the database using the `chg-x25-rte` command.

The `chg-x25-rte` command uses these parameters.

- :*xaddr* – The X.25 address assigned to the X.25 destination entity on the X.25 side of the circuit.
- :*saddr* – The alias X.25 address assigned to the SS7 destination entity on the SS7 side of the circuit.
- :*type* – The type of X.25 connection that the link is expected to maintain.
- :*loc* – The card location of the LIM containing the X.25 signaling link that maintains the connection.
- :*port* – The signaling link on the card specified in the *loc* parameter. For an X.25 signaling link, this parameter value is A.
- :*rt* – The type of routing to perform for messages originating in the SS7 domain and destined for the X.25 domain. Two types of routing are available: (1) route on X.25 destination point code (XPC) and (2) route using X.25 origination and destination point code combinations (PC).
- :*lc2nm* – Invokes SS7 MTP network management for failures and recoveries of logical channels.

The examples in this procedure are used to change the attributes of the X.25 route with the X.25 address (*xaddr*) of 11102 and an SS7 address (*saddr*) of 55501. The new configuration of this

X.25 route has a connection type of *svca*, no logical channel assignment, and is assigned to the X.25 signaling link on card 1215.

The X.25 route to be changed must be in the database. This can be verified in step 1.

The card location assigned to the X.25 route must be an X.25 card (card type *ss7x25g*). This can be verified with the *rtrv-card* command.

The signaling link assigned to the X.25 route must be in the database and must be assigned to a linkset. The linkset must be assigned to a route associated with an X.25 destination and must contain an APC in the X.25 domain. This can be verified by entering these commands:

- *rtrv-slk* – to display the signaling links
- *rtrv-ls* – to display the linksets
- *rtrv-rte* – to display the routes
- *rtrv-x25-dstn* – to display the X.25 destinations
- *rtrv-dstn* – to display the destination point codes.

If the *lc2nm=yes* parameter is specified with the *chg-x25-rte* command, the SS7 point code assigned to the X.25 address used by the *xaddr* parameter must be unique in the X.25 routing table.

The *rt=xpc* parameter must be specified with the *chg-x25-rte* command if the *lc2nm=yes* is specified.

If the X.25 destination is an adjacent entity, the *lc2nm=no* parameter must be specified with the *chg-x25-rte* command.

If the X.25 route has the *lc2nm* parameter set to *yes*, and this X.25 route contains an X.25 destination whose X.25 destination point code is a member of a cluster, make sure that the *bei* parameter of the cluster containing the X.25 destination point code is set to *no*. Enter the *rtrv-x25-dstn* command to verify the destination point code that is assigned to the X.25 destination. Enter the *rtrv-dstn* command to verify that the X.25 destination point code is a member of a cluster and to verify the value of the *bei* parameter of the cluster. If the X.25 destination point code is not a member of a cluster, and you wish to use the *lc2nm=yes* parameter with the X.25 route, enter the *rtrv-dstn* command to verify that the value of the *bei* parameter for that X.25 destination point code is set to *no*. To change the existing value the *bei* parameter, go to the "Changing a Destination Point Code" procedure in the *Database Administration Manual – SS7*. For more information on the interaction of X.25 destination point codes and clusters, go to the Adding a Destination Point Code procedure in the *Database Administration Manual – SS7*.

If the *lc2nm=yes* parameter is specified for the X.25 route in the linkset and the linkset has gateway screening associated with it, gateway screening must be configured to allow TFA and TFP network management messages on this linkset to pass through the EAGLE 5 ISS. Refer to the *Database Administration Manual - Gateway Screening* for details on how to create a screen that allows network management messages.

To allow TFA messages to pass through the EAGLE 5 ISS on this linkset, the allowed SIO screen must contain these parameters: *si=0, h0=4, h1=5*. To allow TFP messages to pass through the EAGLE 5 ISS on this linkset, the allowed SIO screen must contain these parameters: *si=0, h0=4, h1=1*. This can be verified with the *rtrv-scr-sio* command. If the allowed SIO screen that allows TFA and TFP messages is not in the database, go to the "Adding an Allowed SIO Screen" procedure in the *Database Administration Manual - Gateway Screening* to add the allowed SIO screen with these parameters. If the required allowed SIO screen does not contain the parameters to allow

the TFA and TFP messages, go to the “Changing an Allowed SIO Screen” procedure in the *Database Administration Manual - Gateway Screening* to change the parameters of this allowed SIO screen.

1. Display the current X.25 route configuration using the `rtrv-x25-rte` command.

This is an example of the possible output.

```
rlghncxa03w 06-10-28 21:16:37 GMT EAGLE5 36.0.0
X25 ADDR          SS7 ADDR          TYPE LOC  PORT  LC  RT   LC2NM
11101             44401             pvc 1205  a    01  pc   no
11102             55501             pvc 1206  a    02  pc   no
22201             44401             pvc 1205  a    02  pc   no
22202             55501             pvc 1206  a    01  pc   no
2510010011234567 342342341234567  pvc 1201  a    02  xpc  yes
251001002         234234231         pvc 1201  a    04  pc   no
2510103           232330            pvc 1201  a    06  xpc  yes
2510103           232330            svcr ---- -    --  pc   no
2516019002       24247235          svca 3205  a    --  pc   no
33301             44401             svca 1207  a    --  pc   no
33302             55501             svca 1207  a    --  pc   no
345454           4545434           svca 1201  a    --  pc   no
51200105         34223422845       svca 1202  a    --  pc   no
6389012          57982             pvc 1301  a    01  xpc  yes
X.25 ROUTE TABLE IS 30 % FULL
```

2. Change the attributes of the X.25 route using the `chg-x25-rte` command.

For this example, enter this command.

```
chg-x25-rte:xaddr=11102:saddr=55501:type=svca:loc=1215:port=a
```

When this command has successfully completed, this message should appear.

```
rlghncxa03w 06-10-28 11:43:04 GMT EAGLE5 36.0.0
CHG-X25-RTE: MASP A - X.25 Route table 30% full
CHG-X25-RTE: MASP A - COMPLTD
```

3. Verify the changes using the `rtrv-x25-rte` command.

This is an example of the possible output.

```
rlghncxa03w 06-10-28 21:16:37 GMT EAGLE5 36.0.0
X25 ADDR          SS7 ADDR          TYPE LOC  PORT  LC  RT   LC2NM
11101             44401             pvc 1205  a    01  pc   no
11102             55501             svca 1215  a    --  pc   no
22201             44401             pvc 1205  a    02  pc   no
22202             55501             pvc 1206  a    01  pc   no
2510010011234567 342342341234567  pvc 1201  a    02  xpc  yes
251001002         234234231         pvc 1201  a    04  pc   no
2510103           232330            pvc 1201  a    06  xpc  yes
2510103           232330            svcr ---- -    --  pc   no
2516019002       24247235          svca 3205  a    --  pc   no
33301             44401             svca 1207  a    --  pc   no
33302             55501             svca 1207  a    --  pc   no
345454           4545434           svca 1201  a    --  pc   no
51200105         34223422845       svca 1202  a    --  pc   no
6389012          57982             pvc 1301  a    01  xpc  yes
X.25 ROUTE TABLE IS 30 % FULL
```

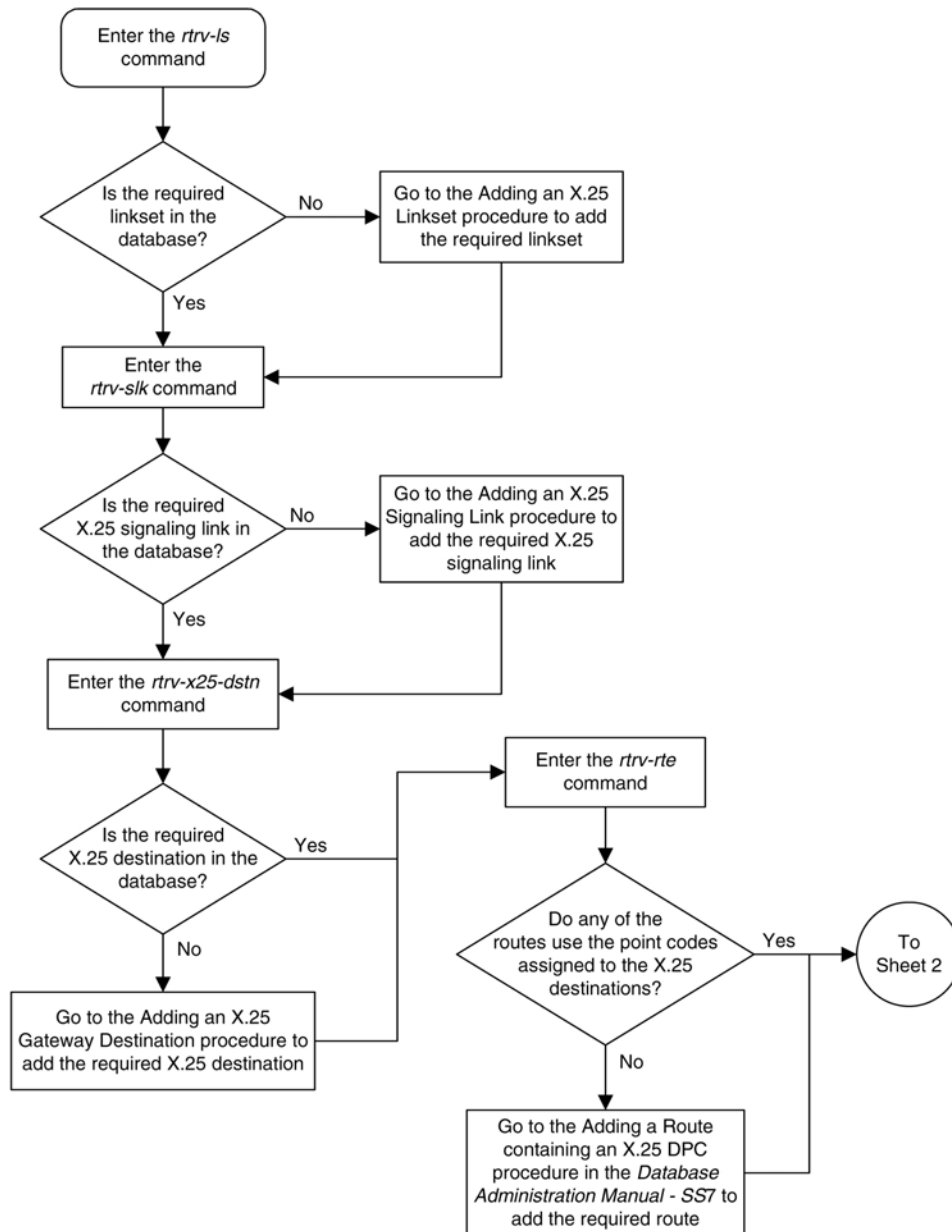
4. Backup the new changes using the `chg-db:action=backup:dest=fixed` command.

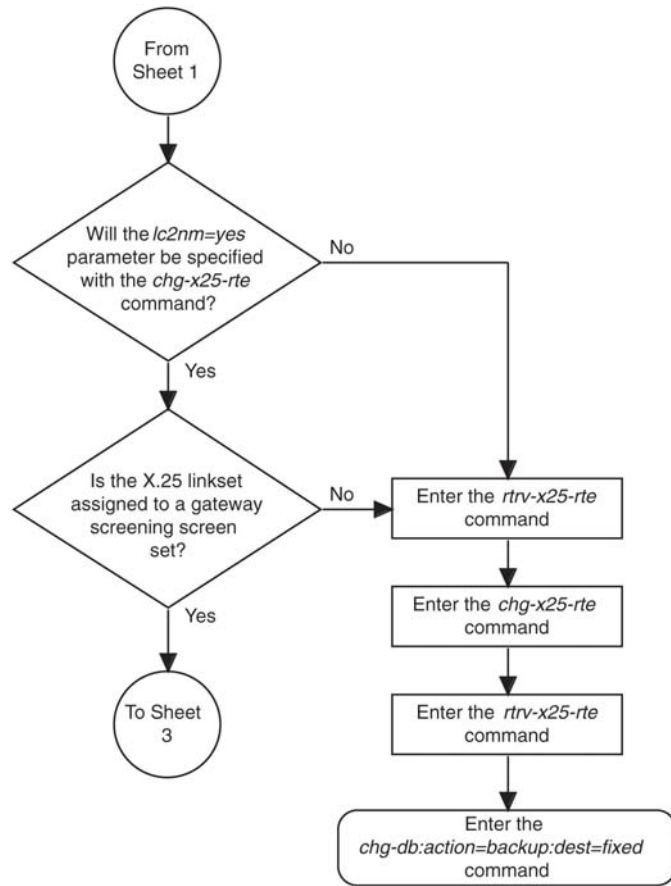
These messages should appear, the active Maintenance and Administration Subsystem Processor (MASP) appears first.

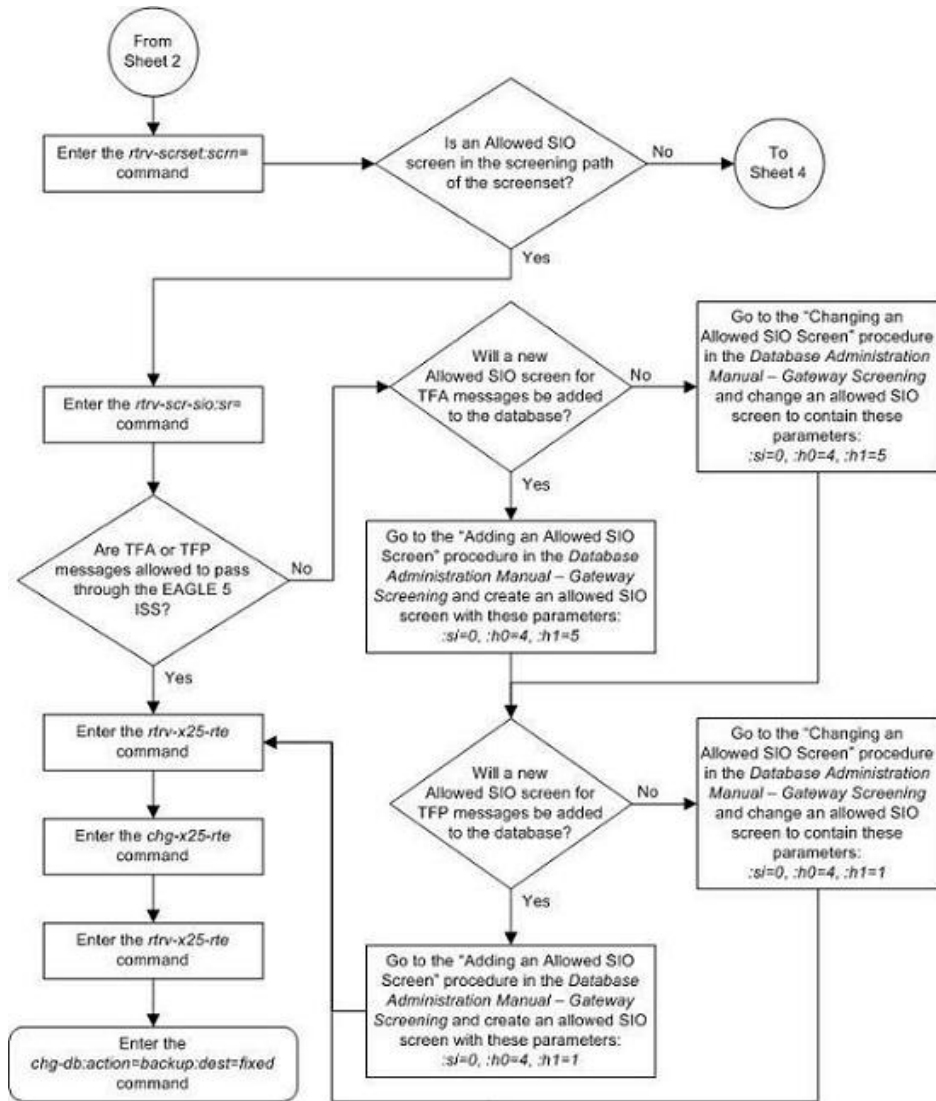
```

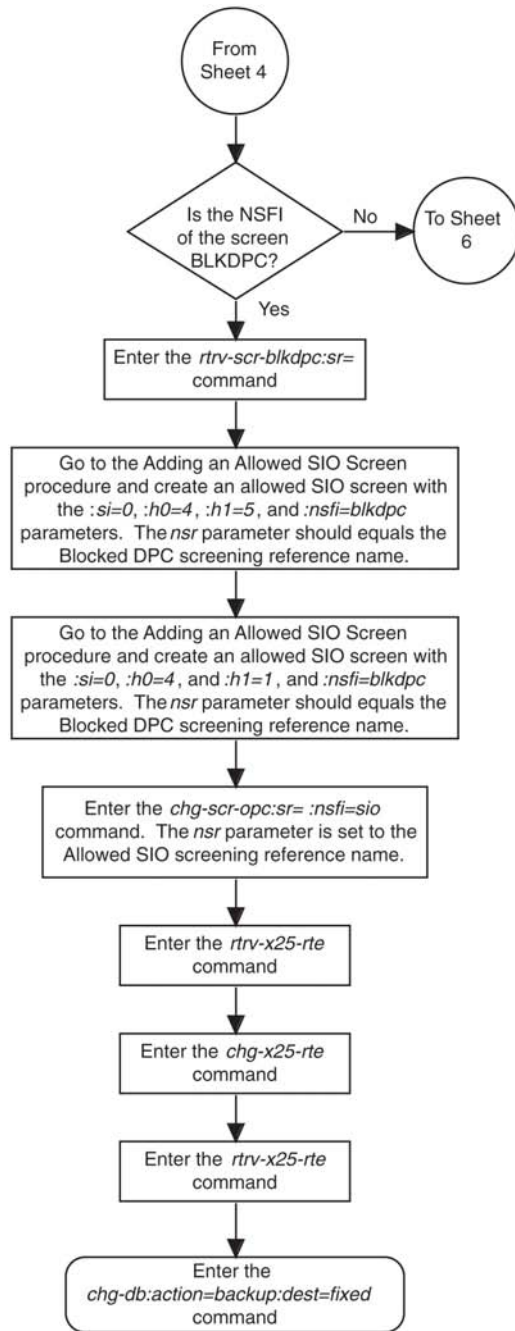
BACKUP (FIXED) : MASP A - Backup starts on active MASP.
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk complete.
BACKUP (FIXED) : MASP A - Backup starts on standby MASP.
BACKUP (FIXED) : MASP A - Backup on standby MASP to fixed disk complete.
    
```

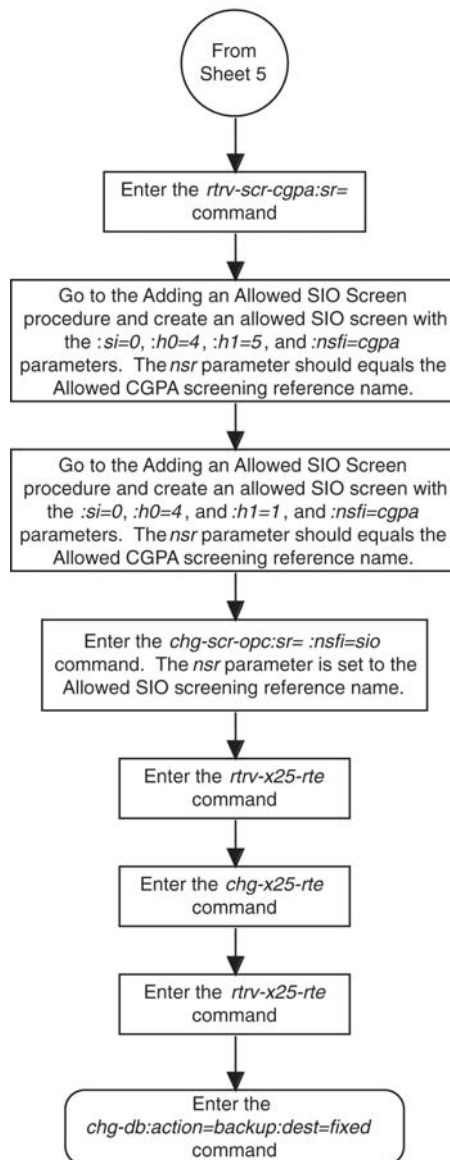
Figure 18: Changing an X.25 Route

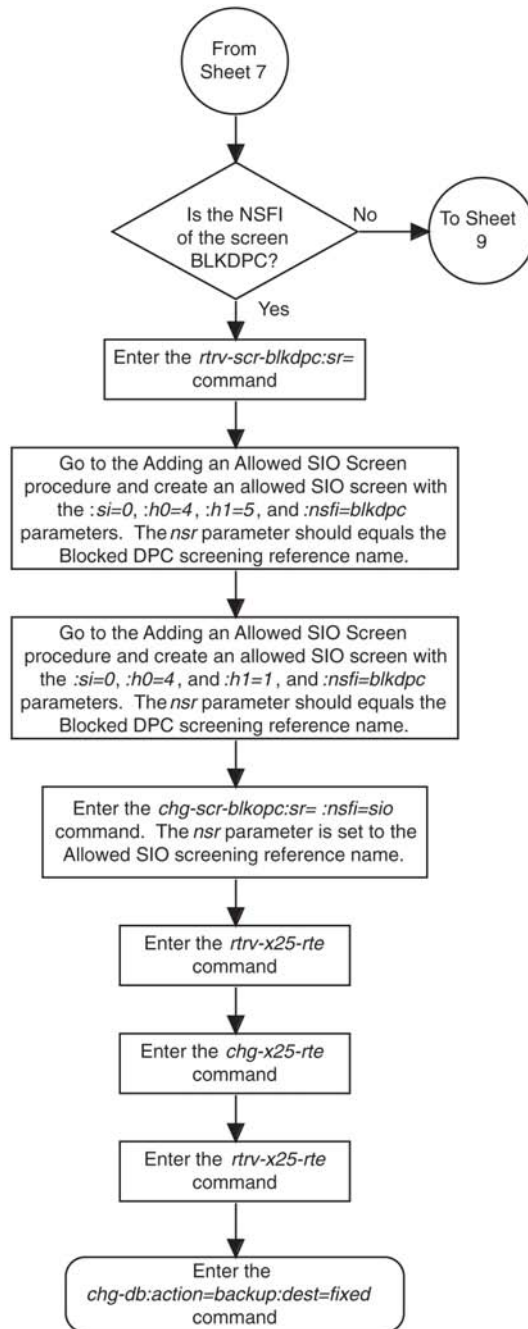


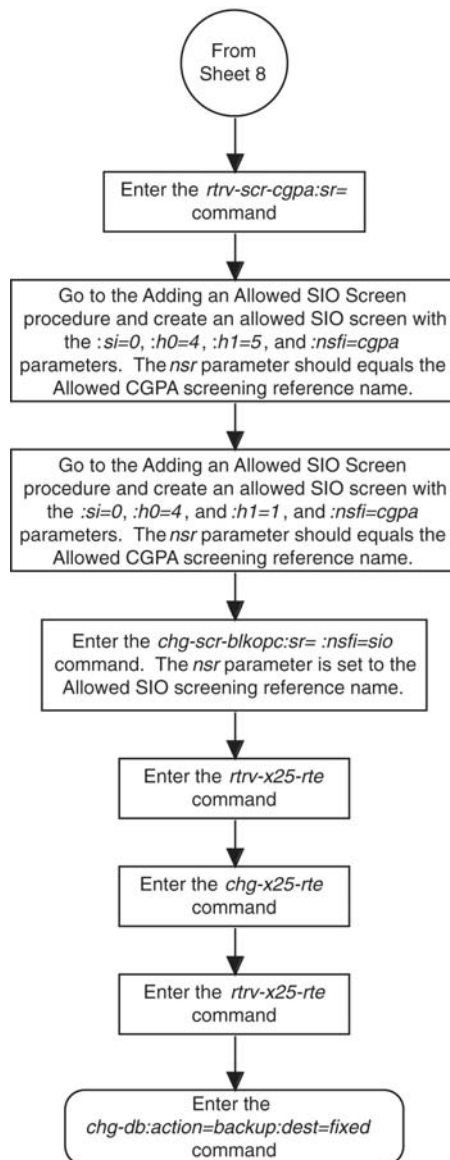


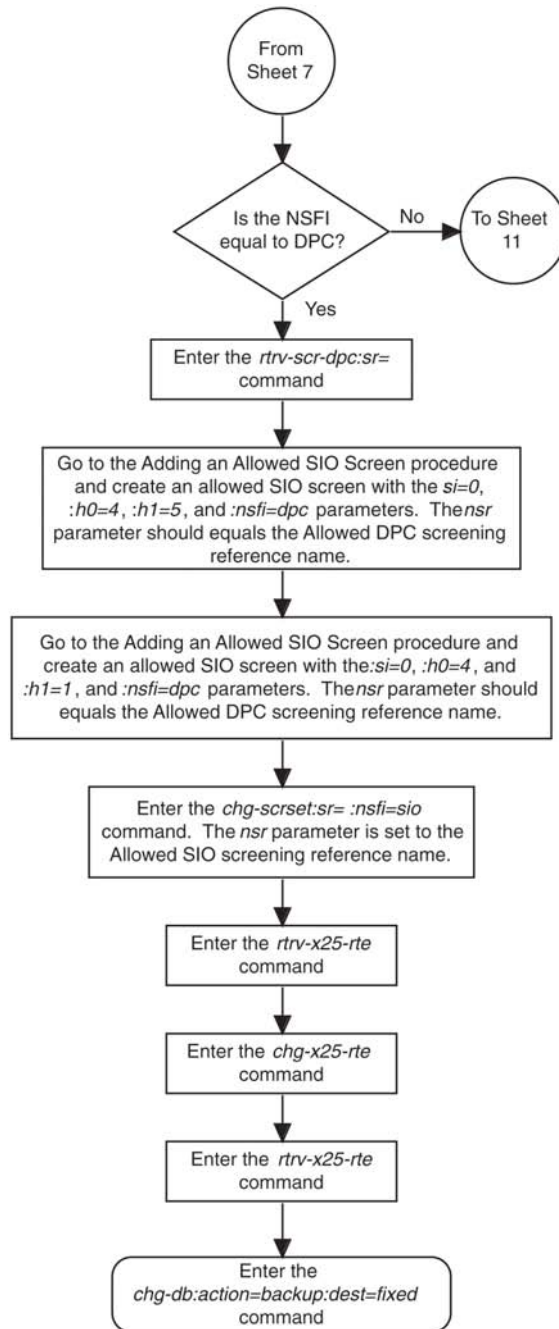


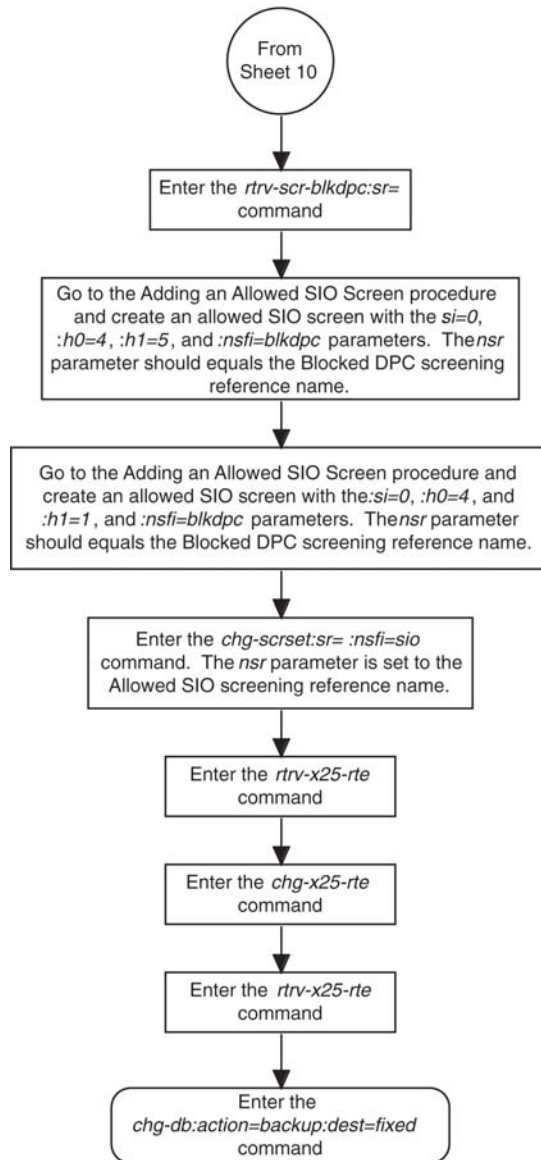












Changing the X.25 Signaling Link Parameters

This procedure is used to change any of the X.25 signaling link parameters using the *chg-x25-slk* command.

The *chg-x25-slk* command uses these parameters.

- :loc* – The card location of the LIM containing the X.25 signaling link
- :port* – The signaling link on the card specified in the *loc* parameter. For an X.25 signaling link, this parameter value is A.
- :t1* – The amount of time to wait before retransmitting a frame.

- :n1 – The maximum number of bits in a frame.
- :n2 – The maximum number of retransmission attempts to complete a transmission.
- :k – The maximum number of outstanding I frames.
- :l3mode – The logical layer 3 address of the connection
- :pvc – The total number of the permanent virtual circuits (PVCs) available on this X.25 signaling link.
- :svc – The total number of the switched virtual circuits (SVCs) available on this X.25 signaling link.
- :win – The number of packets allowed for a window on this X.25 signaling link.
- :mps – The maximum packet size (in bytes) allowed on this X.25 signaling link.

The examples in this procedure are used to change the attributes of the X.25 signaling link assigned to card 1204.

The X.25 signaling link whose parameters are being changed must be in the database. This can be verified by entering the `rtrv-slk` command. The X.25 signaling links are shown by the dashes in the L2TSET column in the output.

1. Display the values of the X.25 signaling link you wish to change using the `rtrv-x25-slk` command.

This is an example of the possible output.

```
rlghncxa03w 06-10-28 21:16:37 GMT EAGLE5 36.0.0
LOC  PORT  T1  N1    N2  K  L3MODE  PVC  SVC  WIN  MPS
1201 A    10  2104  15   7  DCE    25   205  1   256
1202 A    9   2104  13   6  DTE    255  0    2   256
1203 A    8   1080  11   5  DCE    10   10   3   128
1204 A    7   1080  9    4  DTE    0    255  4   128
1205 A    6   2104  7    3  DCE   100  0    5   256
1206 A    5   2104  5    2  DTE    0    100  6   256
1207 A    4   1080  3    1  DCE   100  100  7   128
1208 A    5   2104  10   7  DTE    0    255  3   256
```

2. Deactivate the X.25 signaling link using the `dact-slk` command, using the card location and the signaling link.

For this example, enter this command.

```
dact-slk:loc=1204:link=a
```

When this command has successfully completed, this message should appear.

```
rlghncxa03w 06-10-28 08:41:12 GMT EAGLE5 36.0.0
Deactivate SLK message sent to card
```

3. Verify that the X.25 signaling link is out of service - maintenance (OOS-MT) using the `rept-stat-slk` command, using the card location and the signaling link.

For this example, enter this command.

```
rept-stat-slk:loc=1204:link=a
```

This is an example of the possible output.

```
rlghncxa03w 06-10-28 17:00:36 GMT EAGLE5 36.0.0
```

```

SLK      LSN      CLLI      PST      SST      AST
1204,A   nsp1      -----  OOS-MT   Unavail   ----
  ALARM STATUS      = * 0221 REPT-LKF: X25 link unavailable
  UNAVAIL REASON    = X25FL
Command Completed.

```

- Place the card assigned to the X.25 signaling link out of service using the `rmv-card` command, specifying the location of the card.

For this example, enter this command.

```
rmv-card:loc=1204
```

When this command has successfully completed, this message should appear.

```

rlghncxa03w 06-10-28 08:41:12 GMT  EAGLE5 36.0.0
Card has been inhibited.

```

- Change the X.25 signaling link parameter values using the `chg-x25-slk` command.

For this example, enter this command.

```

chg-x25-slk:loc=1204:port=a:t1=10:n1=2104:n2=4:k=7:l3mode=dce
:pvc=5:svc=10:win=2:mpps=256

```

When this command has successfully completed, this message should appear.

```

rlghncxa03w 06-10-28 11:43:04 GMT  EAGLE5 36.0.0
CHG-X25-SLK: MASP A - COMPLTD

```

- Verify the changes using the `rtrv-x25-slk` command, specifying the card location.

This is an example of the possible output.

```

rlghncxa03w 06-10-28 21:16:37 GMT  EAGLE5 36.0.0
LOC  PORT  T1  N1    N2  K  L3MODE  PVC  SVC  WIN  MPS
1201 A     10  2104  15  7  DCE    25   205  1   256
1202 A     9   2104  13  6  DTE   255   0   2   256
1203 A     8   1080  11  5  DCE    10   10  3   128
1204 A    10  2104  4   7  DCE     5   10  2   256
1205 A     6   2104  7   3  DCE   100   0   5   256
1206 A     5   2104  5   2  DTE     0  100  6   256
1207 A     4   1080  3   1  DCE   100  100  7   128
1208 A     3   1080  5   2  DTE     1   1   6   128

```

- Place the card back into service using the `rst-card` command, specifying the location of the card.

For this example, enter this command.

```
rst-card:loc=1204
```

When this command has successfully completed, this message should appear.

```

rlghncxa03w 06-10-28 08:41:12 GMT  EAGLE5 36.0.0
Card has been allowed.

```

- Activate the X.25 signaling link using the `act-slk` command, specifying the card location and the signaling link.

For this example, enter this command.

```
act-slk:loc=1204:link=a
```

When this command has successfully completed, this message should appear.

```
rlghncxa03w 06-10-28 08:31:24 GMT EAGLE5 36.0.0
Activate SLK message sent to card
```

9. Check the status of the X.25 signaling link using the `rept-stat-slk` command, specifying the card location and the signaling link.

The state of the X.25 signaling link should be in service normal (IS-NR) after the link has completed alignment (shown in the PST field). For this example, enter this command.

```
rept-stat-slk:loc=1204:link=a
```

This is an example of the possible output.

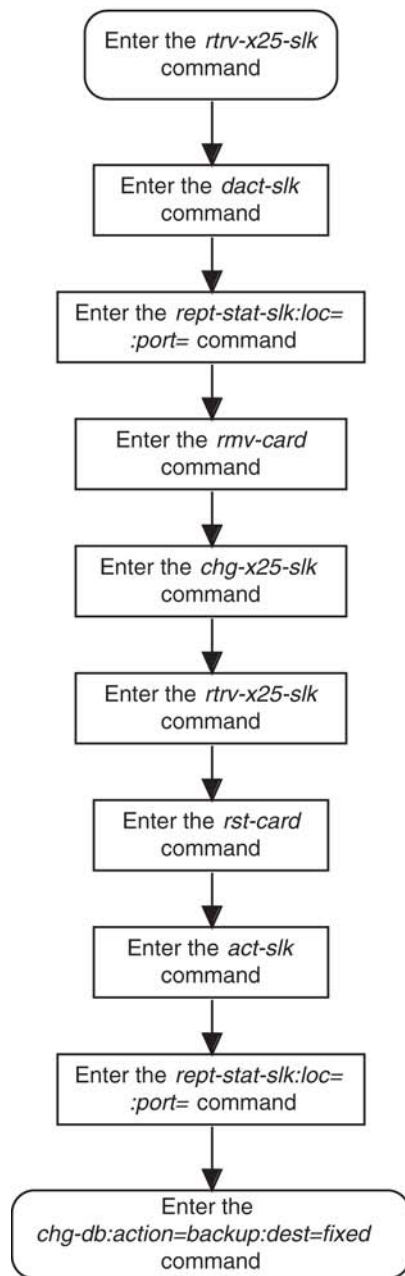
```
rlghncxa03w 06-10-28 17:00:36 GMT EAGLE5 36.0.0
SLK      LSN      CLLI      PST      SST      AST
1204,A  nsp1      -----  IS-NR    Avail    ----
  ALARM STATUS      = No alarm
  UNAVAIL REASON:
Command Completed.
```

10. Backup the new changes using the `chg-db:action=backup:dest=fixed` command.

These messages should appear, the active Maintenance and Administration Subsystem Processor (MASP) appears first.

```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk complete.
BACKUP (FIXED) : MASP A - Backup starts on standby MASP.
BACKUP (FIXED) : MASP A - Backup on standby MASP to fixed disk complete.
```

Figure 19: Changing the X.25 Signaling Link Parameters



Enabling the Large System # Links Controlled Feature

This procedure is used to enable the Large System # Links controlled feature using the feature's part number and a feature access key.

The feature access key for the Large System # Links controlled feature is based on the feature's part number and the serial number of the EAGLE 5 ISS, making the feature access key site-specific.

This feature allows the EAGLE 5 ISS to contain a maximum of either 1500 or 2000 signaling links.

The `enable-ctrl-feat` command enables the controlled feature by inputting the controlled feature's access key and the controlled feature's part number with these parameters:

`: fak` – The feature access key generated by Tekelec's feature access key generator, and supplied to you when you purchase or temporarily try a controlled feature. The feature access key contains 13 alphanumeric characters and is not case sensitive.

`: partnum` – The Tekelec-issued part number associated with the signaling link quantity being enabled:

- 893005901 for the 1500 signaling link quantity
- 893005910 for the 2000 signaling link quantity.

The `enable-ctrl-feat` command requires that the database contain a valid serial number for the EAGLE 5 ISS, and that this serial number is locked. This can be verified with the `rtrv-serial-num` command. The EAGLE 5 ISS is shipped with a serial number in the database, but the serial number is not locked. The serial number can be changed, if necessary, and locked once the EAGLE 5 ISS is on-site, by using the `ent-serial-num` command. The `ent-serial-num` command uses these parameters.

`: serial` – The serial number assigned to the EAGLE 5 ISS. The serial number is not case sensitive.

`: lock` – Specifies whether or not the serial number is locked. This parameter has only one value, `yes`, which locks the serial number. Once the serial number is locked, it cannot be changed.

Note: To enter and lock the EAGLE 5 ISS's serial number, the `ent-serial-num` command must be entered twice, once to add the correct serial number to the database with the `serial` parameter, then again with the `serial` and the `lock=yes` parameters to lock the serial number. You should verify that the serial number in the database is correct before locking the serial number. The serial number can be found on a label affixed to the control shelf (shelf 1100).

This feature cannot be temporarily enabled (with the temporary feature access key).

Once this feature is enabled with the `enable-ctrl-feat` command, the feature is also activated. The `chg-ctrl-feat` command is not necessary to activate the feature.

This feature cannot be disabled with the `chg-ctrl-feat` command and the `status=off` parameter.

Hardware Supported for Signaling Link Quantities Greater than 1500

The following hardware and applications are the only signaling link hardware and applications supported for an EAGLE 5 ISS containing more than 1500 signaling links.

- E1/T1 MIM running the `ccs7itu` application.
- HC-MIM running the `ccs7itu` application.
- E5-E1T1 card running the `ccs7itu` application.
- Single-slot EDCM running either the `iplimi` or `ipgwi` applications.
- E5-ENET card running either the `iplimi` or `ipgwi` applications.
- ATM high-speed LIM card running the `atmitu` application.

To increase the signaling link quantity to more than 1500 signaling links, HIPR cards must be installed into card locations 9 and 10 in each shelf in the EAGLE 5 ISS. Enter the `rept-stat-gpl:gpl=hipr` command to verify whether or not HIPR cards are installed in the EAGLE 5 ISS shelves.

1. Display the status of the Large System # Links controlled feature by entering the `rtrv-ctrl-feat` command.

The following is an example of the possible output.

```
rlghncxa03w 06-10-28 21:15:37 GMT EAGLE5 36.0.0
The following features have been permanently enabled:

Feature Name           Partnum    Status   Quantity
Command Class Management 893005801  on      ----
LNP Short Message Service 893006601  on      ----
Intermed GTT Load Sharing 893006901  on      ----
XGTT Table Expansion     893006101  on      400000
XMAP Table Expansion      893007710  off     ----
Routesets                893006401  on      6000
HC-MIM SLK Capacity      893012707  on      64

The following features have been temporarily enabled:

Feature Name           Partnum    Status   Quantity   Trial Period Left
Zero entries found.

The following features have expired temporary keys:

Feature Name           Partnum
Zero entries found.
```

If the `rtrv-ctrl-feat` output shows that the controlled feature is enabled for the desired quantity or for a quantity that is greater than the desired quantity, no further action is necessary. This procedure does not need to be performed.

Note: If the `rtrv-ctrl-feat` output in [Step 1](#) on page 155 shows any controlled features, or if the Large System # Links controlled feature is enabled for a quantity that is less than the desired quantity, continue the procedure with [Step 6](#) on page 156. If the `rtrv-ctrl-feat` output shows only the HC-MIMSLK Capacity feature with a quantity of 64, [Step 2](#) on page 155 through [Step 5](#) on page 156 must be performed.

2. Display the serial number in the database with the `rtrv-serial-num` command.

This is an example of the possible output.

```
rlghncxa03w 06-10-28 21:15:37 GMT EAGLE5 36.0.0
System serial number = nt00001231

System serial number is not locked.

rlghncxa03w 06-10-28 21:15:37 GMT EAGLE5 36.0.0
Command Completed
```

Note: If the serial number is correct and locked, continue the procedure with [Step 6](#) on page 156. If the serial number is correct but not locked, continue the procedure with [Step 5](#) on page 156. If the serial number is not correct, but is locked, this feature cannot be enabled and the remainder of this procedure cannot be performed. Contact the Customer Care Center to get an incorrect and locked serial number changed. Refer to [Customer Care Center](#) on page 4 for the contact information. The serial number can be found on a label affixed to the control shelf (shelf 1100).

3. Enter the correct serial number into the database using the `ent-serial-num` command with the `serial` parameter.

For this example, enter this command.

```
ent-serial-num:serial=<EAGLE 5 ISS's correct serial number>
```

When this command has successfully completed, the following message should appear.

```
rlghncxa03w 06-10-28 21:15:37 GMT EAGLE5 36.0.0
ENT-SERIAL-NUM: MASP A - COMPLTD
```

4. Verify that the serial number entered into [Step 3](#) on page 155 was entered correctly using the `rtrv-serial-num` command.

This is an example of the possible output.

```
rlghncxa03w 06-10-28 21:15:37 GMT EAGLE5 36.0.0
System serial number = nt00001231

System serial number is not locked.

rlghncxa03w 06-10-28 21:15:37 GMT EAGLE5 36.0.0
Command Completed
```

If the serial number was not entered correctly, repeat [Step 3](#) on page 155 and [Step 4](#) on page 156 and re-enter the correct serial number.

5. Lock the serial number in the database by entering the `ent-serial-num` command with the serial number shown in [Step 2](#) on page 155, if the serial number shown in [Step 2](#) on page 155 is correct, or with the serial number shown in [Step 4](#) on page 156, if the serial number was changed in [Step 3](#) on page 155, and with the `lock=yes` parameter.

For this example, enter this command.

```
ent-serial-num:serial=<EAGLE 5 ISS's serial number>:lock=yes
```

When this command has successfully completed, the following message should appear.

```
rlghncxa03w 06-10-28 21:15:37 GMT EAGLE5 36.0.0
ENT-SERIAL-NUM: MASP A - COMPLTD
```

6. Verify that HIPR cards are installed in card locations 9 and 10 in each shelf of the EAGLE 5 ISS.

Note: If the 2000 signaling link quantity is not being enabled in this procedure, continue the procedure with [Step 7](#) on page 157.

Enter this command.

```
rept-stat-gpl:gpl=hipr
```

This is an example of the possible output.

```
rlghncxa03w 06-10-01 11:40:26 GMT EAGLE5 36.0.0
GPL          CARD          RUNNING          APPROVED          TRIAL
HIPR         1109         126-002-000     126-002-000     126-003-000
HIPR         1110         126-002-000     126-002-000     126-003-000
HIPR         1209         126-002-000     126-002-000     126-003-000
HIPR         1210         126-002-000     126-002-000     126-003-000
HIPR         1309         126-002-000     126-002-000     126-003-000
HIPR         1310         126-002-000     126-002-000     126-003-000
HIPR         2109         126-002-000     126-002-000     126-003-000
```

```
HIPR      2110      126-002-000      126-002-000      126-003-000
Command Completed
```

If HIPR cards are installed in each the shelf in the EAGLE 5 ISS, continue the procedure with [Step 7](#) on page 157.

If HIPR cards are not installed on each shelf in the EAGLE 5 ISS, go to the *Installation Manual - EAGLE 5 ISS* and install the HIPR cards. Once the HIPR cards have been installed, continue the procedure with [Step 7](#) on page 157.

Note: Before the 2000 signaling link quantity is enabled, make sure the EAGLE 5 ISS is configured with the signaling link hardware shown in the *“Hardware Supported for Signaling Link Quantities Greater than 1500”* on page 154” section.

If signaling hardware other than the hardware shown in the *“Hardware Supported for Signaling Link Quantities Greater than 1500”* on page 154 section is installed and provisioned, contact the Customer Care Center before enabling the 2000 signaling link quantity. Refer to *Customer Care Center* on page 4 for the contact information.

7. Enable the Large System # Links controlled feature for the desired quantity with the `enable-ctrl-feat` command specifying the part number corresponding to the new quantity of signaling links and the feature access key.

To increase the number of signaling links the EAGLE 5 ISS can contain to 1500, enter this command.

```
enable-ctrl-feat:partnum=893005901:fak=<feature access key>
```

To increase the number of signaling links the EAGLE 5 ISS can contain to 2000, enter this command.

```
enable-ctrl-feat:partnum=893005910:fak=<feature access key>
```

Note: A temporary feature access key cannot be specified to enable this feature.

Note: The values for the feature access key (the `fak` parameter) are provided by Tekelec. If you do not have the feature access key for the feature you wish to enable, contact your Tekelec Sales Representative or Account Representative.

When the `enable-ctrl-feat` command has successfully completed, this message should appear.

```
rlghncxa03w 06-10-28 21:15:37 GMT EAGLE5 36.0.0
ENABLE-CTRL-FEAT: MASP B - COMPLTD
```

8. Verify the changes by entering the `rtrv-ctrl-feat` command with the part number specified in [Step 7](#) on page 157.

If the 1500 signaling link quantity was enabled in [Step 7](#) on page 157, enter this command.

```
rtrv-ctrl-feat:partnum=893005901
```

The following is an example of the possible output.

```
rlghncxa03w 06-10-28 21:15:37 GMT EAGLE5 36.0.0
The following features have been permanently enabled:

Feature Name          Partnum    Status    Quantity
Large System # Links  893005901  on        1500

The following features have been temporarily enabled:
```

```
Feature Name          Partnum    Status  Quantity    Trial Period Left
Zero entries found.
```

The following features have expired temporary keys:

```
Feature Name          Partnum
Zero entries found.
```

If the 2000 signaling link quantity was enabled in [Step 7](#) on page 157, enter this command.

```
rtrv-ctrl-feat:partnum=893005910
```

The following is an example of the possible output.

```
rlghncxa03w 06-10-28 21:15:37 GMT EAGLE5 36.0.0
The following features have been permanently enabled:

Feature Name          Partnum    Status  Quantity
Large System # Links  893005910  on      2000

The following features have been temporarily enabled:

Feature Name          Partnum    Status  Quantity    Trial Period Left
Zero entries found.

The following features have expired temporary keys:

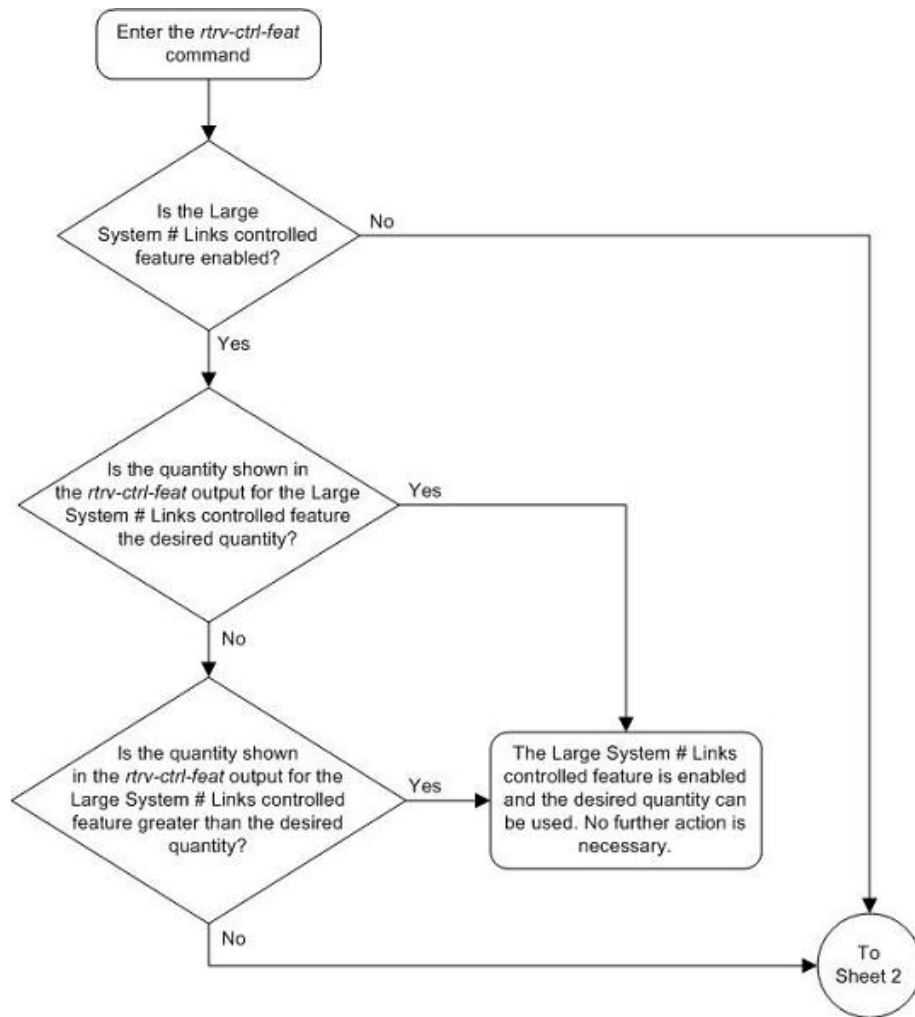
Feature Name          Partnum
Zero entries found.
```

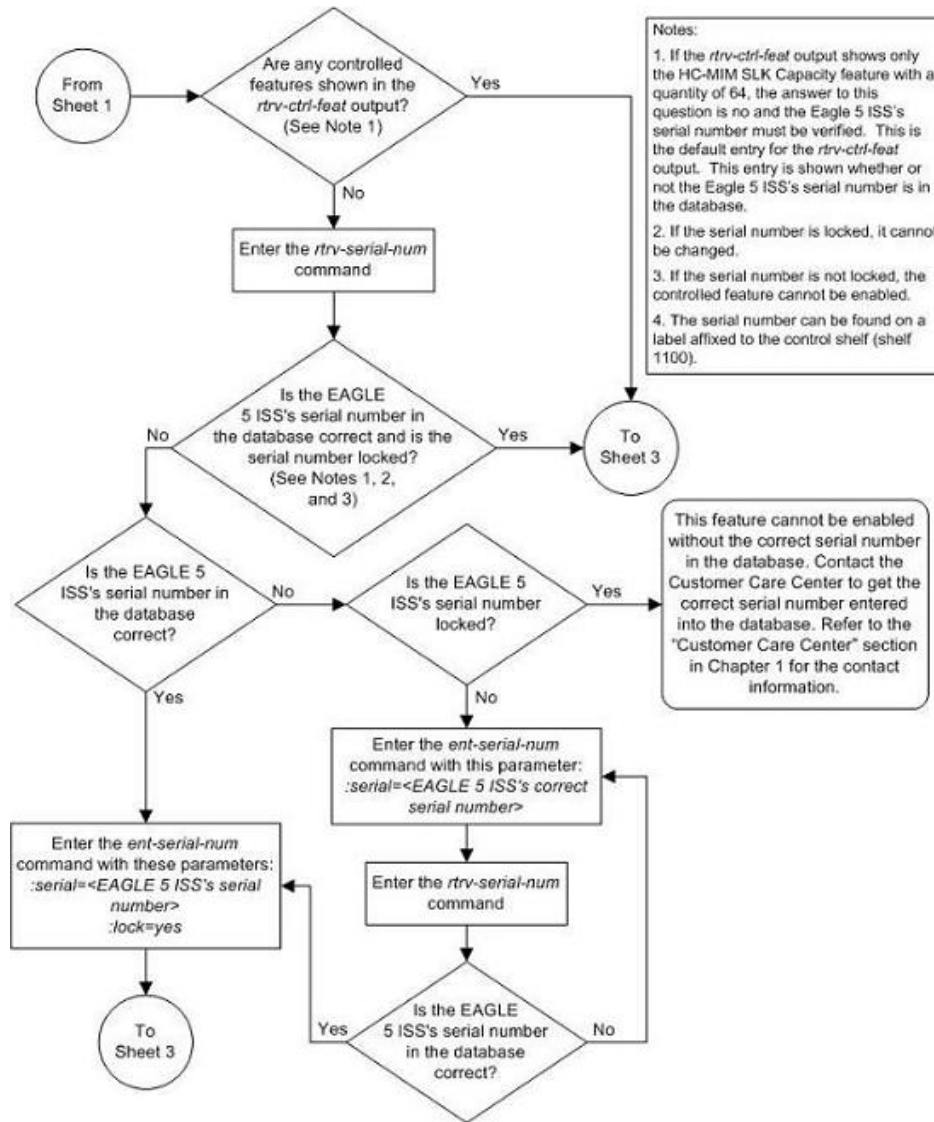
9. Back up the new changes using the `chg-db:action=backup:dest=fixed` command.

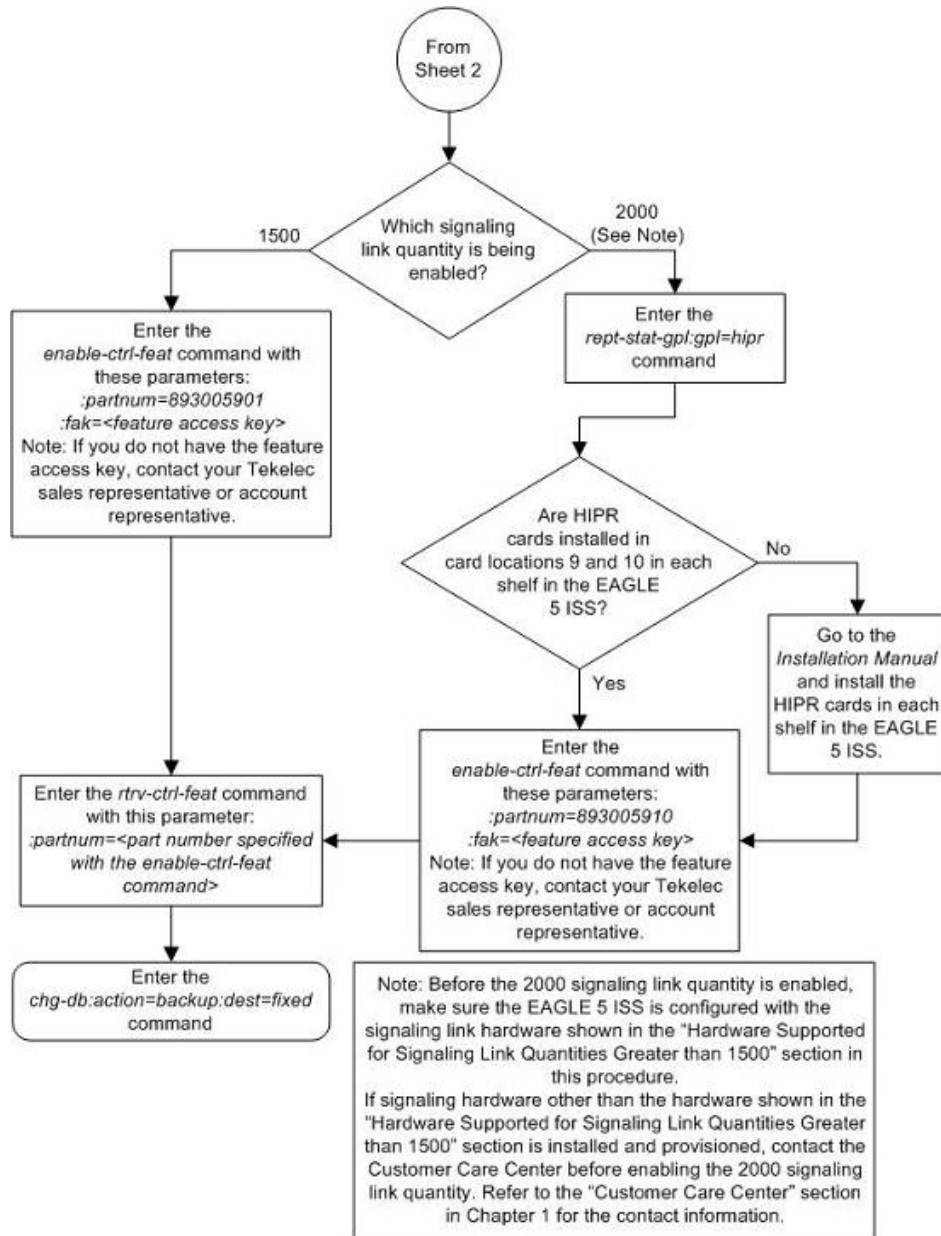
These messages should appear, the active Maintenance and Administration Subsystem Processor (MASP) appears first.

```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk complete.
BACKUP (FIXED) : MASP A - Backup starts on standby MASP.
BACKUP (FIXED) : MASP A - Backup on standby MASP to fixed disk complete.
```

Figure 20: Enabling the Large System # Links Controlled Feature







Chapter 3

STPLAN Configuration

Topics:

- [STPLAN Feature Overview Page 164](#)
- [TCP/IP Router Page 167](#)
- [Hardware Requirements Page 169](#)
- [Node Requirements Page 169](#)
- [Gateway Screening Page 170](#)
- [STPLAN Provisioning Page 171](#)
- [Understanding Firewall and Router Filtering Page 173](#)
- [IP Addresses Page 174](#)
- [Network Configuration Procedures Page 176](#)
- [Adding an STPLAN Card Page 181](#)
- [Removing an STPLAN Card Page 191](#)
- [Adding a TCP/IP Data Link Page 195](#)
- [Removing a TCP/IP Data Link Page 202](#)
- [Adding a TCP/IP Node Page 205](#)
- [Removing a TCP/IP Node Page 210](#)
- [Configuring the Copy Original OPC for STPLAN Option Page 215](#)

Chapter 3, STPLAN Configuration, describes the STPLAN feature and the procedures necessary to configure the EAGLE 5 ISS to support this feature.

STPLAN Feature Overview

The STPLAN feature provides a TCP/IP connection from any interface shelf to support external applications. Message signal units (MSUs) that are processed by the EAGLE 5 ISS can be copied and directed through the LAN interface to an external server or microcomputer application such as a usage measurements EAGLE 5 ISS. The gateway screening feature must be available on the STP in order to use the STPLAN feature.

The feature requires an STPLAN card, either the application communications module (ACM) running the `stp1an` application, or database communications module (DCM) running the `stp1an` application, or E5-SLAN card running the `stp1an` application, which provides an ethernet interface at the backplane, as well as the processing power required to support TCP/IP message encapsulation.

The STPLAN card receives SS7 MSUs from the Interprocessor Message Transport (IMT) bus and copies the MSUs into memory resident on the STPLAN card. The EAGLE 5 ISS encapsulates the copied MSU into TCP/IP packets and sends the encapsulated message over the ethernet to the host computer or to a TCP/IP router. The host computer is responsible for assembling and processing the packets it receives. The TCP/IP router routes the messages to a host computer on another network.

Each STPLAN card has one ethernet port. The Transmission Control Protocol (TCP) and User Datagram Protocol (UDP) are supported at the transport layer. Internet Protocol (IP), Internet Control Message Protocol (ICMP) and Address Resolution Protocol (ARP) are supported at the network layer.

If the ACM is used as the STPLAN card, the EAGLE 5 ISS uses a special cable assembly for the ethernet connection, which is connected to an external media access unit (MAU). From the MAU, the customer can attach any compatible host EAGLE 5 ISS. The host system must be using TCP/IP as the higher layer protocol, and must support either 10base2 ethernet or 10baseT ethernet as the transmission method. The ACM's capacity is 435 transactions per second (TPS).

If the DCM is used as the STPLAN card, either 10baseT ethernet or 100baseT ethernet is supported by the EAGLE 5 ISS. The ethernet connection is made directly to the EAGLE 5 ISS backplane and no external media access unit (MAU) is used. The MAU is incorporated in the DCM. The DCM's capacity is 1200 TPS when configured to run on a 10baseT network, and 2500 TPS when configured for a 100baseT network.

If the E5-SLAN card is used as the STPLAN card, 10/100Mbps port data transfer rate is supported by the EAGLE 5 ISS. The E5-SLAN card has two ethernet interfaces. Each interface independently supports 10/100 Mbps data rates, full/half duplex, fixed/auto-negotiate, DIX/802.3 MAC header modes. The capacity of the E5-SLAN card is 1200 TPS when configured to run on a 10baseT network, or on a 100baseT network at half duplex, and 12000 TPS when configured for a 100baseT network at full duplex.

This implementation does not support standard TCP/IP protocols such as TELNET and FTP. However, it supports EAGLE 5 ISS applications that are built on TCP/IP using the Socket Application Programming Interface (API). The protocol stack is not biased toward any particular application.

Message Sequencing

The STPLAN card adds a time stamp to the message before sending it to the LAN. The time stamp maintains a one second granularity and is synchronized with the host computer. This synchronization requires the host computer to be capable of responding to the time and date queries on the UDP port 37. The receiver can use the time stamp to provide sequencing within an application. The STPLAN application does not use sequence numbers for messages.

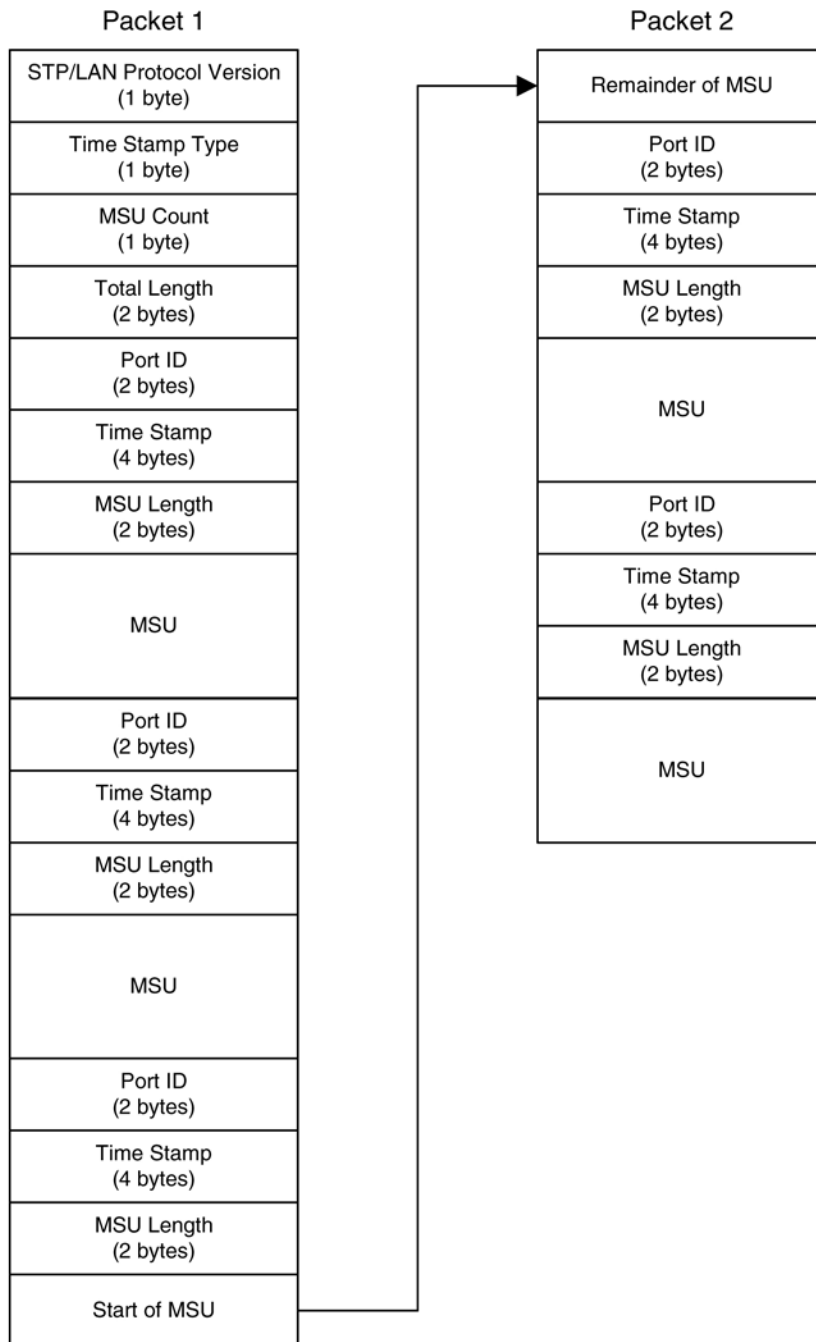
Message Format

Because TCP/IP is a stream-oriented protocol, the host computer can receive multiple messages in a single packet, or the message can be divided among different packets. [Figure 21: STPLAN Messages Embedded in TCP/IP Packets](#) on page 165 shows an example of both. There are multiple MSUs in the first packet with one of the MSUs divided between the first packet and the second packet.

This list describes the fields used in these packets:

- STP/LAN Protocol Version (a 1-byte value) – The type of EAGLE 5 ISS message being carried from the LIMs to the STPLAN card. The only valid value for this field is 1.
- Time Stamp Type (a 1-byte value) – The type of timestamp that is being used in the message. The only valid value for this field is 1, indicating that the supported timestamp type is the UNIX style timestamp (a 32-bit number containing the time elapsed since 00:00:00 hour, January 1, 1970).
- MSU Count (a 1-byte value) – How many MSUs are actually contained in the packet.
- Total Length (a 2-byte value) – The total length, in bytes, of the data plus the MSU headers embedded inside the packet. This length should not be greater than 485 bytes.
- Port ID (a 2-byte value) – The ID of the port on the LIM which copied the data to the STPLAN card. The valid range for this field is 0–511.
- Timestamp (a 4-byte value) – The actual timestamp at which the message is sent out to the host.
- MSU Length (a 2-byte value) – The length of the actual MSU in bytes. The sum of the MSU lengths of all the MSUs in the packet plus the sum of the sizes of the single MSU headers should be equal to the number contained in the Total Length field.
- MSU – The MSU that is contained in the packet.

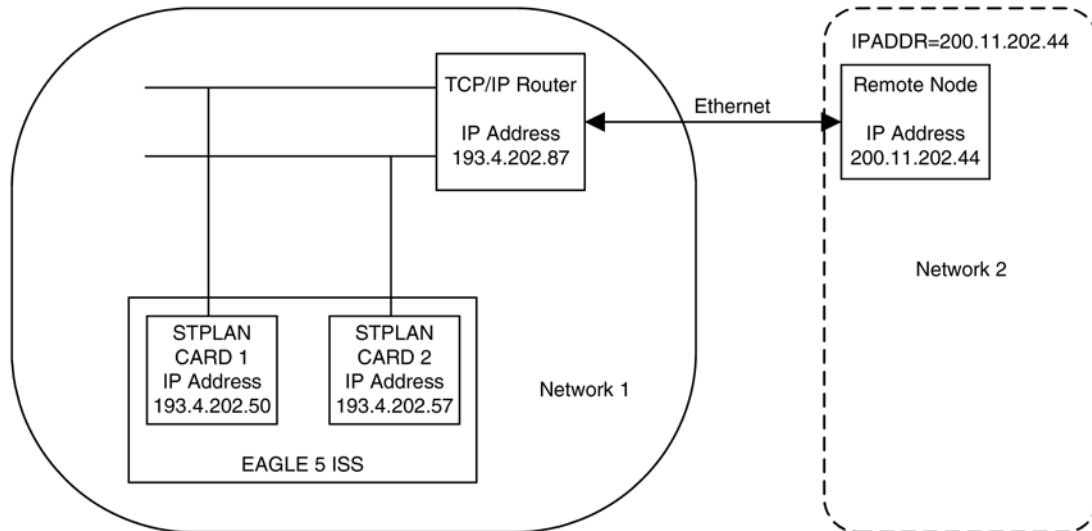
Figure 21: STPLAN Messages Embedded in TCP/IP Packets



TCP/IP Router

A TCP/IP router is used to route STPLAN messages from the EAGLE 5 ISS to a remote host in another network or subnetwork. [Figure 22: STPLAN Network with a TCP/IP Router](#) on page 167 shows an example of the STPLAN feature using a TCP/IP router.

Figure 22: STPLAN Network with a TCP/IP Router



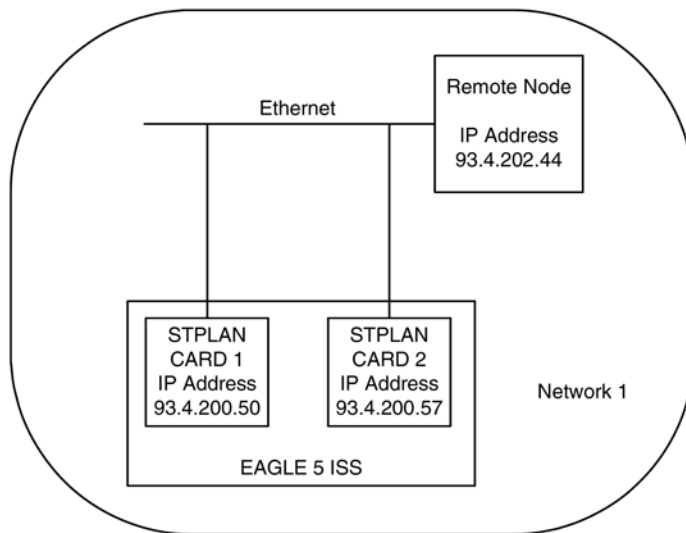
Note:

The term “STPLAN Card” used in [Figure 22: STPLAN Network with a TCP/IP Router](#) on page 167 refers to either an ACM, DCM, or E5-SLAN card running the `stp1an` application.

In this example, STPLAN cards 1 and 2, with IP addresses 193.4.202.50 and 193.4.202.57, need to route their traffic to the remote host at IP address 200.11.202.44. The STPLAN cards and the remote host are in two different networks; the network ID of the STPLAN cards is 193.4.202.67 and the network ID of the remote host is 200.11.202.44. The EAGLE 5 ISS can connect only to TCP/IP nodes that are in the same network as the EAGLE 5 ISS. To permit communication between the STPLAN cards and an external network, a TCP/IP router is placed in between the EAGLE 5 ISS and the remote host. The TCP/IP router is located in the same network as the EAGLE 5 ISS, with the IP address of 193.4.202.87. The messages can now be sent to the remote host through the TCP/IP router.

A TCP/IP default router must be entered into the database when the class and network ID of the data link’s IP address and host’s IP address do not match or when subnet routing is used. The TCP/IP router is entered into the database with the `ent-ip-node` command. The EAGLE 5 ISS cannot distinguish between a large network and the use of subnet routing, and cannot detect the omission of a TCP/IP router. In a large network, no TCP/IP routers are required because all the nodes are directly connected to a single ethernet. See [Figure 23: STPLAN in a Large Network](#) on page 167.

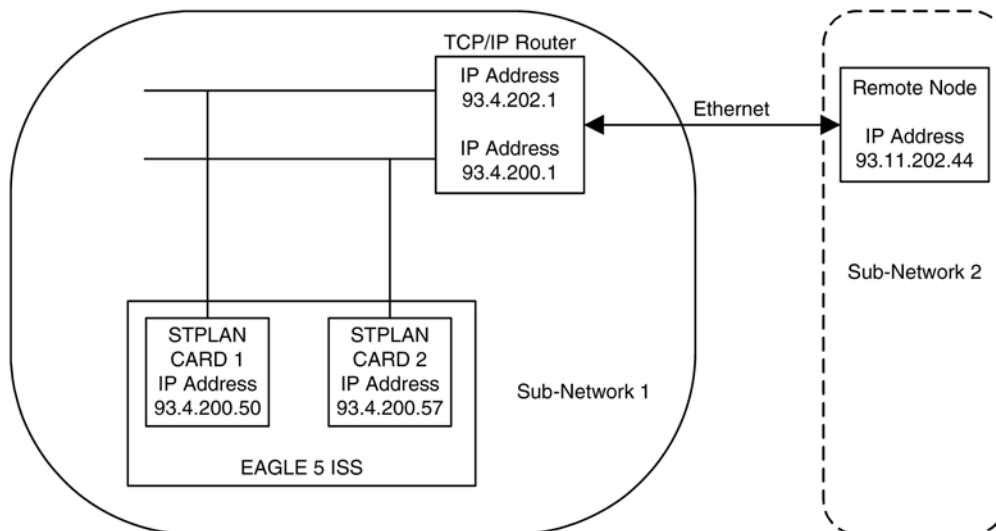
Figure 23: STPLAN in a Large Network

**Note:**

The term “STPLAN Card” used in [Figure 23: STPLAN in a Large Network](#) on page 167 refers to either an ACM, DCM, or E5-SLAN card running the `stp1an` application.

If a user is using subnet routing and as a result, multiple ethernets, TCP/IP routers are required and must be configured in the EAGLE 5 ISS. See [Figure 24: STPLAN Network with Subnet Routing](#) on page 168.

Figure 24: STPLAN Network with Subnet Routing

**Note:**

The term “STPLAN Card” used in [Figure 24: STPLAN Network with Subnet Routing](#) on page 168 refers to either an ACM, DCM, or E5-SLAN card running the `stp1an` application.

For the examples shown in [Figure 23: STPLAN in a Large Network](#) on page 167 and [Figure 24: STPLAN Network with Subnet Routing](#) on page 168, the IP addresses of the TCP/IP data links and the remote node are the same. In [Figure 23: STPLAN in a Large Network](#) on page 167, the remote node is in the

same network as the TCP/IP data links, so no TCP/IP router is needed. In *Figure 24: STPLAN Network with Subnet Routing* on page 168, the user is using subnet routing. The remote node is in one subnetwork, and the TCP/IP data links are in another subnetwork. Even though the network portion of the IP addresses of the TCP/IP data links and the remote node are the same (93, a class A IP address), a TCP/IP router is required because the user is using subnet routing.

If, when configuring STPLAN according to the network in *Figure 24: STPLAN Network with Subnet Routing* on page 168, the TCP/IP router is not configured with the `ent-ip-node` command, the EAGLE 5 ISS does not detect that the TCP/IP router has been omitted, and no warnings are given in this case. The EAGLE 5 ISS sees the remote node as a TCP/IP node in the same network as the TCP/IP data links, because of the class of the IP addresses, and does not require the user to specify the `iprte` parameter of the `ent-ip-node` command.

Hardware Requirements

The hardware requirements and configuration include these items:

- The EAGLE 5 ISS supports up to 32 ACMs, DCMs, or E5-SLAN cards.
- Multiple ACM, DCM, or E5-SLAN cards can connect to each host on different ports. The assignment of the LIMs is done automatically by the EAGLE 5 ISS.
- The TSM and multiple LIM cards can also be used.
- For the ACM, the ethernet cable from the node terminates to an adapter (part number 830-0425-01) and a media access unit (P/N 804-0059-01 for 10base2 ethernet or P/N 804-0144-01 for 10baseT ethernet). Only the A port (the top port) of the ACM is used.
- For the DCM, one of two cables can be used to connect the DCM to the node, a straight-thru cable (P/N 830-0704-XX) or a transmit/receive cross-over cable (P/N 830-0728-XX). The cable from the node terminates directly to the backplane and does not use any adapters. The cable connects to port A (the top port) on the DCM.
- For the E5-SLAN card, one of the two cables can be used to connect the E5-SLAN card to the node, an existing cable used by SSEDCCM cards or a standard CAT-5 ethernet cable. The cable used by SSEDCCM cards requires a backplane cable adaptor (P/N 830-1103-02) to connect to the E5-SLAN card to the node. The CAT-5 ethernet cable requires a backplane cable adaptor (P/N 830-1102-02) to connect the E5-SLAN card to the node. The cable connects to port A0 on the PMC A ethernet card within the E5-SLAN card.

Refer to the *Hardware Manual - EAGLE 5 ISS* for more information about the ACM, DCM, or E5-SLAN card.

Node Requirements

In order for a node to communicate with the ACM, DCM, or E5-SLAN card, you must configure the node system to perform or include these items:

- The node system must include an ethernet driver, TCP/IP protocol interface, and application software to process the incoming messages.

- The node TCP/IP protocol must be able to accept connections and supply an accurate time/date stamp over UDP port 37. (See RFC 868.)
- If multiple nodes are receiving data, the node application must be able to correlate related messages that are received on different nodes. Because of the load-balancing feature, the EAGLE 5 ISS cannot guarantee a constant LIM-to-node path.

Gateway Screening

Gateway screening tables can be configured to screen messages for certain attributes. The screening process results in a message being accepted or rejected into the network. The criteria for message screening depends on the type of message received by the EAGLE 5 ISS, and the contents of the gateway screening tables.

You can send a copy of the message that has passed all of the screening criteria to a node. To stop the screening process and, at the same time, send a copy of the message to the STPLAN application, the next screening function identifier (*NSFI*) of the screen where the gateway screening process stops must be set to *stop*, and a gateway screening stop action set containing the *copy* gateway screening stop action must be assigned to that screen. The linkset containing the SS7 messages copied to the STPLAN application must have a gateway screening screenset assigned to it and the *gwsa* or *gwsn* parameter must be set to *on*.



CAUTION:

When Gateway Screening is in the screen test mode, as defined by the linkset parameters *gwsa=off* and *gwsn=on*, the gateway screening action in the gateway screening stop action set specified by the *actname* parameter of the gateway screening screen set at the end of the gateway screening process will be performed.

Gateway screening functions are defined using screening tables or screensets which contain a set of rules. Each screenset is uniquely identified by a screenset name. A screenset is a collection of screening references or rules, each assigned a unique screening reference name. Each screening reference belongs to a specific category, which indicates the criteria that is used to either accept or reject an incoming MSU. For example, the category “*blkopc*” rejects all MSUs with the OPCs specified in the screening reference.

The screening parameters (point codes, routing indicator, subsystem number, and so forth) are used to match information in the SS7 message.

Each group of screening references is referred to as a screen set and is identified by a particular screen set name (*SCRN*). The screen set can then be applied to a particular linkset. This allows, for example, for specific OPCs with particular SIOs and DPCs to be allowed into the network.

There are two basic functions, allow and block. In an allowed screen (for example, allowed DPC), if a match is found and the next screening function identifier (*nsfi*) is equal to anything but *stop*, the next screening reference (*nsr*) is identified and the screening process continues. If the next screening function identifier is *stop*, the message is processed and no further screening takes place. If no match is found, the message is rejected. If the next screening function identifier is *stop* and a gateway screening stop action set that contains the *copy* gateway screening stop action is assigned to the screen, the EAGLE 5 ISS sends a copy of the message to the STPLAN application.

In a blocked screen (for example, blocked DPC):

Table 9: Gateway Screening Action

If...	then...
a match is found and the next screening function identifier is <code>fail</code> ,	the message is rejected and no further screening takes place.
no match is found and the next screening function identifier is equal to anything but <code>stop</code> ,	the next screening reference is identified and the screening process continues.
the next screening function identifier is equal to <code>stop</code> ,	the message is processed and no further screening takes place.
the next screening function identifier is equal to <code>stop</code> and a gateway screening stop action containing the copy gateway screening stop action is assigned to the screen	the message is processed and the EAGLE 5 ISS sends a copy of the message to the STPLAN application.

The allowed OPC and DPC screens are useful in the gateway screening process when specifying particular sets of point codes that are allowed to send or receive messages to or from another network. The blocked OPC and DPC screens are useful in the gateway screening process to specify particular sets of point codes that are not allowed to send or receive messages to or from another network.

Congestion Management

If a message reaches the outbound “stop and copy” phase of the gateway screening process, and the LIM that is designated to transmit a copy of the message to the node is congested, the copy of the message is not transmitted to the node. The STP disables the application only on the particular LIM that is experiencing congestion.

Conversely, a message may arrive on an inbound LIM that is in danger of congestion while the outbound LIM is not in danger of congestion. As the message was not screened on the inbound LIM, it is not marked to be copied to the STPLAN card.

Go to the *Database Administration Manual - Gateway Screening* for information on configuring gateway screening entities.

STPLAN Provisioning

The STPLAN application allows the user to selectively copy outbound messages to a remote node for further processing. The messages that are copied to the remote node are actually selected for copying on the inbound linkset by the Gateway Screening feature. The messages that pass the screening criteria set for that linkset are processed by the EAGLE 5 ISS, and are copied prior to being transmitted on the outbound link.

The external connection to the remote node consists of several ACMs or DCMs equipped with Ethernet interfaces using the TCP/IP protocol to communicate to an external processing device running software that receives and processes the messages. Each ACM or DCM card (or STPLAN card) supports a single remote destination node. Each STPLAN card may also support a single default router.

On the EAGLE 5 ISS, the LAN interface is implemented through a pool of STPLAN cards. For reliability, STPLAN cards are provisioned on an "N+1" redundancy basis so that in case of failure of one such card, performance can be maintained during the time required to replace it. Furthermore, the calculations assume that a typical LIM card carries 0.8 Erlang worth of traffic, which would be the case if cards normally carry 0.4 Erlang and a failover situation occurs. Thus, the equations yield a number of STPLAN cards calculated to accommodate worst case traffic situations.

STPLAN cards are provisioned per site based on the total number of cards in the EAGLE 5 ISS which require STPLAN service.

ACM cards and a DCM card are capable of supporting different traffic loads. Systems which are ACM-based, or which contain both ACM- and DCM-based STPLAN cards, must use the first set of provisioning rules. Systems which are purely DCM-based must use the second set of provisioning rules.

To determine the number of STPLAN cards required in a particular site, the following quantities must be determined first.

- LSL = the number of low-speed links in the system
- HSL = the number of high-speed LIM ATMs links in the system
- SE-HSL = the number of high-speed SE-HSL LIM links in the system
- KTPS = the number of thousands of packets per second that IPLIM/IPGWY cards will handle, e.g.: 2 for 2,000 TPS, 4 for 4,000 TPS, etc.
- The estimated average size of MSUs flowing though the system (such as 80 octets per MSU).

ACM-based or Mixed ACM- and DCM-Based Systems

When the average MSU size is 80 octets or less, use this equation:

$$N = \text{roundup}(LSL/28 + HSL/3 + KTPS/2 + SE-HSL + 1)$$

When the average MSU size is 140 octets, use this equation:

$$N = \text{roundup}(LSL/28 + HSL/3 + KTPS/1.5 + SE-HSL + 1)$$

When the average MSU size is 272 octets, use this equation:

$$N = \text{roundup}(LSL/18 + HSL/2 + KTPS/0.4 + SE-HSL/0.6 + 1)$$

For example, if an EAGLE 5 ISS were equipped with 200 low-speed LIMs, 13 high-speed ATM LIMs or DCMs, and the average MSU size is 140 octets, the following calculations would be used to determine N+1.

$$(200 LSL/28 + 13 HSL/3 + 0 KTPS/1.5 + 0 SE-HSL + 1) = 12.5$$

This would be rounded up to 13 STPLAN cards.

This EAGLE 5 ISS would require 13 STPLAN cards.

If the rate of low-speed LIM traffic per second to be transferred to the STPLAN application is some value other than .4 Erlang, then that portion of the equation may be scaled accordingly.

For example, one card's worth of traffic @ 0.4 Erlang equals the capacity of two cards worth of traffic @ 0.2 Erlang and the number of STPLAN cards could be halved.

Pure DCM-Based Systems

The equations below assume a 100baseT ethernet network which allows for a DCM capacity of 2,500 TPS or SLAN packets per second.

When the average MSU size is 80 octets or less, use this equation:

$$N = \text{roundup}(LSL/165 + HSL/18 + KTPS/12 + SE-HSL/6 + 1)$$

When the average MSU size is 140 octets, use this equation:

$$N = \text{roundup}(LSL/165 + HSL/19 + KTPS/7 + SE-HSL/5 + 1)$$

When the average MSU size is 272 octets, use this equation:

$$N = \text{roundup}(LSL/110 + HSL/12 + KTPS/2 + SE-HSL/4 + 1)$$

For example, if an EAGLE 5 ISS were equipped with 200 low-speed LIMs, 13 high-speed ATM LIMs, and the average MSU size is 140 octets, the following calculations would be used to determine N+1.

$$(200 LSL/165 + 13 HSL/19 + 0 KTPS/7 + 0 SE-HSL/5 + 1) = 2.9$$

This would be rounded up to 3 STPLAN cards.

This EAGLE 5 ISS would require 3 STPLAN cards.

If the rate of low-speed LIM traffic per second to be transferred to the STPLAN application is some value other than .4 Erlang, then that portion of the equation may be scaled accordingly.

For example, one card's worth of traffic @ 0.4 Erlang equals the capacity of two cards worth of traffic @ 0.2 Erlang and the number of STPLAN cards could be halved.

Understanding Firewall and Router Filtering

Firewall protocol filtering for the interface between the EAGLE 5 ISS's DCM or E5-SLAN card and the host computer is defined in [Table 10: VXWSLAN External Ports and Their Use](#) on page 173.

Table 10: VXWSLAN External Ports and Their Use

Interface	TCP/IP Port	Use	Inbound	Outbound
10BASE-TX or 100BASE-TX	1024 to 5000 ¹	STPLAN Traffic	Yes	Yes
	7	UDP Echo (ping)	Yes	Yes
	37	Time/Date	Yes	Yes

Interface	TCP/IP Port	Use	Inbound	Outbound
	N/A	ARP (Address Resolution Protocol) ²	Yes	Yes
<p>1. The TCP/IP port is the port number configured with the <code>ipport</code> parameter of the <code>ent-ip-node</code> command. The value of the <code>ipport</code> parameter is shown in the <code>IPPORT</code> field of the <code>rtrv-ip-node</code> command output. The values for this parameter are in the range 1024–5000.</p> <p>2. ARP is used to provide TCP communication. The customer network will provide this information as appropriate.</p>				

The VXWSLAN application requires a data pipe of 10 or 100 Mb. The actual percentage of SLAN transactions that is used (the maximum) is defined by the `cap` parameter of the `ent-ip-node` command. There can be more than one connection from the EAGLE 5 ISS to the node defined by the `ipaddr` (the node's IP address) parameter of the `ent-ip-node` command.

IP Addresses

An IP address contains 32 bits grouped into four segments or octets. Each octet contains eight bits. The range of values for an octet is from 0 (all bits in the octet are 0) to 255 (all bits in the octet are 1). The four octets of an IP address are grouped into three different identifiers: the class ID, the network number and the host number. The value in the class ID determines how the rest of the bits in the ip address are categorized, mainly into the network number and the host number. The value of the class ID are in the first octet. If the first bit in the first octet is 0, the IP address is a class A IP address. If the first two bits in the first octet are 1 and 0, the IP address is a class B IP address. If the first three bits in the first octet are 1, 1, and 0, the IP address is a class C IP address. There are class D and E IP addresses, but these classes of IP addresses are not supported by the EAGLE 5 ISS. The loopback IP addresses (127.*.*) are not supported by ACM cards in the EAGLE 5 ISS. Loopback, however, is supported by DCM and E5-SLAN cards..

The network number of the IP address is the part of an IP address that identify the network that the host belongs to. The octets that make up the network number depend on the class of the IP address. For class A IP addresses, the network number is the bits in the first octet minus the class ID bits (the first bit of the first octet). For class B IP addresses, the network number is the bits in the first octet minus the class ID bits (the first two bits of the first octet) plus the bits in the second octet. For class C IP addresses, the network number is the bits in the first octet minus the class ID bits (the first three bits in the first octet) plus the bits in the second and third octets.

The host number of an IP address is the part of an IP address that identify a specific host on a network. The host number contains all the bits that do not belong to the class ID or the network number. For class A IP addresses, the host number contains all the bits in the second, third and fourth octets. For class B IP addresses, the host number contains all the bits in the third and fourth octets. For class C IP addresses, the host number contains all the bits in the fourth octet.

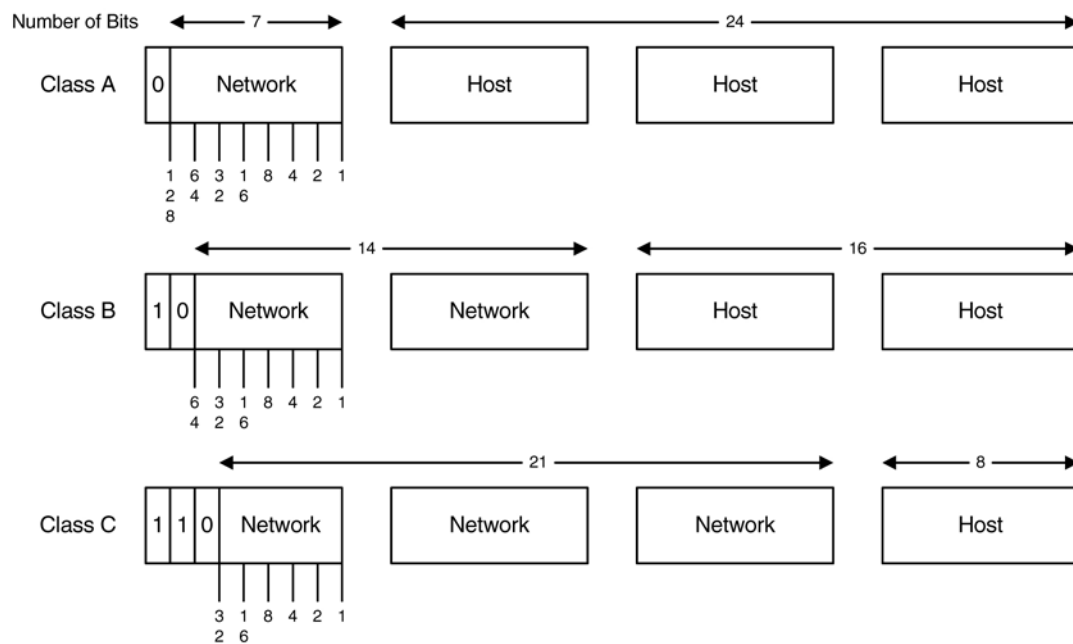
Table 11: Values of IP Addresses on page 175 summarizes the IP address values for the classes of IP addresses. Figure 25: IP Address Bit Categorization on page 175 illustrates the different parts of the IP addresses in each class of IP addresses.

Table 11: Values of IP Addresses

IP Address Class	IP Address Format	Class ID Bits	Range of IP Address Values
A	N.H.H.H	0	1.0.0.1 to 126.255.255.254
B	N.N.H.H	1, 0	128.1.0.1 to 191.254.255.254
C	N.N.N.H	1, 1, 0	192.0.1.1 to 223.255.254.254

N = Network Number, H = Host Number

Figure 25: IP Address Bit Categorization



The EAGLE 5 ISS does not allow IP addresses to be entered that contain an invalid class ID, network number or host number. Valid class ID values are shown in Table 11: Values of IP Addresses on page 175. Valid network numbers and host numbers cannot contain all 0 bits or all 1 bits. For example, the class A IP address 10.0.0.0 is invalid because it contains a host number of '0.0.0'. A class B IP address of 128.0.10.5 is also invalid because the network number is '0.0' (remember the network number for a class B address is the bits in the first octet minus the class ID bits). The class C IP

address of 192.0.1.255 is also invalid because it contains a host number of '255' (all ones). One of the error codes shown in [Table 12: Invalid IP Address Error Codes](#) on page 176 will be generated when an invalid IP address is entered.

Table 12: Invalid IP Address Error Codes

Error Code	Error Message
E2028	Octet 1 is out of range, 1..223
E2071	Network Number Invalid
E2072	Host Number Invalid
E2070	IP Address invalid for Address Class

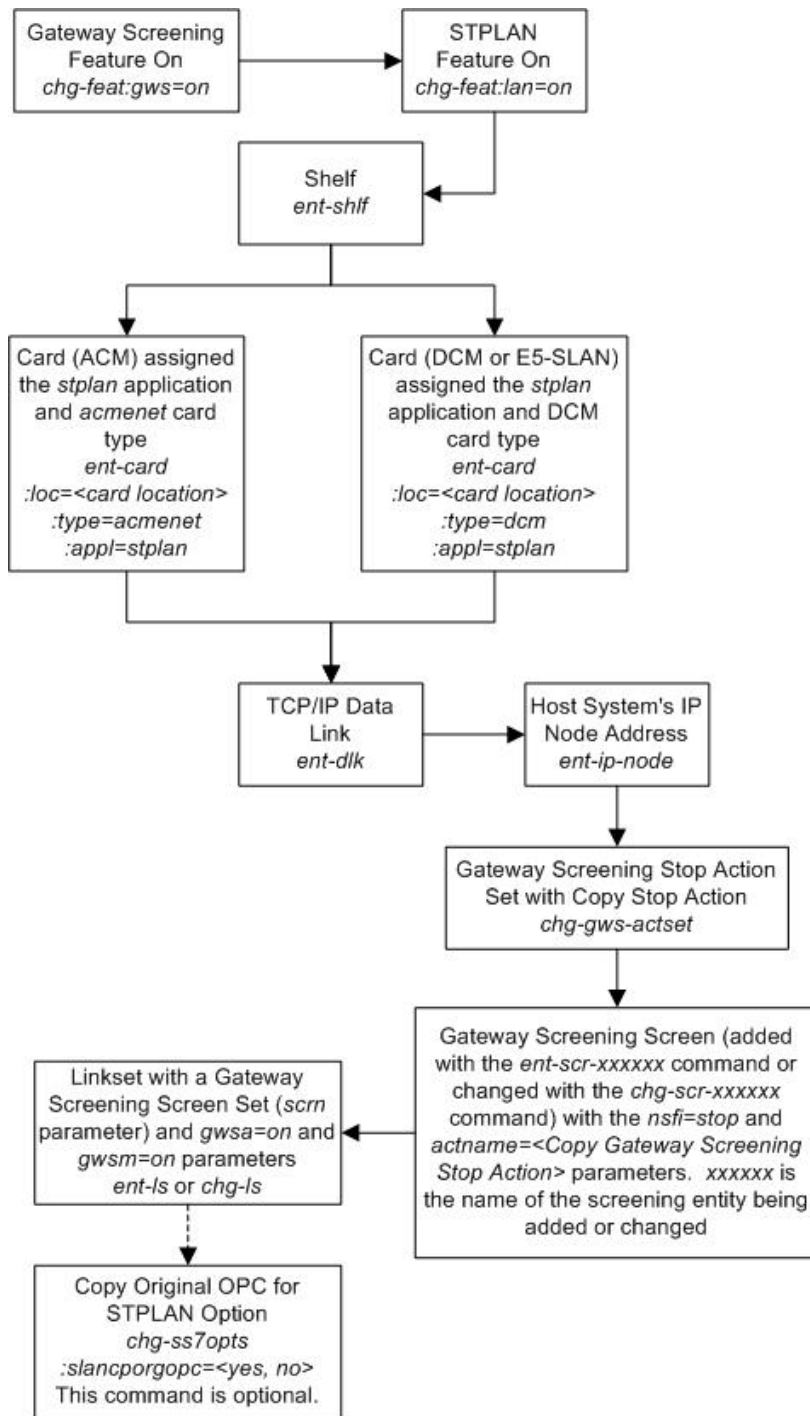
Network Configuration Procedures

To support the STPLAN feature, you must configure these database elements that are specific to the STPLAN feature.

- ACM, DCM, or E5-SLAN card
- TCP/IP Data Link
- IP Node

When the EAGLE 5 ISS is booted, each module gets the configuration information from the database. [Figure 26: STPLAN Database Relationships](#) on page 176 shows the database elements that must be configured, and the order in which they should be configured.

Figure 26: STPLAN Database Relationships



These procedures use a variety of commands. If you need more information on these commands, refer to the *Commands Manual* to find the required information.

This list describes the database entities (shown in [Figure 26: STPLAN Database Relationships](#) on page 176) that must be configured for the STPLAN feature.

1. The STPLAN and gateway screening features must be turned on. Verify that these features are turned on with the `rtrv-feat` command. If either of these the features are not on, shown with the entries `GWS = off` (if the gateway screening feature is off), and `LAN = off` (if the STPLAN feature is off), in the `rtrv-feat` command output, enter the `chg-feat:gws=on` command to turn on the gateway screening feature, and the `chg-feat:lan=on` command to turn on the STPLAN feature.

Note: Once the gateway screening and STPLAN features are turned on with the `chg-feat` command, they cannot be turned off.

2. Make sure that the required shelf is in the database with the `rtrv-shlf` command. If it is not in the database, add it with the `ent-shlf` command.
3. Make sure the cards that the TCP/IP data links will be assigned to are in the database with the `rtrv-card` command. These cards can be either ACMs (card type `acmenet`) or DCMs (card type `dcm`), or E5-SLAN card (card type `dcm`). The ACM, DCM, or E5-SLAN card must have the `stplan` application assigned to it. If these cards are not in the database, add them with the `ent-card` command, specifying an ACM with the `type=acmenet` and `appl=stplan` parameters, or a DCM or E5-SLAN card with the `type=dcm` and `appl=stplan` parameters.
4. The TCP/IP data links needed by the STPLAN feature must be in the database. Verify this by entering the `rtrv-dlk` command. If the necessary TCP/IP data links are not in the database, add them with the `ent-dlk` command. Make sure that the card location specified in the `ent-dlk` command is an ACM, DCM, or E5-SLAN card shown in step 3. If the card is a DCM, you must also select the speed of 10 (default) or 100. If the card is an E5-SLAN card, you must also select the speed of 10 (default) or 100.
5. The TCP/IP nodes used by the STPLAN feature must be in the database. Verify this by entering the `rtrv-ip-node` command. If the necessary TCP/IP nodes are not in the database, add them with the `ent-ip-node` command with a card location assigned to a TCP/IP data link shown in step 4.
6. The GLS card must be provisioned and installed to be able to load card's screen-set
7. The STPLAN feature uses gateway screening to select the messages that are copied and sent to the STPLAN application on an ACM, DCM, or E5-SLAN card. A gateway screening stop action set containing the `COPY` gateway screening stop action must be assigned to the gateway screening entity where the gateway screening process stops (the NSFI of the screen is `STOP`). Enter the `rtrv-gws-actset` command to display the gateway screening stop action sets in the database. The database contains at least two gateway screening stop actions sets that contain the `COPY` gateway screening stop action as shown in bold in the example output. These gateway screening stop actions are always in the database and cannot be changed or removed.

```
rlghncxa03w 06-10-20 21:16:37 GMT EAGLE5 36.0.0
ACT ACT ACT ACT ACT ACT ACT ACT ACT ACT ACT
ID NAME 1 2 3 4 5 6 7 8 9 10
--
1 copy copy
2 rdct rdct
3 cr copy rdct
GWS action set table is (3 of 16) 19% full
```

8. Verify that the necessary gateway screening entities have been configured with the required gateway screening stop action set, by entering the appropriate gateway screening retrieve command specifying the `actname` parameter with the gateway screening stop action name shown in the `rtrv-gws-actset` command output.

```
rtrv-scrset:actname=copy
```

```

rtrv-scr-opc:actname=copy
rtrv-scr-blkopc:actname=copy
rtrv-scr-sio:actname=copy
rtrv-scr-dpc:actname=copy
rtrv-scr-blkdpc:actname=copy
rtrv-scr-destfld:actname=copy
rtrv-scr-cgpa:actname=copy
rtrv-scr-tt:actname=copy
rtrv-scr-cdpa:actname=copy
rtrv-scr-aftpc:actname=copy
rtrv-scr-isup:actname=copy

```

If a gateway screening entity is configured to copy messages to an STPLAN application, the entry `STOP` appears in the `NSFI` field and the `NSR/ACT` field contains the name of the gateway screening stop action set specified in the gateway screening retrieve command (see the following example).

```

rlghncxa03w 06-10-20 21:17:37 GMT EAGLE5 36.0.0
SCREEN = ALLOWED OPC
SR   NI      NC      NCM      NSFI      NSR/ACT
opc1 010      010      010      STOP      COPY
opc1 010      010      012      STOP      COPY

```

If the desired gateway screening entity is not configured to copy messages to the STPLAN application, configure these entities to copy messages to the STPLAN application. Go to the *Database Administration Manual - Gateway Screening* for information on configuring gateway screening entities.

- The linkset containing the messages copied for the STPLAN application must have a gateway screening assigned to it. Either the `gwsa` or `gwsn` parameters of the linkset must be set to `on`. Verify this with the `rtrv-ls` command. If the desired linkset does not have a gateway screening assigned to it, shown in the `SCRN` field of the `rtrv-ls` output, or the `GWSA` or `GWSM` field is set to `off`, refer to either [Changing an X.25 Linkset](#) on page 74 or to the Changing an SS7 Linkset procedure in the *Database Administration Manual - SS7* and change the `scrn`, `gwsa`, and `gwsn` parameters of the desired linkset.



CAUTION

CAUTION: When Gateway Screening is in the screen test mode, as defined by the linkset parameters `gwsa=off` and `gwsn=on`, the gateway screening action in the gateway screening stop action set specified by the `actname` parameter of the gateway screening screen set at the end of the gateway screening process will be performed.

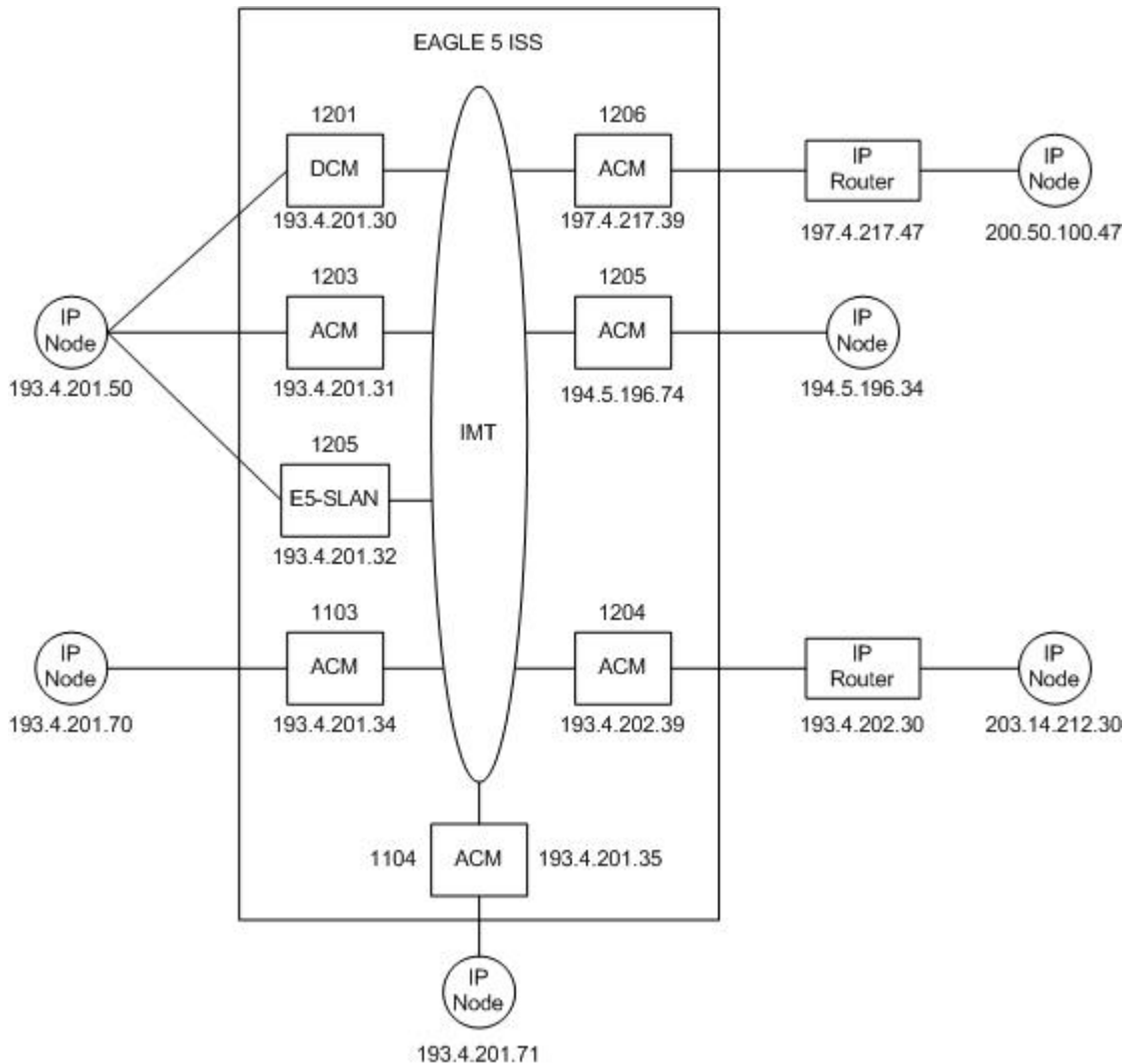
- The copy original OPC for STPLAN option can be configured for the STPLAN feature. Enter the `rtrv-ss7opts` command to verify the status of this option. This option is configured by performing the procedure [Configuring the Copy Original OPC for STPLAN Option](#) on page 215. Configuring this option is not required for the STPLAN feature.

The STPLAN configuration procedures in this chapter use the sample network information shown in *Table 13: STPLAN Configuration Example Database* on page 180. *Figure 27: STPLAN Configuration Example* on page 180 shows a diagram of this sample network.

Table 13: STPLAN Configuration Example Database

Card Location	Interface Address	TCP/IP Router Address	STPLAN Node Address	STPLAN Port ID
1103	193.4.201.34	—	193.4.201.70	1024
1104	193.4.201.35	—	193.4.201.71	1024
1201	193.4.201.30	—	193.4.201.50	1024
1203	193.4.201.31	—	193.4.201.51	1024
1204	193.4.202.39	193.4.202.30	200.50.100.47	2000
1205	193.4.202.32	—	193.4.201.50	3000
1206	197.4.217.39	197.4.217.47	203.14.212.30	4000
1207	194.5.198.74	—	194.5.198.34	4000

Figure 27: STPLAN Configuration Example



Adding an STPLAN Card

This procedure is used to add a card supporting the STPLAN feature, either a DCM, ACM, or E5-SLAN card running the `stplan` to the database using the `ent-card` command. The `ent-card` command uses these parameters:

- `:loc` – The location of the card being added to the database.
- `:type` – The type of card being added to the database. For this procedure, the value of this parameter is either `dcm` (for the dual-slot DCM or single-slot EDCM) or `acmenet` (for the ACM).
- `:appl` – The application software or GPL that is assigned to the card. For this procedure, the value of this parameter is `vxslan` (for the GPL assigned to the dual-slot DCM or single-slot EDCM) or `stplan` (for the GPL assigned to the ACM).

: force – Allow the LIM to be added to the database even if there are not enough cards running the SCCP or VSCCP GPLs to support the number of LIMs. This parameter is obsolete and is no longer used.

The STPLAN card part numbers are shown in [Table 14: STPLAN Card Part Numbers](#) on page 182.

Table 14: STPLAN Card Part Numbers

Card Type	Card Name (as shown on the card label)	TYPE Parameter Value	Part Number
ACM	ACM-ENET	acmenet	870-1008-XX
Dual-Slot DCM	DCM	dcm	870-1945-XX 870-1984-01
Single-Slot EDCM	DCM	dcm	870-2372-01
	EDCM-A	dcm	870-2508-XX
E5-SLAN Card	E5-ENET	dcm	870-2212-02

The dual-slot DCM can be inserted only in the odd numbered card slots of the extension shelf. Slot 09 of each shelf contains the HMUX card or HIPR card, thus the DCM cannot be inserted in slot 09. The dual-slot DCM can be inserted in the control shelf, but only in slots 01, 03, 05, and 07. The dual-slot DCM occupies two card slots, so the even numbered card slot adjacent to the odd numbered slot where the dual-slot DCM has been inserted must be empty, as shown in [Table 15: DCM Card Locations](#) on page 182. The dual-slot DCM is connected to the network through the odd numbered card slot connector.

Table 15: DCM Card Locations

Location of the DCM	Empty Card Location	Location of the DCM	Empty Card Location
Slot 01	Slot 02	Slot 11	Slot 12
Slot 03	Slot 04	Slot 13	Slot 14
Slot 05	Slot 06	Slot 15	Slot 16
Slot 07	Slot 08	Slot 17	Slot 18

Before the card can be configured in the database for the STPLAN feature, the STPLAN and gateway screening features must be turned on with the `chg-feat` command. The gateway screening feature must be on before the STPLAN feature can be turned on. The `rtrv-feat` command can verify that the STPLAN, and gateway screening features are on.

Note: Once the Gateway Screening and STPLAN features are turned on with the `chg-feat` command, they cannot be turned off.

Note: Verify the temperature threshold settings for the E5-SLAN card by performing the “Changing the High-Capacity Card Temperature Alarm Thresholds” procedure in the *Database Administration Manual-SS7*.

The shelf to which the card is to be added must already be in the database. This can be verified with the `rtrv-shlf` command. If the shelf is not in the database, see the "Adding a Shelf" procedure in the *Database Administration Manual – System Management*.

The card cannot be added to the database if the specified card location already has a card assigned to it.

STPLAN Card Provisioning

The following rules apply to provisioning STPLAN cards:

- A minimum of two STPLAN cards must be provisioned in an EAGLE 5 ISS.
- A maximum of 32 STPLAN cards can be provisioned in an EAGLE 5 ISS.
- For shelves containing HMUX cards, the following rules apply to provisioning STPLAN cards.
 - If the shelf containing the STPLAN cards (only ACMs or DCMs, but not E5-SLAN cards) has HMUX cards installed in card slots 9 and 10, the shelf can contain a maximum of three STPLAN cards.
 - The STPLAN cards should be provisioned in shelves adjacent to the shelf containing the cards being monitored - half of the STPLAN cards should be provisioned in the next shelf and the other half of the STPLAN cards should be provisioned in the previous shelf. For example, if the shelf generating the STPLAN traffic is shelf 2100, half of the STPLAN cards should be provisioned in shelf 1300 and the other half of the STPLAN cards should be provisioned in shelf 2200.
- For shelves containing HIPR cards, the STPLAN cards should be provisioned in the same shelves that contain HIPR cards. There is no limit on the number of STPLAN cards that can be provisioned on shelves containing HIPR cards.
- The E5-SLAN card requires that HIPR cards are installed in the card locations 9 and 10 in the shelf that will contain the E5-SLAN card. If HIPR cards are not installed in the shelf that the E5-SLAN card will occupy, the E5-SLAN card will be auto-inhibited when the E5-SLAN card is inserted into the shelf. Enter the `rept-stat-gp1:gp1=hipr` command to verify whether or not HIPR cards are installed in the same shelf as the E5-SLAN card being provisioned in this procedure.

Note: Contact your Tekelec Sales Representative or Account Representative to determine the number of STPLAN cards that must be provisioned in your EAGLE 5 ISS, and to determine where in the EAGLE 5 ISS these STPLAN cards must be provisioned before performing this procedure.

The examples in this procedure are used to add a DCM in card slot 1201 and an ACM in card slot 1204 to the database, and an E5-SLAN card in card slot 1207.

1. Display the cards in the EAGLE 5 ISS using the `rtrv-card` command.

Cards should be distributed throughout the EAGLE 5 ISS for proper power distribution. Refer to the *Installation Manual - EAGLE 5 ISS* for the shelf power distribution. This is an example of the possible output.

```
rlghncxa03w 06-10-25 09:58:31 GMT EAGLE5 36.0.0
CARD   TYPE      APPL      LSET NAME      LINK SLC LSET NAME      LINK SLC
```

1101	TSM	SCCP							
1102	TSM	GLS							
1103	ACMENET	STPLAN							
1104	ACMENET	STPLAN							
1113	GPSM	EOAM							
1114	TDM-A								
1115	GPSM	EOAM							
1116	TDM-B								
1117	MDAL								
1203	ACMENET	STPLAN							
1205	ACMENET	STPLAN							
1206	ACMENET	STPLAN							
1211	LIMDS0	SS7ANSI	lsn1	A	0	lsn2	B	1	
1212	LIMV35	SS7GX25	lsngwy	A	0				
1213	LIMV35	SS7ANSI	lsn2	A	0	lsn1	B	1	
1216	LIMDS0	SS7ANSI	sp2	A	0	sp1	B	0	
1303	LIMDS0	SS7ANSI	sp3	A	0				
1304	LIMDS0	SS7ANSI	sp3	A	1				
1306	LIMDS0	SS7ANSI	nsp3	A	1	nsp4	B	1	
1307	LIMV35	SS7GX25	nsp1	A	0				
1308	LIMV35	SS7GX25	nsp1	A	1				

If the APPL field of the `rtrv-card` command output shows cards assigned to the STPLAN application, skip steps 2, 3, and 4, and go to step 5.

2. Verify that the STPLAN and the gateway screening features are on, by entering the `rtrv-feat` command.

If the STPLAN feature is on, the LAN field should be set to on. If the gateway screening feature is on, the GWS field should be set to on. For this example, the STPLAN and gateway screening features are off.

Note: The `rtrv-feat` command output contains other fields that are not used by this procedure. If you wish to see all the fields displayed by the `rtrv-feat` command, see the `rtrv-feat` command description in the *Commands Manual*.

If the gateway screening and STPLAN features are on, skip steps 3 and 4 and go to step 5. If the gateway screening feature is not on, go to step 3. If the gateway screening feature is on, but the STPLAN feature is off, skip step 3 and go to step 4.

3. If the gateway screening feature is not on, shown by the `GWS = off` entry in the `rtrv-feat` command output in step 2, turn the gateway screening feature on by entering this command.

```
chg-feat:gws=on
```

Note: Once the gateway screening feature is turned on with the `chg-feat` command, it cannot be turned off.

When the `chg-feat` has successfully completed, this message should appear.

```
rlghncxa03w 06-10-20 21:18:37 GMT EAGLE5 36.0.0
CHG-FEAT: MASP A - COMPLTD
```

4. Turn the STPLAN feature on by entering this command.

```
chg-feat:lan=on
```

Note: Once the STPLAN feature is turned on with the `chg-feat` command, it cannot be turned off.

When the `chg-feat` has successfully completed, this message should appear.

```
rlghncxa03w 06-10-20 21:19:37 GMT EAGLE5 36.0.0
CHG-FEAT: MASP A - COMPLTD
```

- Verify that the card has been physically installed into the proper location.



CAUTION

If the versions of the flash GPLs on the STPLAN card does not match the flash GPL versions in the database when the STPLAN is inserted into the card slot, UAM 0002 is generated indicating that these GPL versions do not match. If UAM 0002 has been generated, perform the alarm clearing procedure for UAM 0002 in the *Unsolicited Alarm and Information Messages Manual* before proceeding with this procedure.

Note: Skip step 6 and go to step 7 if you do not want to enter an E5-SLAN card.

- Verify whether HIPR cards are installed in the same shelf as the E5-SLAN card to be provisioned using the `rept-stat-gpl:gpl=hipr` command.

```
rlghncxa03w 07-02-01 11:40:26 GMT EAGLE5 37.0.0
GPL      CARD      RUNNING      APPROVED      TRIAL
HIPR     1109     126-002-000 126-002-000 126-003-000
HIPR     1110     126-002-000 126-002-000 126-003-000
HIPR     1209     126-002-000 126-002-000 126-003-000
HIPR     1210     126-002-000 126-002-000 126-003-000
HIPR     1309     126-002-000 126-002-000 126-003-000
HIPR     1310     126-002-000 126-002-000 126-003-000
HIPR     2109     126-002-000 126-002-000 126-003-000
HIPR     2110     126-002-000 126-002-000 126-003-000
Command Completed
```

If HIPR cards are installed in the shelf containing the E5-SLAN card, go to step 7.

If HIPR cards are not installed at the card locations 9 and 10 on the shelf where the E5-SLAN card is to be installed, refer to the *Installation Manual - EAGLE 5 ISS* and install the HIPR cards. Once the HIPR cards have been installed, go to step 7.

- Add the card to the database using the `ent-card` command.

For this example, enter these commands.

```
ent-card:loc=1201:type=dcm:appl=vwxslan
ent-card:loc=1204:type=acmenet:appl=stplan
ent-card:loc=1207:type=dcm:appl=stplan
```

When each of these commands has successfully completed, this message should appear.

```
rlghncxa03w 06-10-20 21:21:37 GMT EAGLE5 36.0.0
ENT-CARD: MASP A - COMPLTD
```

- Verify the changes using the `rtrv-card` command with the card location specified.

For this example, enter these commands.

```
rtrv-card:loc=1201
```

This is an example of the possible output.

```
rlghncxa03w 06-10-20 21:22:37 GMT EAGLE5 36.0.0
```

CARD	TYPE	APPL	LSET NAME	LINK SLC	LSET NAME	LINK SLC
1201	DCM	VWXSLAN				

```
rtrv-card:loc=1204
```

This is an example of the possible output.

CARD	TYPE	APPL	LSET NAME	LINK SLC	LSET NAME	LINK SLC
1204	ACMENET	STPLAN				

```
rtrv-card:loc=1207
```

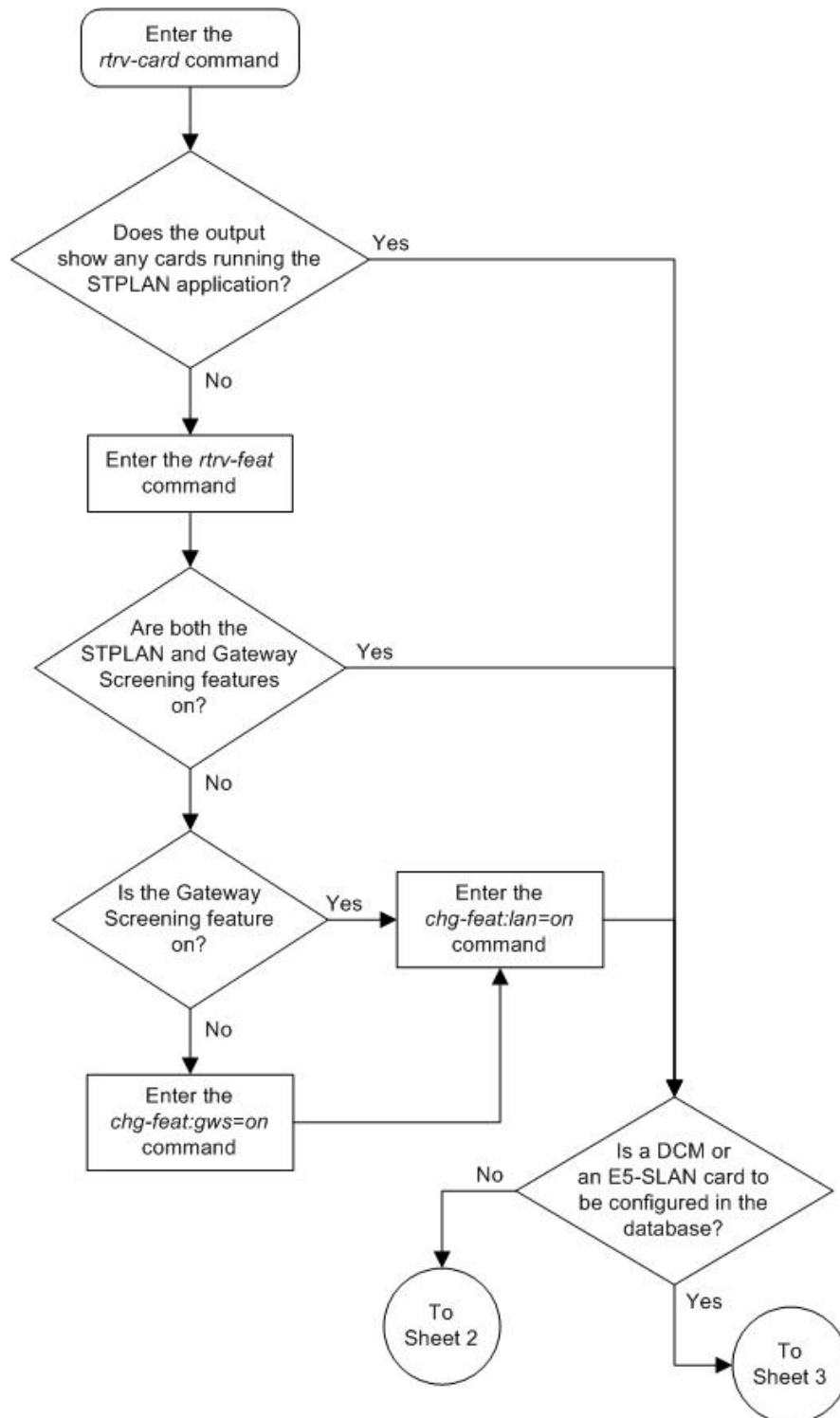
CARD	TYPE	APPL	LSET NAME	LINK SLC	LSET NAME	LINK SLC
1207	DCM	STPLAN				

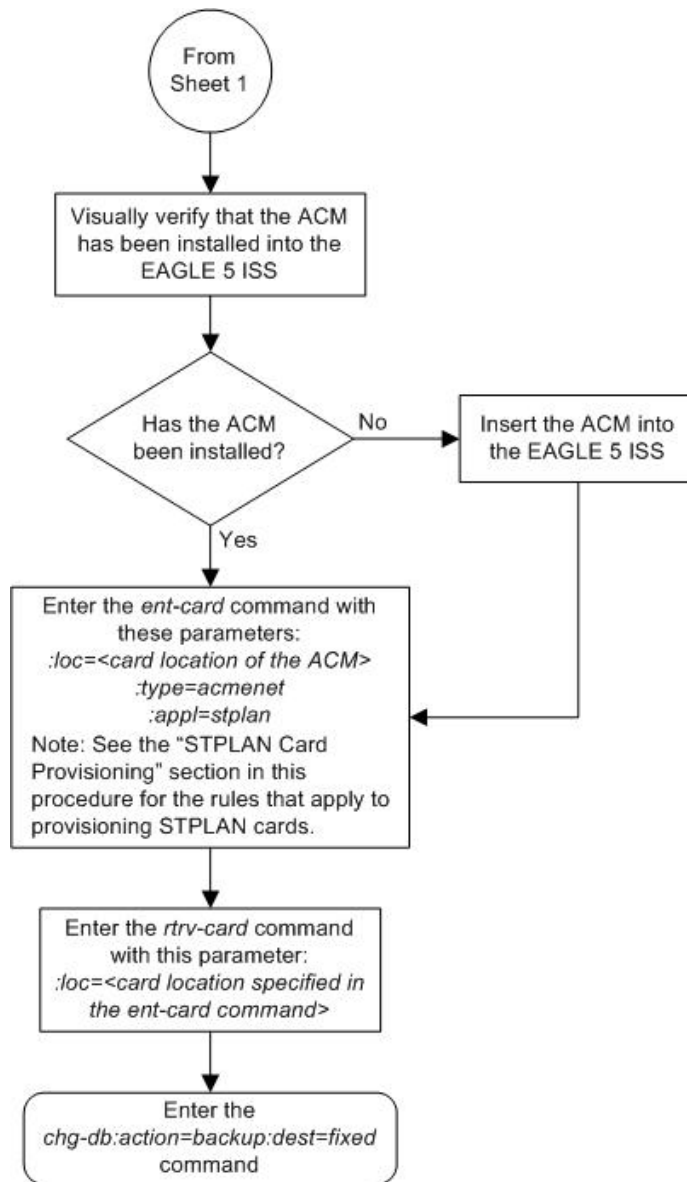
9. Backup the new changes, using the `chg-db:action=backup:dest=fixed` command.

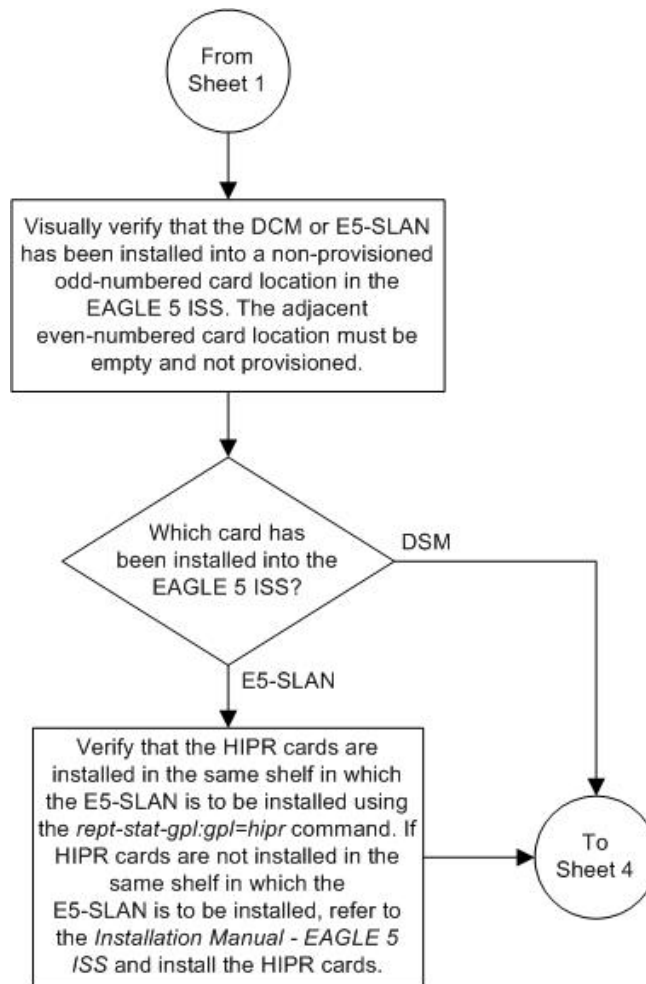
These messages should appear; the active Maintenance and Administration Subsystem Processor (MASP) appears first.

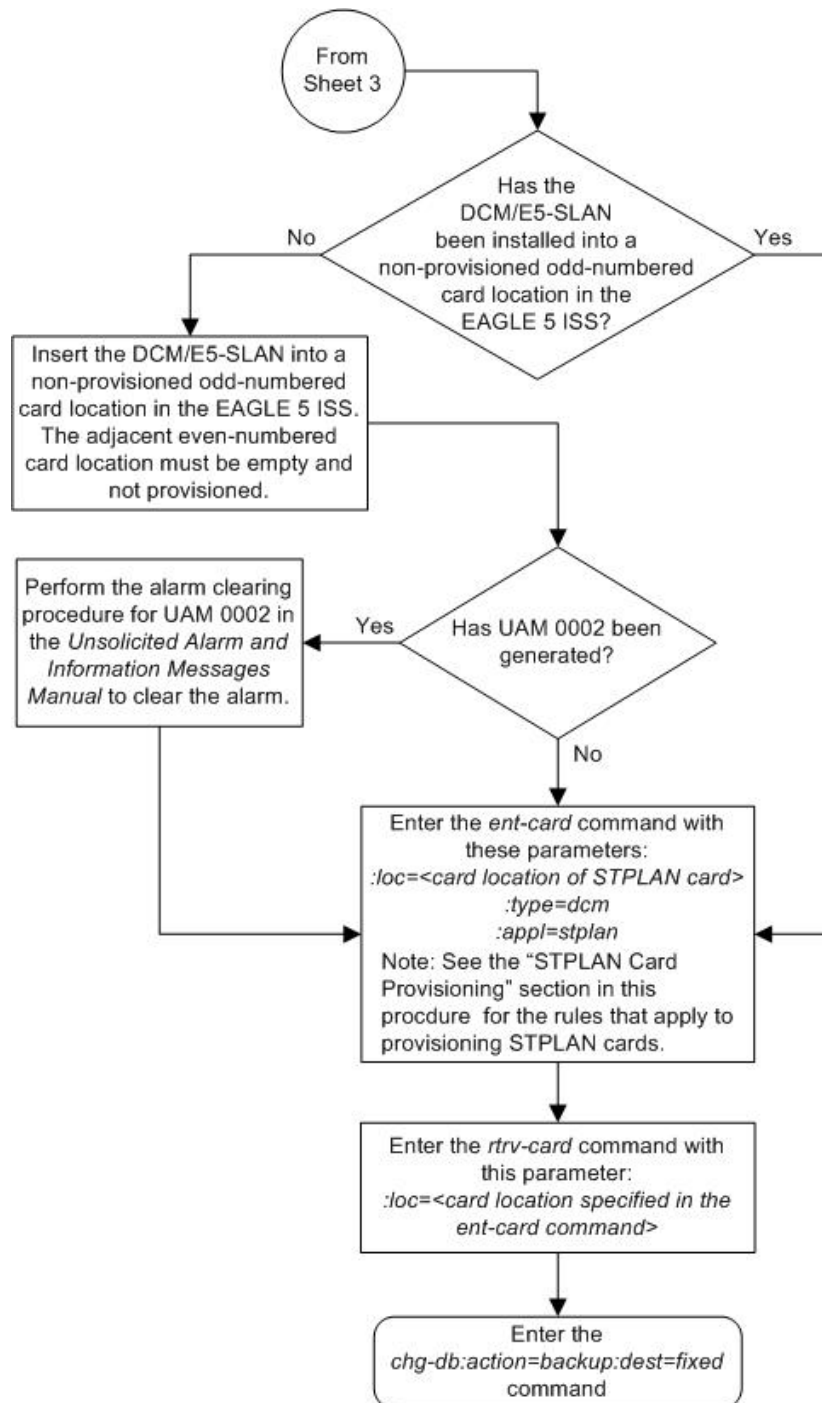
```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk complete.
BACKUP (FIXED) : MASP A - Backup starts on standby MASP.
BACKUP (FIXED) : MASP A - Backup on standby MASP to fixed disk complete.
```

Figure 28: Adding an STPLAN Card









Removing an STPLAN Card

This procedure is used to remove a card supporting the STPLAN feature, either an ACM, DCM, or E5-SLAN card running the `stpplan` application, from the database using the `dlt-card` command.

The card cannot be removed if it does not exist in the database.

No TCP/IP data links can be assigned to the card you wish to remove from the database.



CAUTION

CAUTION: If the card being removed from the database is the last in-service card supporting the STPLAN feature (either ACM, DCM, or E5-SLAN card), removing this card from the database will disable the STPLAN feature.

The examples in this procedure are used to remove the DCM in card location 1201 from the database.

1. Display the cards in the database using the `rtrv-card` command.

This is an example of the possible output.

```
rlghncxa03w 06-10-25 09:58:31 GMT EAGLE5 36.0.0
CARD  TYPE      APPL      LSET NAME      LINK SLC LSET NAME      LINK SLC
1101  TSM          SCCP
1102  TSM          GLS
1103  ACMENET     STPLAN
1104  ACMENET     STPLAN
1113  GPSM        EOAM
1114  TDM-A
1115  GPSM        EOAM
1116  TDM-B
1117  MDAL
1201  DCM          STPLAN
1203  DCM          STPLAN
1204  ACMENET     STPLAN
1205  DCM          STPLAN
1206  DCM          STPLAN
1207  DCM          STPLAN
1211  LIMDS0     SS7ANSI  lsn1          A      0      lsn2          B      1
1212  LIMV35     SS7GX25  lsn2          A      0
1213  LIMV35     SS7ANSI  lsn2          A      0      lsn1          B      1
1216  LIMDS0     SS7ANSI  sp2           A      0      sp1           B      0
1303  LIMDS0     SS7ANSI  sp3           A      0
1304  LIMDS0     SS7ANSI  sp3           A      1
1306  LIMDS0     SS7ANSI  nsp3          A      1      nsp4          B      1
1307  LIMV35     SS7GX25  nsp1          A      0
1308  LIMV35     SS7GX25  nsp1          A      1
```

If no STPLAN cards are shown in the `rtrv-card` output, this procedure cannot be performed. STPLAN cards are shown by the entry `STPLAN` in the `APPL` field.

2. Display the status of the TCP/IP data link assigned to the card you wish to remove by entering the `rept-stat-dlk` command with the card location of the STPLAN card being removed. For this example, enter this command.

```
rept-stat-dlk:loc=1201
```

This is an example of the possible output.

```
rlghncxa03w 06-10-20 21:17:37 GMT EAGLE5 36.0.0
DLK      PST          SST          AST
1201    IS-NR        Avail        ---
  ALARM STATUS      = No Alarms.
Command Completed.
```

3. If the TCP/IP data link is not in an OOS-MT-DSBLD state, deactivate the TCP/IP data link assigned to the card using the `canc-dlk` command with the card location specified in step 2.

For this example, enter this command.

```
canc-dlk:loc=1201
```

When this command has successfully completed, this message should appear.

```
rlghncxa03w 06-10-20 21:18:37 GMT EAGLE5 36.0.0
Deactivate Link message sent to card.
```

4. Inhibit the card using the `rmv-card` command, specifying the card location specified in step 3.

For this example, enter this command.

```
rmv-card:loc=1201
```

When this command has successfully completed, this message should appear.

```
rlghncxa03w 06-10-20 21:19:37 GMT EAGLE5 36.0.0
Card has been inhibited.
```

5. Display the TCP/IP nodes in the database by entering the `rtrv-ip-node` command with the card location specified in step 4. For this example, enter this command.

```
rtrv-ip-node=loc=1201
```

This is an example of the possible output.

```
rlghncxa03w 06-10-20 21:20:37 GMT EAGLE5 36.0.0
IPADDR      IPPORT  IPAPPL  LOC   CAP  IPRTE
193.4.201.50  1024   stplan  1201  10%  --
```

6. Remove the TCP/IP node assigned to the card location containing the TCP/IP data link to be removed from the database using the `dlt-ip-node` command with the card location specified in step 5.

For this example, enter this command.

```
dlt-ip-node:ipaddr=193.4.201.50:loc=1201
```

When this command has successfully completed, this message should appear.

```
rlghncxa03w 06-10-20 21:21:37 GMT EAGLE5 36.0.0
DLT-IP-NODE: MASP A - COMPLTD
```

7. Remove the data link from the specified card by using the `dlt-dlk` command with the card location specified in step 6.

For this example, enter this command.

```
dlt-dlk:loc=1201
```


When this command has successfully completed, this message should appear.

```
rlghncxa03w 06-10-20 21:22:37 GMT EAGLE5 36.0.0  
DLT-DLK: MASP A - COMPLTD
```

8. Remove the card using the `dlt-card` command with the card location of the card to be removed.

The `dlt-card` command has only one parameter, `loc`, which is the location of the card. For this example, enter this command.

```
dlt-card:loc=1201
```

When this command has successfully completed, this message should appear.

```
rlghncxa03w 06-10-20 21:23:37 GMT EAGLE5 36.0.0  
DLT-CARD: MASP A - COMPLTD
```

9. Verify the changes using the `rtrv-card` command specifying the card that was removed in step 8.

For this example, enter this command.

```
rtrv-card:loc=1201
```

When this command has successfully completed, this message should appear.

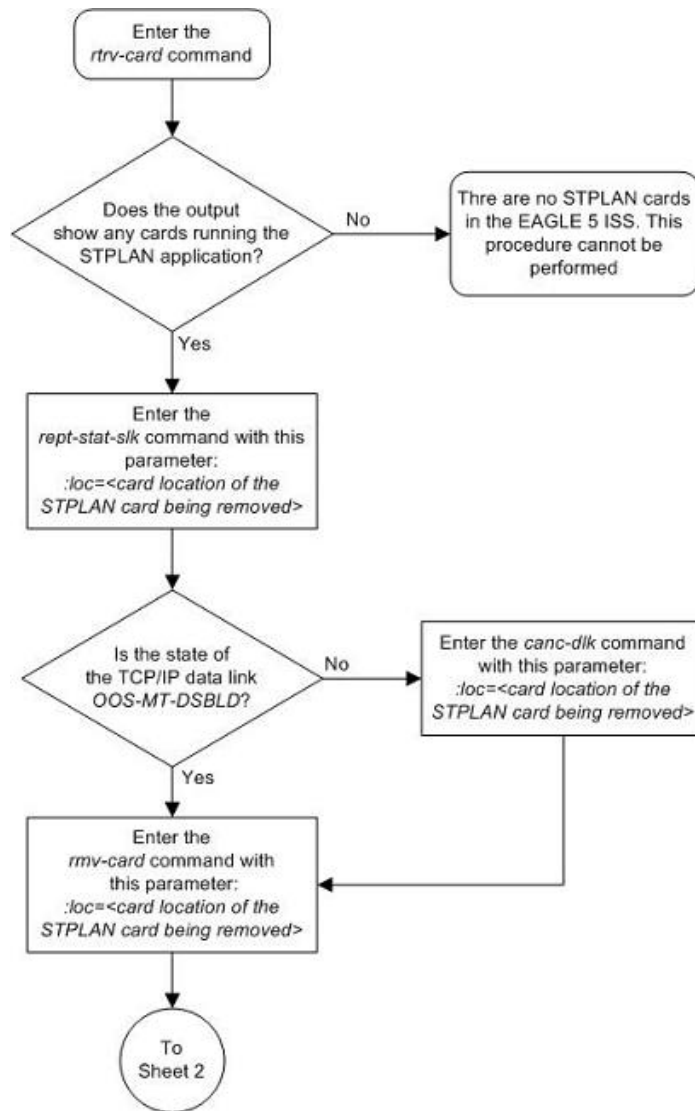
```
E2144 Cmd Rej: Location invalid for hardware configuration
```

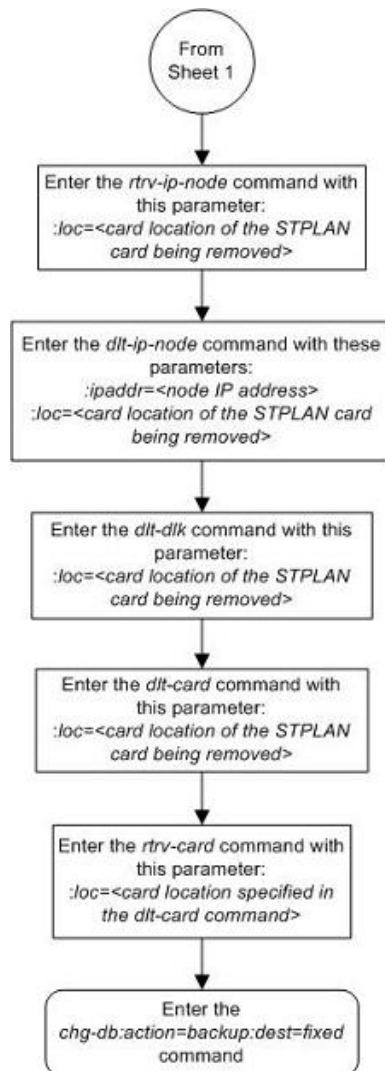
10. Backup the new changes using the `chg-db:action=backup:dest=fixed` command.

These messages should appear; the active Maintenance and Administration Subsystem Processor (MASP) appears first.

```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.  
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk complete.  
BACKUP (FIXED) : MASP A - Backup starts on standby MASP.  
BACKUP (FIXED) : MASP A - Backup on standby MASP to fixed disk complete.
```

Figure 29: Removing an STPLAN Card





Adding a TCP/IP Data Link

This procedure is used to add a TCP/IP data link to the database using the `ent-dlk` command.

The `ent-dlk` command uses these parameters:

`:loc` – The card location of the ACM, DCM, or E5-SLAN card that the TCP/IP data link will be assigned to.

`:ipaddr` – The TCP/IP data link's IP address

`:duplex` – The mode of operation of the interface. This parameter is valid only for DCMs or E5-SLAN cards running the STPLAN application. The value for this parameter is `half` or `full`. The default value is `half`. The value `half` indicates that the mode of operation of the interface is half duplex. The value `full` indicates that the mode of operation of the interface is full duplex.

: `speed` – The transmission rate of the TCP/IP data link, either 10 Mb/s (`speed=10`) or 100 Mb/s (`speed=100`). The default value for this optional parameter is 10. The `speed=100` parameter can be specified only if the application running on the STPLAN card is VXWSLAN. The application running on the card is shown in the `APPL` field of the `rtrv-card` command output.

: `auto` – This parameter specifies whether the hardware automatically determines duplex and speed. This parameter is valid only for DCMs or E5-SLAN cards running the STPLAN application. The value for this parameter is `yes` or `no`. The value `yes` indicates that the parameters `duplex` and `speed` are automatically determined. Dashes are displayed in the `LINK` `SPEED` and `DUPLEX` columns in the `rtrv-dlk` output if the `auto` parameter value is `yes`. The value `no` indicates that the parameters `duplex` and `speed` are not determined automatically.

The default value for the `auto` parameter is `yes`, if the `speed` and `duplex` parameters are not specified.

The `speed` and `duplex` parameters can be specified with the `auto` parameter only if the `auto` parameter value is `no`.

If the `speed` and `duplex` parameters are specified and the `auto` parameter is not specified, the default value for the `auto` parameter is `no`.

If either the `duplex` or `speed` parameters are specified, then both the `duplex` and `speed` parameters must be specified.

Note: If the STPLAN card is an ACM (shown in the `rtrv-card` output with the entry `ACMENET` in the `TYPE` column), only the `loc` and `ipaddr` parameters can be specified in this procedure. The following values are also displayed in the `rtrv-dlk` output if the STPLAN card is an ACM.

AUTO – NO LINK

SPEED – 10Mbit

DUPLEX – HALF

This examples used in this procedure are based on the example network shown in [Figure 27: STPLAN Configuration Example](#) on page 180 and [Table 13: STPLAN Configuration Example Database](#) on page 180.

The STPLAN and gateway screening features must be turned on. Verify this by entering the `rtrv-feat` command. If either the STPLAN feature or gateway screening feature is off, they can be turned on by entering the `chg-feat:lan=on` command for the STPLAN feature and the `chg-feat:gws=on` command for the gateway screening feature.

Note: Once the gateway screening and STPLAN features are turned on with the `chg-feat` command, they cannot be turned off.

The card that the TCP/IP data link is assigned to must be an ACM running the `stplan` application or a DCM or E5-SLAN card running the `stplan` application. This can be verified in step 2 with the `rtrv-card` command. The ACM is shown by the entries `ACMENET` in the `TYPE` field and `STPLAN` in the `APPL` field of the `rtrv-card` command output. The DCM or E5-SLAN card is shown by the entries `DCM` in the `TYPE` field and `STPLAN` in the `APPL` field of the `rtrv-card` command output. If the STPLAN card is not shown in the `rtrv-card` command output, go to [Adding an STPLAN Card](#) on page 181 and add the required card to the database.

The specified card cannot have a TCP/IP data link assigned to it, nor can the TCP/IP data link be in the database. This can be verified in step 1.

The IP address to be assigned to the TCP/IP data link cannot be assigned to a TCP/IP node or to a TCP/IP router. Enter the `rtrv-ip-node` command to display the IP addresses of the TCP/IP nodes and the TCP/IP routers. This can be verified in step 2.

1. Display the data links in the database by entering the `rtrv-dlk` command.

This is an example of the possible output.

```
rlghncxa03w 06-10-20 21:16:37 GMT EAGLE5 36.0.0
LOC  IPADDR          LINK SPEED
1103 193.4.201.34      10Mbit
1104 193.4.201.35      10Mbit
```

2. Display the TCP/IP nodes and TCP/IP routers by entering the `rtrv-ip-node` command.

This is an example of the possible output.

```
rlghncxa03w 06-10-20 21:17:37 GMT EAGLE5 36.0.0
IPADDR  IPPORT  IPAPPL  LOC  CAP  IPRTE
193.4.201.70  1024  stplan  1103  10%  --
193.4.201.71  1024  stplan  1104  10%  --
```

If the IP address being assigned to the TCP/IP data link in this procedure matches any IP address values shown in steps 1 or 2, choose an IP address value that is not shown in steps 1 or 2 and go to step 3.

3. Display the cards in the database by entering the `rtrv-card` command.

This is an example of the possible output.

```
rlghncxa03w 06-10-25 09:58:31 GMT EAGLE5 36.0.0
CARD  TYPE      APPL      LSET NAME      LINK SLC  LSET NAME      LINK SLC
1101  TSM        SCCP
1102  TSM        GLS
1103  ACMENET    STPLAN
1104  ACMENET    STPLAN
1113  GPMS       EOAM
1114  TDM-A
1115  GPMS       EOAM
1116  TDM-B
1117  MDAL
1201  DCM        STPLAN
1203  DCM        STPLAN
1204  ACMENET    STPLAN
1205  DCM        STPLAN
1206  DCM        STPLAN
1207  DCM        STPLAN
1211  LIMDS0     SS7ANSI    lsn1           A        0        lsn2           B        1
1212  LIMV35     SS7GX25    lsn2           A        0
1213  LIMV35     SS7ANSI    lsn2           A        0        lsn1           B        1
1216  LIMDS0     SS7ANSI    sp2            A        0        sp1            B        0
1303  LIMDS0     SS7ANSI    sp3            A        0
1304  LIMDS0     SS7ANSI    sp3            A        1
1306  LIMDS0     SS7ANSI    nsp3           A        1        nsp4           B        1
1307  LIMV35     SS7GX25    nsp1           A        0
1308  LIMV35     SS7GX25    nsp1           A        1
```

The STPLAN card that will be specified in step 4 must be shown in the `rtrv-card` output in this step, but cannot be shown in the `loc` column of the `rtrv-dlk` output in step 1.

If the required STPLAN card is not shown in the `rtrv-card` output, perform [Adding an STPLAN Card](#) on page 181 and add the STPLAN card to the database.

If the STPLAN card is shown in the `rtrv-dlk` output, either select an STPLAN card that is shown in the `rtrv-card` output, but not shown in the `rtrv-dlk` output, or perform [Adding an STPLAN Card](#) on page 181 and add the STPLAN card to the database.

The `speed`, `duplex`, and `auto` parameters can be specified with the `ent-dlk` command only if the STPLAN card is a DCM or an E5-SLAN card.

4. Add the data link to the database by entering the `ent-dlk` command.

For this example, enter these commands.

```
ent-dlk:loc=1201:ipaddr=193.4.201.50:speed=100:auto=no
```

```
ent-dlk:loc=1203:ipaddr=193.4.201.51
```

```
ent-dlk:loc=1204:ipaddr=200.50.100.47
```

```
ent-dlk:loc=1205:ipaddr=193.4.201.50
```

```
ent-dlk:loc=1206:ipaddr=203.14.212.30
```

```
ent-dlk:loc=1207:ipaddr=203.14.212.39
```

When each of these commands has successfully completed, this message should appear.

```
rlghncxa03w 06-10-20 21:19:37 GMT EAGLE5 36.0.0  
ENT-DLK: MASP A - COMPLTD
```

The `ent-dlk` command assigns the IP address (`ipaddr`) to the STPLAN card. If the network is a private network (not on the Internet), you can assign any unique address. If the STPLAN card is on the Internet, you must obtain an IP address from the Internet Network Information Center (NIC). Refer to [IP Addresses](#) on page 174 for information on the IP address values used in the `ent-dlk` command.

The default value for the `auto` parameter is `yes`, if the `speed` and `duplex` parameters are not specified.

The `speed` and `duplex` parameters can be specified with the `auto` parameter only if the `auto` parameter value is `no`.

If the `speed` and `duplex` parameters are specified and the `auto` parameter is not specified, the default value for the `auto` parameter is `no`.

If either the `duplex` or `speed` parameters are specified, then both the `duplex` and `speed` parameters must be specified.

Note: If the STPLAN card is an ACM (shown in the `rtrv-card` output with the entry `ACMENET` in the `TYPE` column), only the `loc` and `ipaddr` parameters can be specified in this procedure. The following values are also displayed in the `rtrv-dlk` output if the STPLAN card is an ACM.

AUTO – NO ; LINK SPEED – 10Mbit; DUPLEX – HALF

5. Verify the changes using the `rtrv-dlk` command with the card location specified in step 4.

For this example, enter these commands.

```
rtrv-dlk:loc=1201
```

This is an example of the possible output.

```
rlghncxa03w 07-02-20 21:16:37 GMT EAGLE5 37.0.0
```

```
LOC      IPADDR      LINK SPEED  DUPLEX  AUTO
1201    193.4.201.50  100Mbit    HALF    NO
```

```
rtrv-dlk:loc=1203
```

This is an example of the possible output.

```
rlghncxa03w 07-02-20 21:16:37 GMT EAGLE5 37.0.0
LOC      IPADDR      LINK SPEED  DUPLEX  AUTO
1203    193.4.201.51  -----    ----    YES
```

```
rtrv-dlk:loc=1204
```

This is an example of the possible output.

```
rlghncxa03w 07-02-20 21:16:37 GMT EAGLE5 37.0.0
LOC      IPADDR      LINK SPEED  DUPLEX  AUTO
1204    200.50.100.47  10Mbit     HALF    NO
```

```
rtrv-dlk:loc=1205
```

This is an example of the possible output.

```
rlghncxa03w 07-02-20 21:16:37 GMT EAGLE5 37.0.0
LOC      IPADDR      LINK SPEED  DUPLEX  AUTO
1205    193.4.201.50  -----    ----    YES
```

```
rtrv-dlk:loc=1206
```

This is an example of the possible output.

```
rlghncxa03w 07-02-20 21:16:37 GMT EAGLE5 37.0.0
LOC      IPADDR      LINK SPEED  DUPLEX  AUTO
1206    203.14.212.30  -----    ----    YES
```

```
rtrv-dlk:loc=1207
```

This is an example of the possible output.

```
rlghncxa03w 07-02-20 21:16:37 GMT EAGLE5 37.0.0
LOC      IPADDR      LINK SPEED  DUPLEX  AUTO
1207    202.14.212.39  -----    ----    YES
```

- Place the cards into service by entering the `rst-card` command with the card location specified in step 4.

For this example, enter these commands.

```
rst-card:loc=1201
```

```
rst-card:loc=1203
```

```
rst-card:loc=1204
```

```
rst-card:loc=1205
```

```
rst-card:loc=1206
```

```
rst-card:loc=1207
```

This message should appear when each command has successfully completed.

```
rlghncxa03w 06-10-20 21:21:37 GMT EAGLE5 36.0.0
Card has been allowed.
```

7. Place the data links into service by entering the `act-dlk` command with the card location specified in step 4.

For this example, enter these commands.

```
act-dlk:loc=1201
```

```
act-dlk:loc=1203
```

```
act-dlk:loc=1204
```

```
act-dlk:loc=1205
```

```
act-dlk:loc=1206
```

```
act-dlk:loc=1207
```

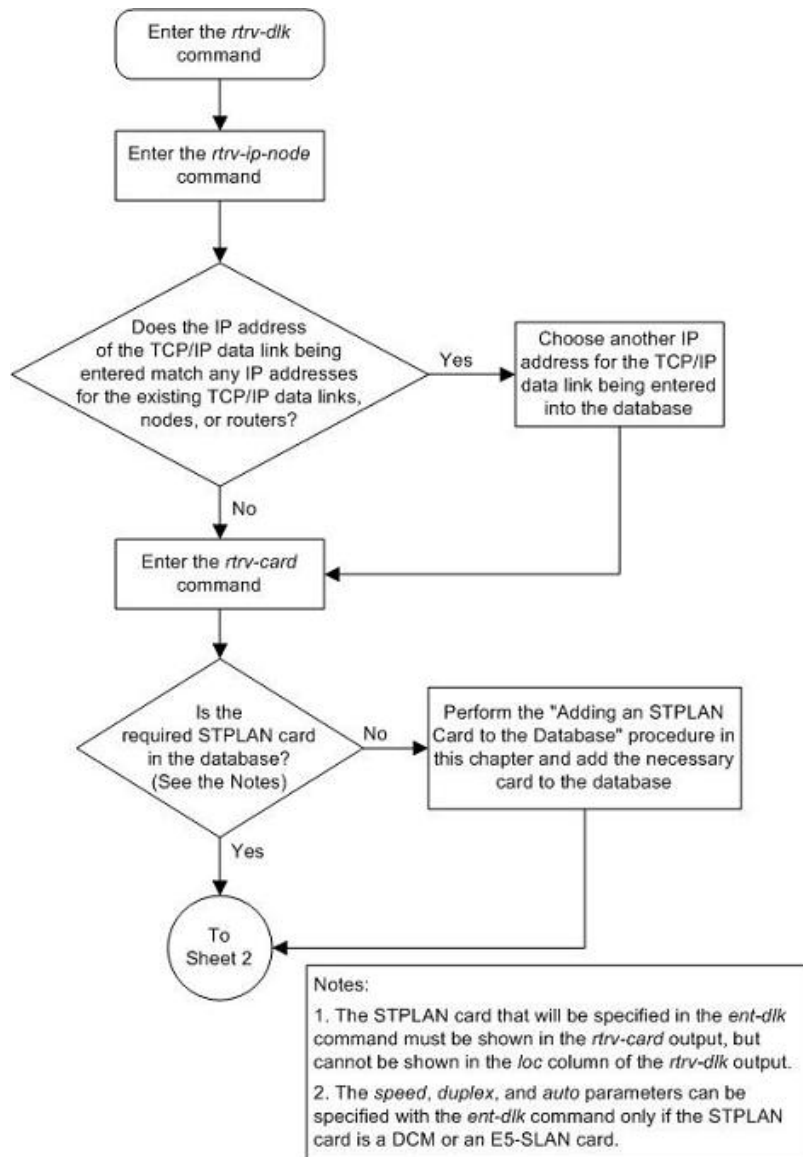
This message should appear when each command has successfully completed.

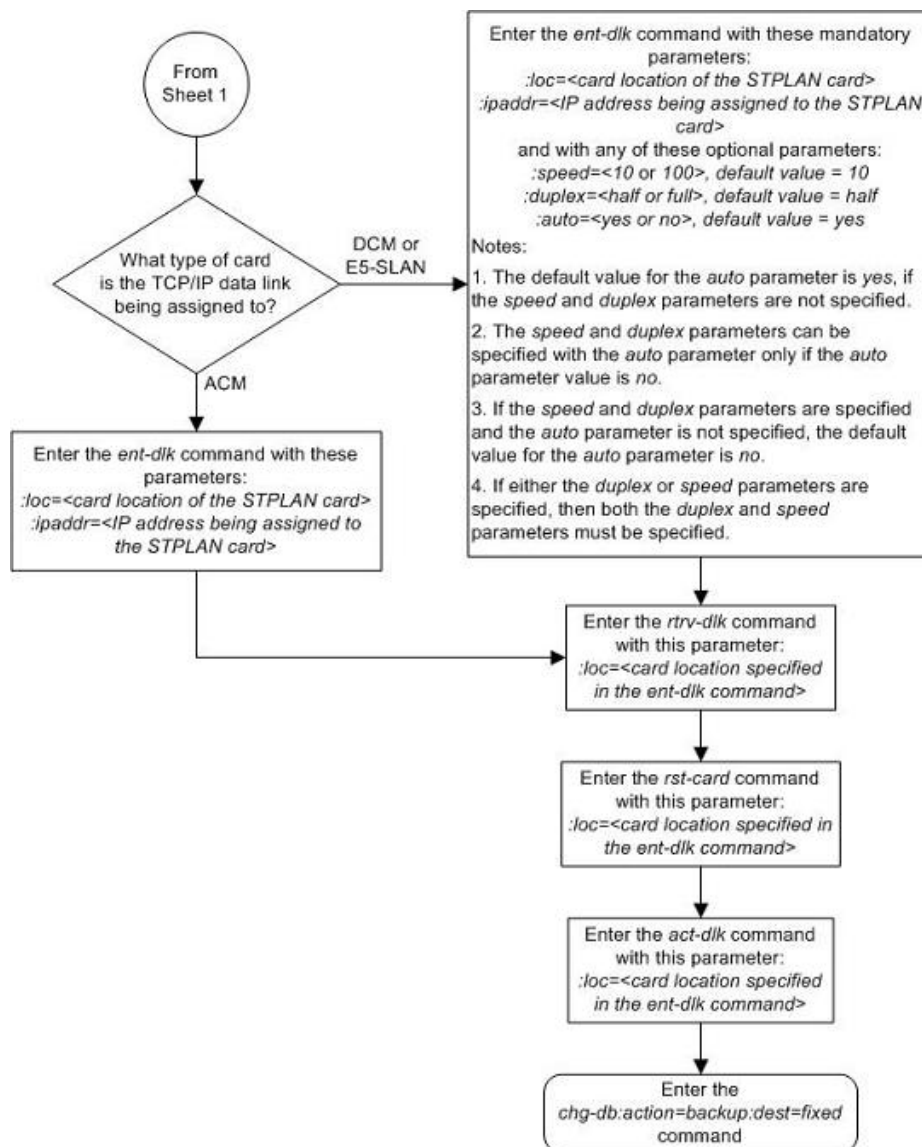
```
rlghncxa03w 06-10-20 21:22:37 GMT EAGLE5 36.0.0  
Activate Link message sent to card
```

8. Backup the new changes using the `chg-db:action=backup:dest=fixed` command. These messages should appear; the active Maintenance and Administration Subsystem Processor (MASP) appears first.

```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.  
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk complete.  
BACKUP (FIXED) : MASP A - Backup starts on standby MASP.  
BACKUP (FIXED) : MASP A - Backup on standby MASP to fixed disk complete.
```

Figure 30: Adding a TCP/IP Data Link





Removing a TCP/IP Data Link

This procedure is used to remove a TCP/IP data link from the database using the `dlt-dlk` command.

The examples used in this procedure are used to remove the TCP/IP data link on card 1204 from the database.

The card that the TCP/IP data link is assigned to must be an ACM running the `stp1an` application or a DCM/E5-SLAN card running the `stp1an` application. This can be verified with the `rtrv-card` command. The ACM is shown by the entries `ACMENET` in the `TYPE` field and `STPLAN` in the `APPL` field of the `rtrv-card` command output. The DCM or E5-SLAN card is shown by

the entries DCM in the TYPE field and STPLAN in the APPL field of the `rtrv-card` command output.

The specified card must have a TCP/IP data link assigned to it and the TCP/IP data link must be in the database. This can be verified in step 1.

1. Display the data links in the database by entering the `rtrv-dlk` command.

This is an example of the possible output.

```
rlghncxa03w 07-02-20 21:16:37 GMT EAGLE5 37.0.0
LOC  IPADDR          LINK SPEED  DUPLEX  AUTO
1103 193.4.201.70      10Mbit    HALF    NO
1104 193.4.201.71      10Mbit    HALF    NO
1201 193.4.201.50      100Mbit   HALF    NO
1203 193.4.201.51      -----   ----    YES
1204 200.50.100.47     10Mbit    HALF    NO
1205 193.4.201.50      -----   ----    YES
1206 203.14.212.30     -----   ----    YES
1207 202.14.212.39     -----   ----    YES
```

2. Place the TCP/IP data link to be removed out of service using the `canc-dlk` command, using the output from step 1 to obtain the card location of the TCP/IP data link to be removed.

For this example, the TCP/IP data link to be removed is assigned to card 1204. Enter this command.

```
canc-dlk:loc=1204
```

When the command has successfully completed, this message should appear.

```
rlghncxa03w 06-10-20 21:17:37 GMT EAGLE5 36.0.0
Deactivate Link message sent to card.
```

3. Verify that the TCP/IP data link is out of service - maintenance disabled (OOS-MT-DSBLD) using the `rept-stat-dlk` command.

For this example, enter this command.

```
rept-stat-dlk:loc=1204
```

This is an example of the possible output.

```
rlghncxa03w 06-10-20 21:18:37 GMT EAGLE5 36.0.0
DLK  PST          SST          AST
1204 OOS-MT-DSBLD  Unavail     ---
      ALARM STATUS =
Command Completed.
```

4. Place the card specified in step 3 out of service by using the `rmv-card` command. For this example, enter this command.

```
rmv-card:loc=1204
```

This message should appear.

```
rlghncxa03w 06-10-20 21:19:37 GMT EAGLE5 36.0.0
Card has been inhibited.
```

5. Display the TCP/IP nodes in the database by entering the `rtrv-ip-node` command with the card location specified in step 4. For this example enter this command

```
rtrv-ip-node:loc=1204
```

This is an example of the possible output.

```
rlghncxa03w 07-02-20 21:20:37 GMT EAGLE5 37.0.0
IPADDR      IPPORT  IPAPPL  LOC    CAP    IPRTE
200.50.100.47 1024   stplan  1204  10%   --
```

- Remove the TCP/IP node assigned to the card location containing the TCP/IP data link to be removed from the database using the `dlt-ip-node` command with the card location specified in step 5.

For this example, enter this command.

```
dlt-ip-node:ipaddr=200.50.100.47:loc=1204
```

This message should appear.

```
rlghncxa03w 06-10-20 21:21:37 GMT EAGLE5 36.0.0
DLT-IP-NODE: MASP A - COMPLTD
```

- Remove the data link from the database using the `dlt-dlk` command.

The `dlt-dlk` command has only one parameter, `loc`, which is the location of the STPLAN card containing the TCP/IP data link. For this example, enter this command.

```
dlt-dlk:loc=1204
```

This message should appear.

```
rlghncxa03w 06-10-20 21:22:37 GMT EAGLE5 36.0.0
DLT-DLK: MASP A - COMPLTD
```

- Verify the changes using the `rtrv-dlk` command with the card location specified in step 7.

```
rtrv-slk:loc=1204
```

When this command has successfully completed, this message should appear.

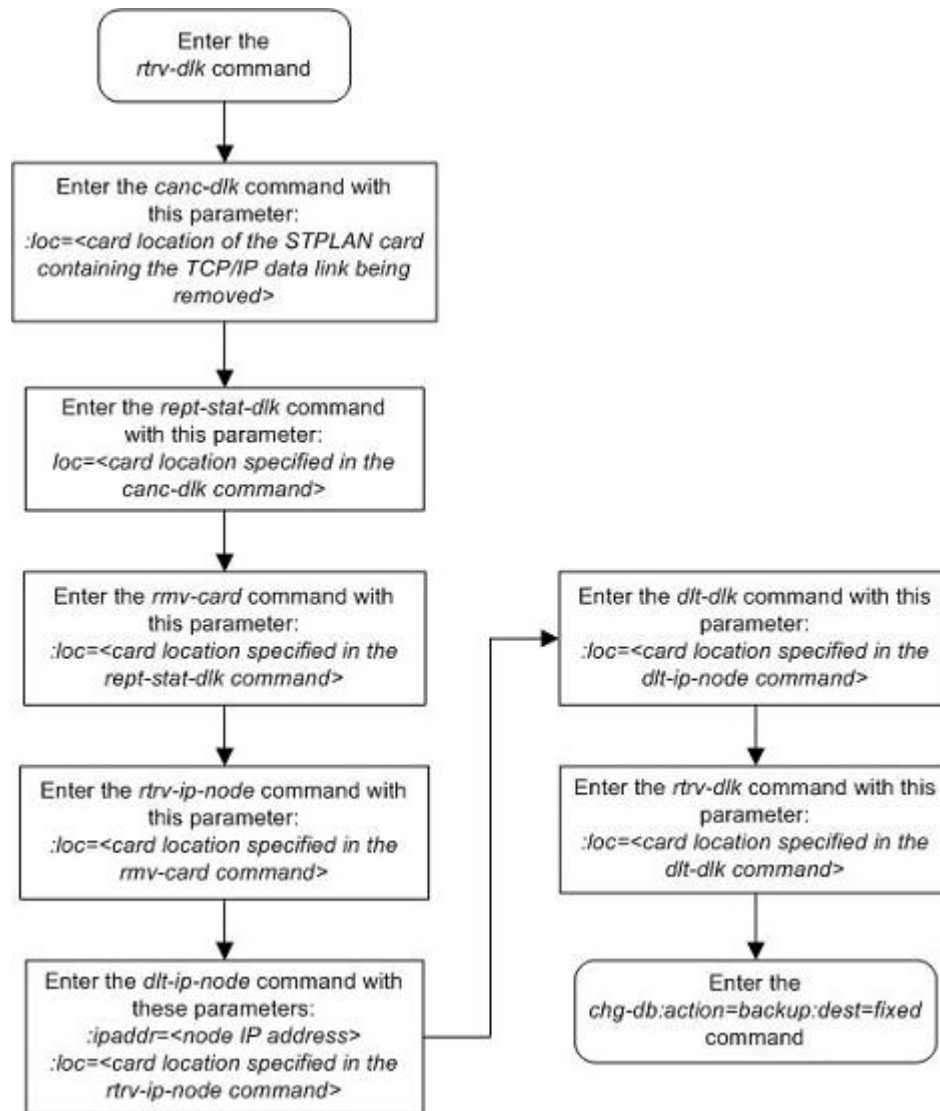
```
E2604 Cmd Rej: Card location not assigned a TCP/IP link
```

- Backup the new changes using the `chg-db:action=backup:dest=fixed` command.

These messages should appear; the active Maintenance and Administration Subsystem Processor (MASP) appears first.

```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk complete.
BACKUP (FIXED) : MASP A - Backup starts on standby MASP.
BACKUP (FIXED) : MASP A - Backup on standby MASP to fixed disk complete.
```

Figure 31: Removing a TCP/IP Data Link



Adding a TCP/IP Node

This procedure is used to add a TCP/IP node to the database using the `ent-ip-node` command.

The `ent-ip-node` command uses these parameters:

- :ipaddr – The node's IP address.
- :ipappl – The IP application supported by the node.
- :ipport – The logical IP port to address the application on the node.
- :loc – The card location of the STPLAN card that contains the TCP/IP link that will be directly connected to the node.
- :cap – The maximum percentage of SLAN TPS capacity for this node connection

: `iprte` – The IP address of the TCP/IP router.

This examples used in this procedure are based on the example network shown in [Figure 27: STPLAN Configuration Example](#) on page 180 and [Table 13: STPLAN Configuration Example Database](#) on page 180.

The TCP/IP node cannot already be in the database. This can be verified in step 1.

The specified card must have a TCP/IP data link assigned to it. This can be verified in step 2.

The IP address assigned to the TCP/IP node cannot be assigned to any other TCP/IP nodes, TCP/IP routers, or TCP/IP data links.

The class of the IP address (`ipaddr`) must match the class of the assigned TCP/IP data link's IP address only if the `iprte` parameter is not specified with the `ent-ip-node` command. The EAGLE 5 ISS supports three classes of IP addresses, class A, class B, and class C. Class A IP addresses can contain only the values 1 to 126 in the first field of the IP address. Class B IP addresses can contain only the values 128 to 191 in the first field of the IP address. Class C IP addresses can contain only the values 192 to 223 in the first field of the IP address. No IP address can contain the value 127 in the first field of the IP address. These IP addresses are reserved for loopback.

The network portion of the IP address (`ipaddr`) must match the network portion of the IP address assigned to the TCP/IP data link only if the `iprte` parameter is not specified with the `ent-ip-node` command. The network portion of the IP address is based on the class of the IP address. If the IP address is a class A IP address, the first field is the network portion of the IP address. If the IP address is a class B IP address, the first two fields are the network portion of the IP address. If the IP address is a class C IP address, the first three fields are the network portion of the IP address. For example, if the IP address of the TCP/IP data link is 193.5.207.150, a class C IP address, the network portion of the IP address for the TCP/IP node must be 193.5.207.

Refer to the [TCP/IP Router](#) on page 167 section for more information of the TCP/IP router.

If the `iprte` parameter is specified with the `ent-ip-node` command, the class and network portion of the TCP/IP router's IP address must match the class and network portion of the TCP/IP data link and cannot match the IP address of the TCP/IP node being added to the database. If subnet routing is being used, the `iprte` parameter must be specified with the `ent-ip-node` command. Refer to the [TCP/IP Router](#) on page 167 section on for more information of the TCP/IP router.

The capacity of all connections to the IP address cannot be greater than 100%. This is shown in the `CAP` field of the `rtrv-ip-node` command output.

1. Display the TCP/IP nodes in the database by entering the `rtrv-ip-node` command.

This is an example of the possible output.

```
rlghncxa03w 06-10-20 21:16:37 GMT EAGLE5 36.0.0
IPADDR      IPPORT  IPAPPL  LOC   CAP  IPRTE
193.4.201.70  1024   stplan  1103  10%  --
193.4.201.71  1024   stplan  1104  10%  --
```

2. Display the TCP/IP data links in the database by entering the `rtrv-dlk` command.

This is an example of the possible output.

```
rlghncxa03w 07-02-20 21:16:37 GMT EAGLE5 37.0.0
LOC   IPADDR      LINK SPEED  DUPLEX  AUTO
1103  193.4.201.70  10Mbit  HALF    NO
1104  193.4.201.71  10Mbit  HALF    NO
```

1201	193.4.201.50	100Mbit	HALF	NO
1203	193.4.201.51	-----	----	YES
1204	200.50.100.47	10Mbit	HALF	NO
1205	193.4.201.50	-----	----	YES
1206	203.14.212.30	-----	----	YES
1207	202.14.212.39	-----	----	YES

If the required TCP/IP data link is not shown in the `rtrv-dlk` output, perform the “Adding a TCP/IP Data Link” procedure on page 3-33 and add the required TCP/IP data link to the database.

3. Add the TCP/IP nodes to the database by entering the `ent-ip-node` command.

For this example, enter these commands.

```
ent-ip-node:loc=1201:ipaddr=193.4.201.65:ipappl=stplan:ippport=1024
:cap=10
```

```
ent-ip-node:loc=1203:ipaddr=193.4.201.78:ipappl=stplan:ippport=1024
:cap=10
```

```
ent-ip-node:loc=1204:ipaddr=200.50.115.101:ipappl=stplan:ippport=2000
:cap=40:iprte=193.4.202.30
```

```
ent-ip-node:loc=1205:ipaddr=193.4.201.56:ipappl=stplan:ippport=3000
:cap=40
```

```
ent-ip-node:loc=1206:ipaddr=203.24.212.30:ipappl=stplan:ippport=4000
:cap=40:iprte=197.4.217.47
```

```
ent-ip-node:loc=1207:ipaddr=205.37.12.63:ipappl=stplan:ippport=3963
:cap=40:iprte=198.10.186.53
```

When each of these commands has successfully completed, this message should appear.

```
rlghncxa03w 06-10-20 21:18:37 GMT EAGLE5 36.0.0
ENT-IP-NODE: MASP A - COMPLTD
```

4. Verify the changes using the `rtrv-ip-node` command with the IP address specified in step 3. For this example, enter these commands.

```
rtrv-ip-node:ipaddr=193.4.201.65
```

This is an example of the possible output.

```
rlghncxa03w 07-02-20 21:19:37 GMT EAGLE5 37.0.0
IPADDR      IPPORT  IPAPPL  LOC    CAP  IPRTE
193.4.201.65  1024    stplan  1201  10%  --
193.4.201.65  3000    stplan  1205  40%  --
```

```
rtrv-ip-node:ipaddr=193.4.201.78
```

This is an example of the possible output.

```
rlghncxa03w 07-02-20 21:19:37 GMT EAGLE5 37.0.0
IPADDR      IPPORT  IPAPPL  LOC    CAP  IPRTE
193.4.201.78  1024    stplan  1203  10%  --
```

```
rtrv-ip-node:ipaddr=200.50.115.101
```

This is an example of the possible output.

```
rlghncxa03w 07-02-20 21:19:37 GMT EAGLE5 37.0.0
IPADDR      IPPORT  IPAPPL  LOC    CAP  IPRTE
200.50.115.101  2000    stplan  1204  40%  193.4.202.30
```

```
rtrv-ip-node:ipaddr=203.24.212.30
```

This is an example of the possible output.

```
rlghncxa03w 07-02-20 21:19:37 GMT EAGLE5 37.0.0
IPADDR      IPPORT  IPAPPL  LOC    CAP    IPRTE
203.24.212.30 1024   stplan  1206  40%   197.4.217.47
```

```
rtrv-ip-node:ipaddr=205.37.12.63
```

This is an example of the possible output.

```
rlghncxa03w 07-02-20 21:19:37 GMT EAGLE5 37.0.0
IPADDR      IPPORT  IPAPPL  LOC    CAP    IPRTE
205.37.12.63 3963   stplan  1207  40%   198.10.186.53
```

- Place the data links into service by entering the `act-dlk` command with the card location shown in step 4.

For this example, enter these commands.

```
act-dlk:loc=1201
act-dlk:loc=1203
act-dlk:loc=1204
act-dlk:loc=1205
act-dlk:loc=1206
act-dlk:loc=1207
```

This message should appear when each command has successfully completed.

```
rlghncxa03w 06-10-20 21:20:37 GMT EAGLE5 36.0.0
Activate Link message sent to card
```

- Check the status of the data links using the `rept-stat-dlk` command, specifying the card locations of the data links entered in step 5.

The link should be in service-normal (IS-NR) after the link has been activated. This is an example of the possible output.

```
rlghncxa03w 06-10-20 21:21:37 GMT EAGLE5 36.0.0
DLK      PST      SST      AST
1103     IS-NR    Avail    ----
1104     IS-NR    Avail    ----
1201     IS-NR    Avail    ----
1203     IS-NR    Avail    ----
1204     IS-NR    Avail    ----
1205     IS-NR    Avail    ----
1206     IS-NR    Avail    ----
1207     IS-NR    Avail    ----
Command Completed.
```

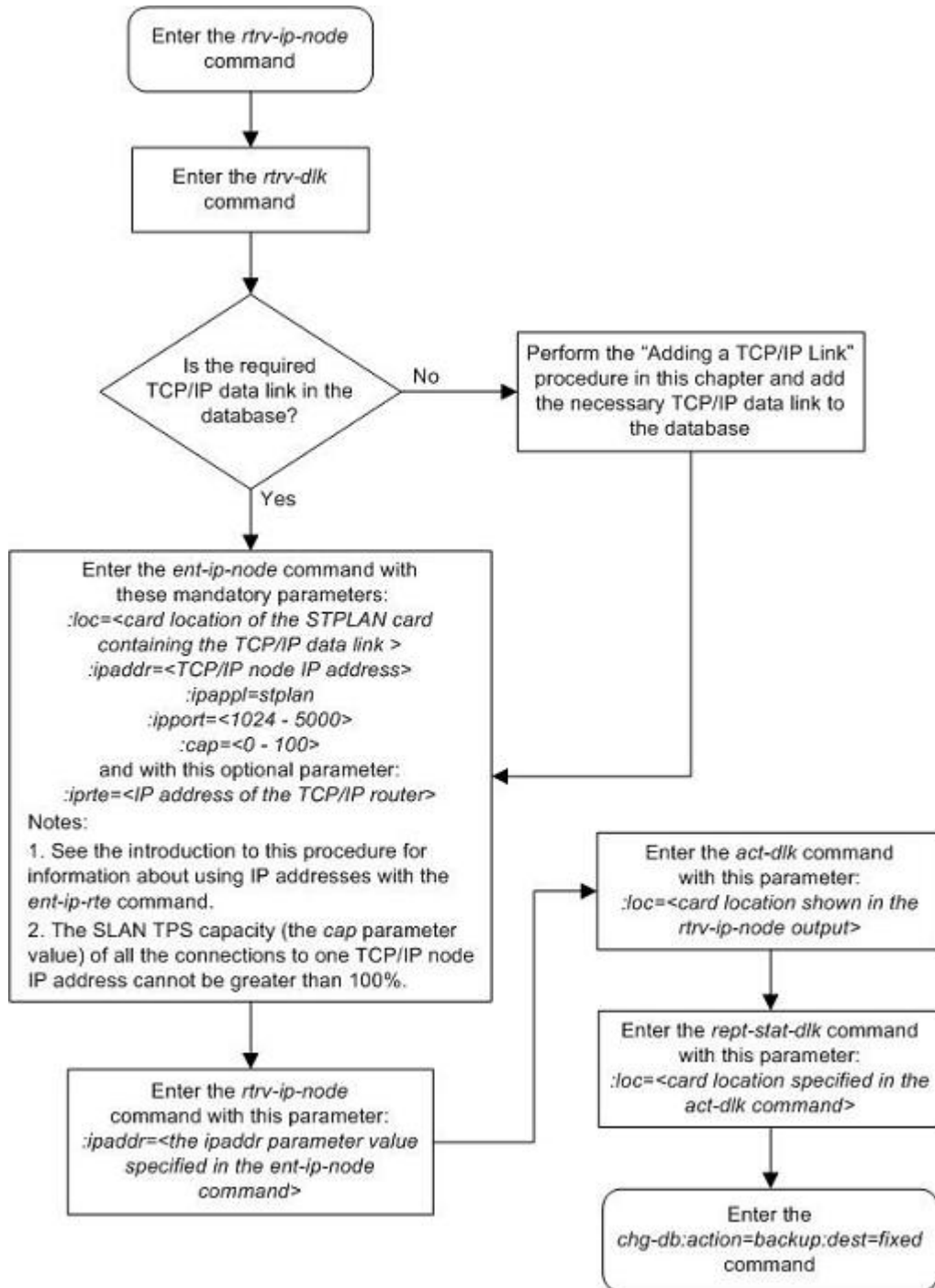
- Backup the new changes using the `chg-db:action=backup:dest=fixed` command.

These messages should appear; the active Maintenance and Administration Subsystem Processor (MASP) appears first.

```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk complete.
```


BACKUP (FIXED) : MASP A - Backup starts on standby MASP.
 BACKUP (FIXED) : MASP A - Backup on standby MASP to fixed disk complete.

Figure 32: Adding a TCP/IP Node



Removing a TCP/IP Node

This procedure is used to remove a TCP/IP node from the database using the `dlt-ip-node` command.

The `dlt-ip-node` command uses these parameters:

`:ipaddr` – The node's IP address.

`:ipappl` – The IP application supported by the node.

`:ipport` – The logical IP port that addresses the application on the node.

`:loc` – The card location of the STPLAN card that contains the TCP/IP link that is directly connected to the node.

`:force` – Whether or not to remove all applications associated with the node, thus removing the entire node from the database.

The examples used in this procedure are used to remove the TCP/IP node with the IP address 193.4.201.71 from the database.

The TCP/IP node must be in the database. This can be verified in step 1.

The specified card must have a TCP/IP data link assigned to it. This can be verified in step 2.

The card that the TCP/IP data link is assigned to must be an ACM running the `stplan` application or a DCM or E5-SLAN card running the `stplan` application. This can be verified with the `rtrv-card` command. The ACM is shown by the entries `ACMENET` in the `TYPE` field and `STPLAN` in the `APPL` field of the `rtrv-card` command output. The DCM or E5-SLAN card is shown by the entries `DCM` in the `TYPE` field and `STPLAN` in the `APPL` field of the `rtrv-card` command output.

If only the `ipaddr` parameter is specified with the `dlt-ip-node` command, all the connections to a TCP/IP node will be removed from the database. To remove all the connections to a TCP/IP node, the `force=yes` parameter must be specified with the `ipaddr` parameter.

The `ipappl` or `ipport` parameters can be specified with the `dlt-ip-node` command, but both parameters cannot be specified with the `dlt-ip-node` command at the same time.

1. Display the TCP/IP nodes in the database by entering the `rtrv-ip-node` command.

This is an example of the possible output.

```
rlghncxa03w 06-10-20 21:16:37 GMT EAGLE5 36.0.0
IPADDR      IPPORT  IPAPPL  LOC    CAP    IP RTE
193.4.201.15 1024    stplan  1103   10%   --
193.4.201.23 1024    stplan  1104   10%   --
193.4.201.65 1024    stplan  1201   10%   --
193.4.201.65 3000    stplan  1205   40%   --
193.4.201.78 1024    stplan  1203   10%   --
200.50.115.101 2000    stplan  1204   40%   193.4.202.30
203.24.212.30 4000    stplan  1206   40%   197.4.217.47
205.37.12.63 3963    stplan  1207   40%   198.10.186.53
```

2. Display the TCP/IP data links in the database by entering the `rtrv-dlk` command.

This is an example of the possible output.

```
rlghncxa03w 07-02-20 21:16:37 GMT EAGLE5 37.0.0
LOC      IPADDR          LINK SPEED  DUPLEX  AUTO
1103    193.4.201.70     10Mbit    HALF    NO
1104    193.4.201.71     10Mbit    HALF    NO
1201    193.4.201.50     100Mbit   HALF    NO
1203    193.4.201.51     -----   ----    YES
1204    200.50.100.47    10Mbit    HALF    NO
1205    193.4.201.50     -----   ----    YES
1206    203.14.212.30    -----   ----    YES
1207    202.14.212.39    -----   ----    YES
```

- Verify the current state of the TCP/IP data link assigned to the TCP/IP node to be removed from the database using the `rept-stat-dlk` command. For this example, the TCP/IP data link to be placed out of service is assigned to card 1104. For this example, enter this command.

```
rept-stat-dlk:loc=1104
```

This is an example of the possible output.

```
rlghncxa03w 07-02-20 21:21:37 GMT EAGLE5 37.0.0
DLK      PST           SST           AST
1104     IS-NR         Avail         ----
Command Completed.
```

Note: Skip step 4 and step 5 and go to step 6 if the status of the TCP/IP data link shown in the output of step 3 is OOS-MT-DSBLD.

- Place the TCP/IP data link using the `canc-dlk` command, using the outputs from steps 1 and 2 to obtain the card location (shown in the LOC field of both outputs) of the TCP/IP data link to be placed out of service.

For this example, the TCP/IP data link to be placed out of service is assigned to card 1104. Enter this command.

```
canc-dlk:loc=1104
```

When the command has successfully completed, this message should appear.

```
rlghncxa03w 06-10-20 21:18:37 GMT EAGLE5 36.0.0
Deactivate Link message sent to card.
```

- Verify that the TCP/IP data link is out of service - maintenance disabled (OOS-MT-DSBLD) using the `rept-stat-dlk` command.

For this example, enter this command.

```
rept-stat-dlk:loc=1104
```

This is an example of the possible output.

```
rlghncxa03w 06-10-20 21:19:37 GMT EAGLE5 36.0.0
DLK      PST           SST           AST
1104     OOS-MT-DSBLD  Unavail      ---
ALARM STATUS =
Command Completed.
```

- Verify the current state of the card assigned to the TCP/IP data link to be removed using the `rept-stat-card` command. For this example, enter this command.

```
rept-stat-card:loc=1104
```

This is an example of the possible output.

```
rlghncxa03w 07-02-20 21:19:37 GMT EAGLE5 37.0.0
CARD  VERSION      TYPE      GPL      PST      SST      AST
1104  126-003-002  DCM      VXWSLAN  IS-NR    Active   -----
ALARM STATUS      = No Alarms.
BPDCM GPL version = 126-002-000
IMT BUS A         = Conn
IMT BUS B         = Conn
DLK A   PST       = OOS-MT-DSBLD      SST = Unavail   AST = -----
SLAN % EAGLE CAPACITY = 0%
SLAN % HOST CAPACITY  = 0%

Command Completed.
```

Note: Skip steps 7 and 8 and go to step 9 if the status of the card shown in the output of step 6 is OOS-MT-DSBLD.

- Place the card assigned to the TCP/IP node to be removed out of service by using the `rmv-card` command, specifying the card location used in step 3.

For this example, enter this command.

```
rmv-card:loc=1104
```

This message should appear.

```
rlghncxa03w 06-10-20 21:20:37 GMT EAGLE5 36.0.0
Card has been inhibited.
```

- Verify that the card is out-of service - maintenance disabled (OOS-MT-DSBLD) using the `rept-stat-card` command. For this example, enter this command.

```
rept-stat-card:loc=1104
```

This is an example of the possible output.

```
rlghncxa03w 07-02-20 21:19:37 GMT EAGLE5 37.0.0
CARD  VERSION      TYPE      GPL      PST      SST      AST
1104  126-003-002  DCM      VXWSLAN  OOS-MT-DSBLD  Manual   -----
ALARM STATUS      = ** 0013 Card is isolated from the system
BPDCM GPL version = 126-002-000
IMT BUS A         = Conn
IMT BUS B         = Conn
DLK A   PST       = OOS-MT-DSBLD      SST = Unavail   AST = -----
SLAN % EAGLE CAPACITY = 0%
SLAN % HOST CAPACITY  = 0%

Command Completed.
```

- Remove the TCP/IP node to the database using the `dlt-ip-node` command. For this example, enter this command.

```
dlt-ip-node:ipaddr=193.4.201.71:ipport=1024 :loc=1104
```

This message should appear.

```
rlghncxa03w 06-10-20 21:21:37 GMT EAGLE5 36.0.0  
DLT-IP-NODE: MASP A - COMPLTD
```

If you wish to remove all the connections to a TCP/IP node, for example, all the connections to the node at IP address 193.4.201.65, enter the `dlt-ip-node` command with the IP address of the node and the `force=yes` parameter, or enter the `dlt-ip-node` command with the IP address of the node and the `ipappl=stplan` parameter. For this example, enter one of these commands.

```
dlt-ip-node:ipaddr=193.4.201.65:force=yes
```

```
dlt-ip-node:ipaddr=193.4.201.65:ipappl=stplan
```

10. Verify the changes using the `rtrv-ip-node` command.

If a single connection to a TCP/IP node was removed in step 9, enter the `rtrv-ip-node` command with the card location specified in step 9. For this example, enter this command.

```
rtrv-ip-node:loc=1104
```

The following message is displayed.

```
rlghncxa03w 07-02-20 21:22:37 GMT EAGLE5 37.0.0  
E2622 Cmd Rej: IPADDR not assigned to specified LOC
```

If all the connections to a TCP/IP node were removed in step 9, enter the `rtrv-ip-node` command with the IP address specified in step 9. For this example, enter this command

```
rtrv-ip-node:ipaddr=193.4.201.65
```

The following message is displayed.

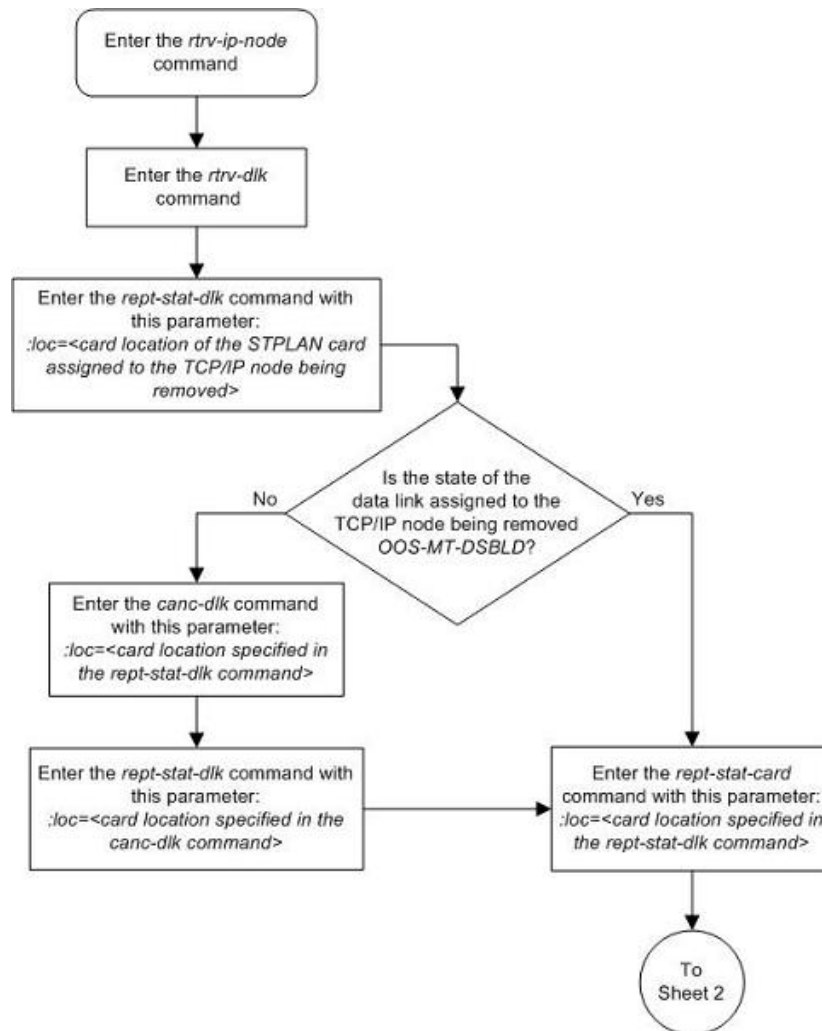
```
rlghncxa03w 07-02-20 21:22:37 GMT EAGLE5 37.0.0  
IPADDR          IPPORT  IPAPPL  LOC    CAP    IPRTE  
IPADDR not connected to any TCP/IP Link.
```

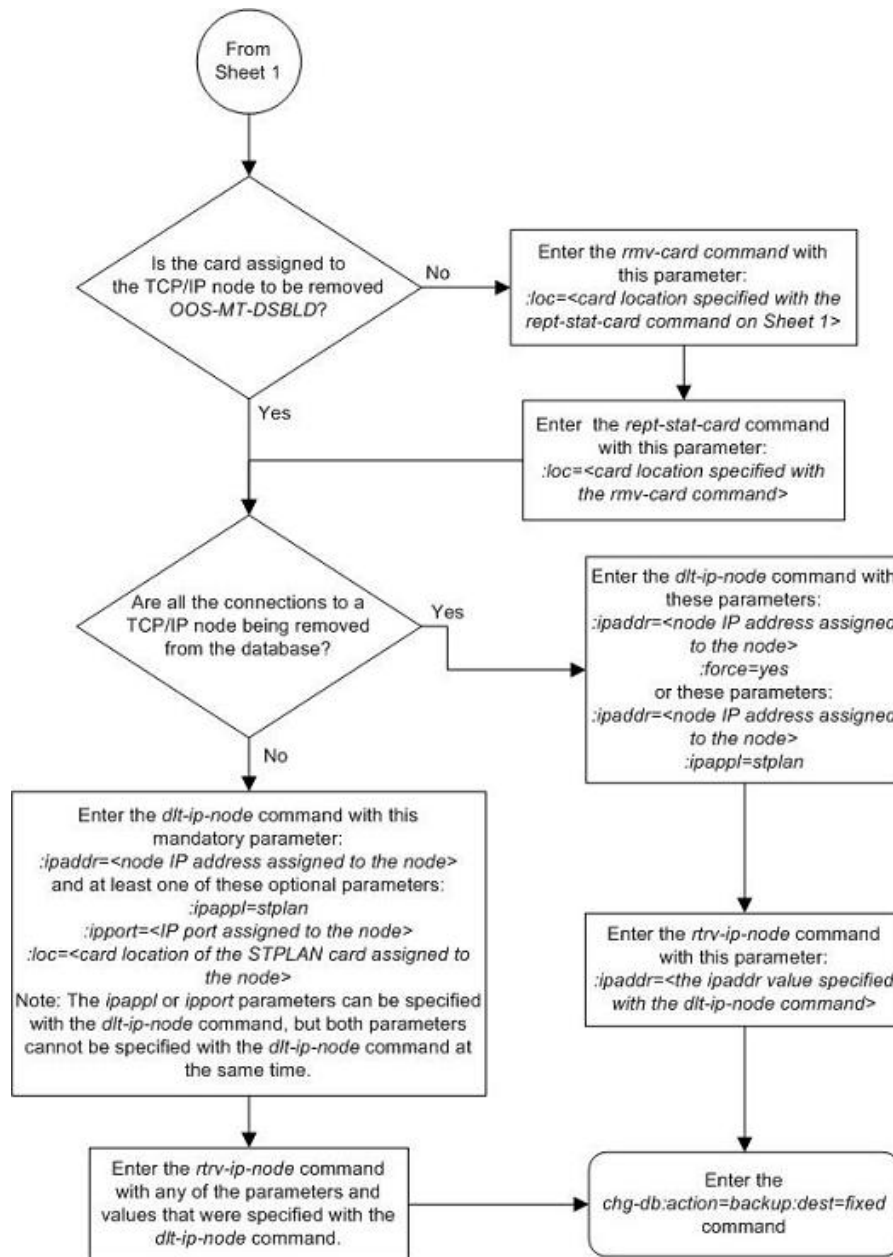
11. Backup the new changes using the `chg-db:action=backup:dest=fixed` command.

These messages should appear; the active Maintenance and Administration Subsystem Processor (MASP) appears first.

```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.  
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk complete.  
BACKUP (FIXED) : MASP A - Backup starts on standby MASP.  
BACKUP (FIXED) : MASP A - Backup on standby MASP to fixed disk complete.
```

Figure 33: Removing a TCP/IP Node





Configuring the Copy Original OPC for STPLAN Option

This procedure is used to configure the copy original OPC for STPLAN option using the `chg-ss7opts` command with the `slancporgopc` parameter. The `slancporgopc` parameter has two values:

- `on` – After the MSU has been processed by other applications, but before the MSU is copied for the STPLAN application, the OPC of the MSU is replaced by the point code that was the OPC of the MSU when the MSU entered the EAGLE 5 ISS.
 - `off` – The OPC of the MSU is not replaced by the point code that was the OPC of the MSU when the MSU entered the EAGLE 5 ISS.
1. Display the existing value for the `slancporgopc` parameter by entering the `rtrv-ss7opts` command. This is an example of the possible output.

```
rlghncxa03w 08-10-17 16:02:05 GMT EAGLE5 39.2.0
SS7 OPTIONS
-----
SLANCPORGOPC          off
```

Note: The `rtrv-ss7opts` command output contains other fields that are not used by this procedure. If you wish to see all the fields displayed by the `rtrv-ss7opts` command, see the `rtrv-ss7opts` command description in the *Commands Manual*.

If the current `SLANCPORGOPC` value is `on`, continue the procedure with [Step 3](#) on page 216.

If the current `SLANCPORGOPC` value is `off`, continue the procedure with [Step 2](#) on page 216.

2. Verify that the STPLAN feature is on by entering the `rtrv-feat` command.

If the STPLAN feature is on, the `LAN` field should be set to `on`.

Note: The `rtrv-feat` command output contains other fields that are not used by this procedure. If you wish to see all the fields displayed by the `rtrv-feat` command, see the `rtrv-feat` command description in the *Commands Manual*.

If the STPLAN feature is on, continue the procedure with [Step 3](#) on page 216.

If the STPLAN feature is not on, perform the procedure [Adding an STPLAN Card](#) on page 181 to turn the STPLAN feature on and to add the required STPLAN cards. After the procedure [Adding an STPLAN Card](#) on page 181 has been performed, continue the procedure with [Step 3](#) on page 216.

3. Change the value of the `slancporgopc` parameter.

If the current value of the `slancporgopc` parameter is `off`, enter this command.

```
chg-ss7opts:slancporgopc=on
```

If the current value of the `slancporgopc` parameter is `on`, enter this command.

```
chg-ss7opts:slancporgopc=off
```

When this command has successfully completed, this message should appear.

```
rlghncxa03w 08-10-07 00:22:57 GMT EAGLE5 39.2.0
CHG-SS7OPTS: MASP A - COMPLTD
```

4. Verify the changes using the `rtrv-ss7opts` command. This is an example of the possible output.

```
rlghncxa03w 08-10-17 16:02:05 GMT EAGLE5 39.2.0
SS7 OPTIONS
```



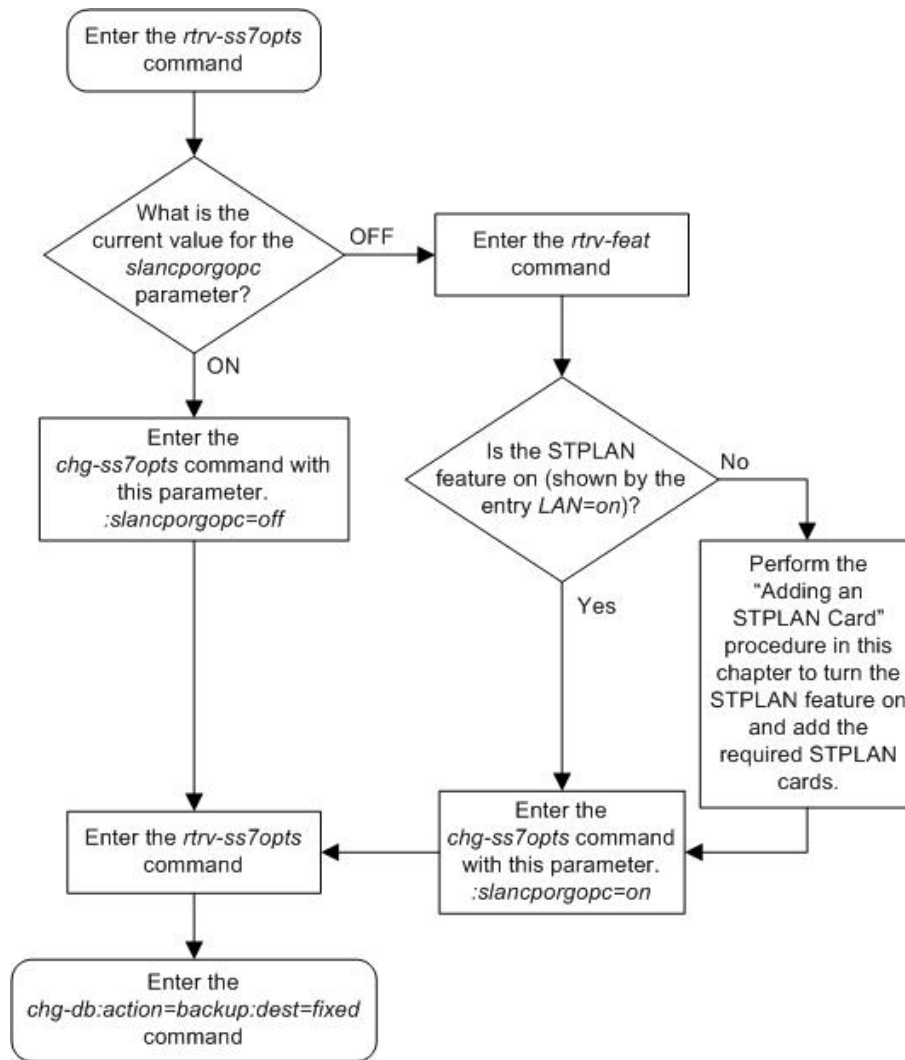
```
-----
SLANCPORGOPC      on
```

Note: The `rtrv-ss7opts` command output contains other fields that are not used by this procedure. If you wish to see all the fields displayed by the `rtrv-ss7opts` command, see the `rtrv-ss7opts` command description in the *Commands Manual*.

5. Back up the new changes using the `chg-db:action=backup:dest=fixed` command. These messages should appear, the active Maintenance and Administration Subsystem Processor (MASP) appears first.

```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk complete.
BACKUP (FIXED) : MASP A - Backup starts on standby MASP.
BACKUP (FIXED) : MASP A - Backup on standby MASP to fixed disk complete.
```

Figure 34: Configuring the Copy Original OPC for STPLAN Option



Database Transport Access (DTA) Configuration

Topics:

- [DTA Feature Overview Page 220](#)
- [Functional Description Page 222](#)
- [Summary of the Gateway Screening Redirect Table Commands Page 225](#)
- [X.25/SS7 Gateway Description Page 226](#)
- [X.25/SS7 Gateway Routing Page 227](#)
- [Routing Management Mapping Page 228](#)
- [SCCP Subsystem Management Page 229](#)
- [EAGLE 5 ISS Requirements Page 230](#)
- [Configuring the EAGLE 5 ISS for the DTA Feature Page 231](#)
- [Changing the Gateway Screening Redirect Parameters Page 252](#)
- [Disabling the Gateway Screening Redirect Function Page 261](#)

Chapter 4, Database Transport Access (DTA) Configuration, describes the Database Transport Access (DTA) feature and the procedures necessary to configure the EAGLE 5 ISS to support this feature.

DTA Feature Overview

This feature allows data to be routed through the SS7 network using the SCCP protocol without relying on TCAP as the upper level protocol.

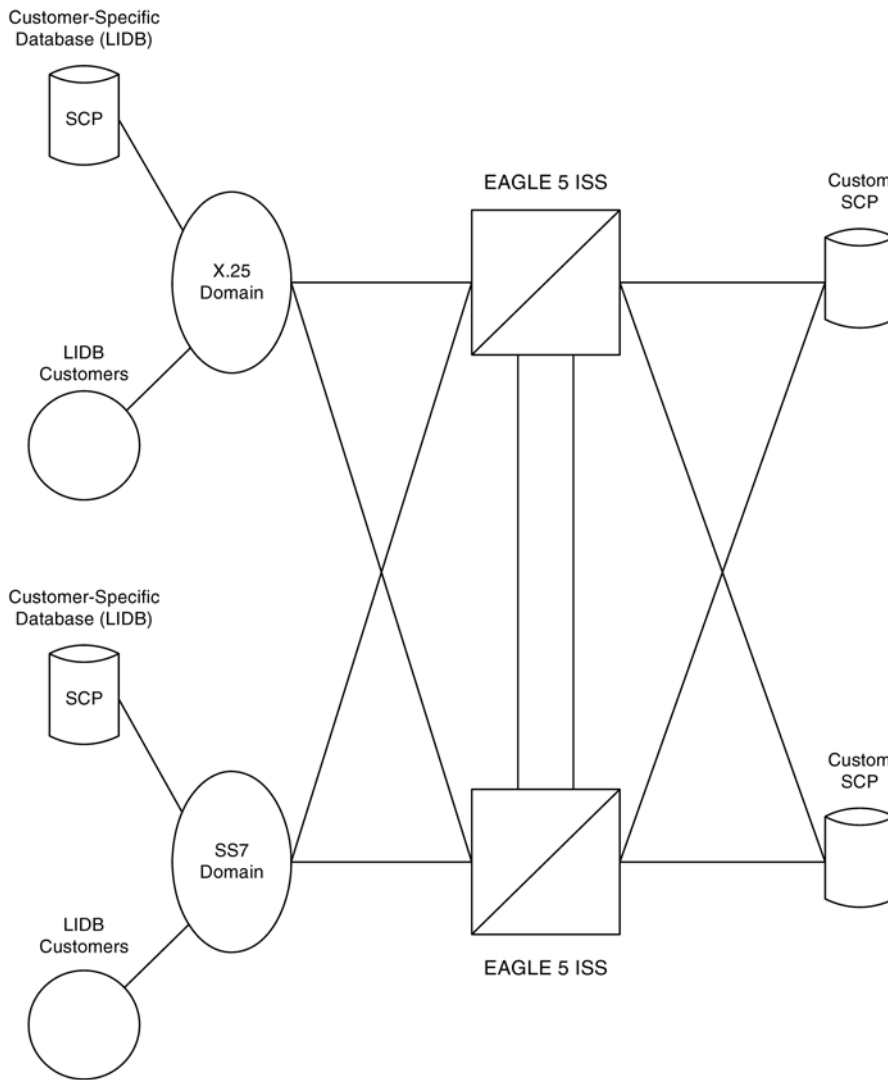
In the case of specialized applications, MSUs containing SCCP and proprietary data must be sent through the network to customer-specific databases. However, these MSUs may need additional processing before being routed to their final destination.

The DTA feature provides a mechanism for the redirection of specific MSUs to a customized database. The EAGLE 5 ISS uses gateway screening to qualify incoming MSUs for redirection.

Once gateway screening is passed, the original MSU is encapsulated into a new MSU and routed to its new destination.

Figure 35: Example of Configuration for the DTA Feature on page 220 shows a typical configuration for the DTA feature.

Figure 35: Example of Configuration for the DTA Feature



The new routing is specified by a redirection table that specifies the destination point code (DPC) and a new called party address. The routing indicator and the subsystem number are defined within the called party address.

The MSU is then passed to the SCP on the specified linkset where the application data is processed for a customized application.

Once the SCP has processed the user data, the SCP sends the MSU back to the EAGLE 5 ISS. At the EAGLE 5 ISS, the MSU is routed to its final destination either in the SS7 network or in the X.25 network. The SCP determines the routing for the MSU, providing it in the routing label of the MTP portion of the MSU and in the SCCP called party address.

The SCP also provides new calling party address information to support billing applications. The SCP is considered as the originator (OPC) and the calling party.

If the original destination is located within an X.25 network, the EAGLE 5 ISS uses its X.25 gateway feature to route the MSU to the X.25 network. The EAGLE 5 ISS selects a logical channel according to an X.25 routing table and sends the MSU on that logical channel.

If the selected logical channel fails, the EAGLE 5 ISS uses enhanced network management to reroute the MSU to a new X.25 logical channel. There are up to 1024 logical channels supported on the X.25/SS7 gateway.

As an optional feature, MSUs that are redirected to an SCP can also be copied using the STPLAN feature. This provides a copy of the redirected MSU to be routed over a TCP/IP interface to an adjunct processor. The copied MSU can then be processed for a variety of applications such as usage measurements.

The EAGLE 5 ISS does not provide any conversion of the copied MSU; it merely provides a copy of the redirected MSU after encapsulation of the original MSU. The copy is conducted by the LIM transmitting the redirected MSU.

If this feature is used, either the Applications Communications Module (ACM), running the STPLAN application, or the Database Communications Module (DCM), running the VXWSLAN application, is required. These cards provide an ethernet interface supporting TCP/IP applications. For more information regarding the STPLAN feature, see [STPLAN Configuration](#) on page 163.

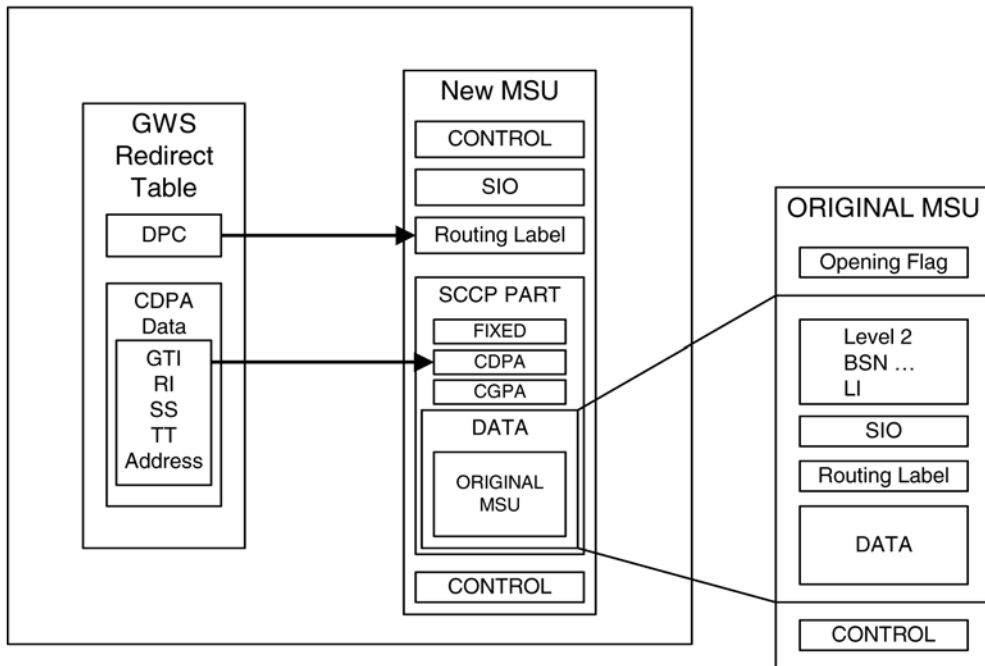
Functional Description

The principal function within the EAGLE 5 ISS for this feature is gateway screening. This feature allows the EAGLE 5 ISS to examine all incoming MSUs and determine whether or not they should be allowed into the network. Gateway screening looks at the routing label of the incoming MSU and matches this information with the EAGLE 5 ISS's gateway screening tables.

To support the DTA feature, a gateway screening stop action set containing the `rdct` (redirect) gateway screening stop action is assigned to the last screen in the screening process. The redirect gateway screening stop action selects the MSU that is redirected for the DTA feature. The screening table for the DTA feature examines the routing label (OPC, DPC) and the SIO fields of the MSU.

Once the MSU has been qualified for redirection by the gateway screening function, the original MSU is encapsulated into the data portion of SCCP within a new SS7 MSU, including all level two and level three headers. A redirect routing table identifies the DPC to be inserted into the routing label of the redirected MSU. In addition, the called party address in the SCCP portion of the MSU is modified according to the parameters set in the redirect routing table. [Figure 36: DTA Encapsulation](#) on page 222 illustrates the encapsulation process.

Figure 36: DTA Encapsulation



The global title function is used to determine which of the SCPs the MSU is routed to. In the event of subsystem failures, SCCP subsystem management determines which of the SCPs is available. The global title function provides the routing information and routes the MSU to the available SCP.

The global title function require service modules which contains the global title translation tables. Once the MSU has received its routing information, the MSU can be sent to the appropriate SCP (specified by the EAGLE 5 ISS's redirection table and global title). The SCP then processes the user data contained within the encapsulated MSU. Once processing has been completed, the MSU is sent back to the EAGLE 5 ISS for final routing.

The DTA feature will redirect MSUs to either ANSI or ITU nodes, depending on the value of the DPC in the redirect routing table, but the redirect routing table can contain only one DPC value. If the incoming message type is not the same as the DPC in the redirect routing table, the message is tunneled to the redirect DPC.

The subsystem number in the called party address determines whether the MSU is processed as an ANSI MSU or an ITU MSU. If the subsystem number is 0, the MSU is an ANSI MSU. If the subsystem number is 250, the MSU is an ITU MSU (an MSU containing either a ITU-I point code, 14-bit ITU-N point code, ITU-I Spare point code, or 14-bit ITU-N Spare point code). If the subsystem number is 251, the MSU is an ITU-N24 MSU (an MSU containing a 24-bit ITU-N point code).

Tunneling uses an MTP2/MTP3/SCCP header based on the network type of the DTA DPC to allow any incoming message to be routed to the DTA DPC. A wrapper is placed around the message (an ANSI wrapper around an ITU message, or an ITU wrapper around an ANSI message), and sends the message to the DTA DPC. The destination removes the wrapper and processes the original information.

Discarding MSUs

MSUs can be discarded for these reasons:

- Gateway screening is not available or the MSU does not pass gateway screening.
- The gateway screening redirect function is disabled.
- The MSU is too large to be encapsulated
- The DPC for the gateway screening redirect function is prohibited or congested.
- The EAGLE 5 ISS's SCCP subsystem is prohibited.

The discarding of MSUs is controlled by `gwsd` linkset parameter. If the `gwsd=on` parameter is specified for the linkset, and one or more of the conditions in the previous list are encountered, MSUs on the linkset are discarded. If the `gwsd=off` parameter is specified for the linkset, and one or more of the conditions in the previous list are encountered, MSUs on the linkset are routed to its original destination. Each of the MSU discard conditions are discussed in the following paragraphs.

If gateway screening is not available or the MSU does not pass gateway screening, the MSU is discarded. An unsolicited alarm message (UAM) is not generated. This condition is not dependent on the linkset `gwsd` parameter value. The `MSGWSDSLIM` measurement is pegged.

If the redirect mode is set to 'off' in the redirect function, either with the `chg-gws-redirect:enabled=off` or `dlt-gws-redirect` commands, and the linkset `gwsd=on` parameter is specified for the linkset, the MSU is discarded, UIM 1084 is generated, and the `DTAMSULOST` measurement is pegged. If the linkset `gwsd=off` parameter is specified for the linkset, the MSU is routed to its original destination, UIM 1084 is not generated, and the `DTAMSULOST` measurement is not pegged.

If an MSU is too large to be encapsulated, the MSU may be discarded, depending on the linkset's `gwsd` parameter value. The maximum length of the MSU is dependent on the number of digits contained in the global title address and on the network type of the DPC in the MSU, as shown in [Table 16: Maximum Encapsulation Length per DTA DPC Type](#) on page 224.

Table 16: Maximum Encapsulation Length per DTA DPC Type

MSU DPC Type	GTA Length - 1 Digit	GTA Length - 21 Digits
ANSI	250 bytes	240 bytes
ITU-I	253 bytes	243 bytes
ITU-I Spare	253 bytes	243 bytes
ITU-N	253 bytes	243 bytes
ITU-N Spare	253 bytes	243 bytes
ITU-N24	250 bytes	240 bytes

MSUs that are too long are discarded based on the linkset `gwsd` parameter value. If the linkset `gwsd=on` parameter is specified for the linkset, the MSU is discarded, UIM 1084 is generated, and the `DTAMSULOST` measurement is pegged. If the linkset `gwsd=off` parameter is specified for the linkset, the MSU is routed to its original destination, UIM 1085 is generated, but the `DTAMSULOST` measurement is not pegged.

If the DPC of the gateway screening redirect function is the DPC of an external node, and if the route to this DPC is prohibited, or if this DPC is available, but the congestion level is above the priority of the MSU (for DTA, this priority is always 0), the MSU will not be encapsulated and

will be discarded or routed according to the linkset's `gwsd` parameter value. If the linkset's `gwsd` value is `on`, the MSU is discarded, UIM 1084 is generated, and the DTAMSULOST measurement is pegged. If the linkset's `gwsd` value is `off`, the MSU is routed to its original destination, UIM 1084 is not generated, and the DTAMSULOST measurement is not pegged.

If the DPC for the gateway screening redirect function is the EAGLE 5 ISS's point code, the MSU is sent to the EAGLE 5 ISS's SCCP subsystem for GTT processing. If the EAGLE 5 ISS's SCCP subsystem is prohibited, the MSU will not be encapsulated and will be discarded or routed according to the linkset's `gwsd` parameter value. If the linkset's `gwsd` value is `on`, the MSU is discarded, UIM 1084 is generated, and the DTAMSULOST measurement is pegged. If the linkset's `gwsd` value is `off`, the MSU is routed to its original destination, UIM 1084 is not generated, and the DTAMSULOST measurement is not pegged.

UIMs 1084 and 1085 are discussed in greater detail in the *Unsolicited Alarm and Information Messages Manual*.

Measurements

Two measurements are provided to indicate the number of MSUs discarded: DTAMSULOST and MSGWSDSLIM.

The DTAMSULOST measurement counts the number of MSUs discarded because gateway screening is not available. This can be caused by a number of events, including congestion in the EAGLE 5 ISS.

The MSGWSDSLIM counts the number of MSUs discarded because the received MSU was too large to be encapsulated or because the redirect function was disabled.

DTAMSULOST and MSGWSDSLIM are explained in greater detail in the *Measurements Manual*.

Summary of the Gateway Screening Redirect Table Commands

The following set of commands is used to administer the gateway screening redirect table.

Table 17: Commands for the Gateway Screening Redirect Table

Command	Explanation and action
<code>ent-gws-redirect</code>	The <code>ent-gws-redirect</code> command is used to enter the routing table for redirected MSUs.
<code>chg-gws-redirect</code>	The <code>chg-gws-redirect</code> command is used to modify the existing redirect routing table.
<code>dlt-gws-redirect</code>	The <code>dlt-gws-redirect</code> command is used to delete the redirect table from the database.

Command	Explanation and action
rtrv-gws-redirect	The <code>rtrv-gws-redirect</code> command is used to display the parameters of an existing redirect routing table.

X.25/SS7 Gateway Description

The X.25/SS7 gateway feature allows SCCP traffic to be routed over X.25 networks. X.25 protocol data units (PDUs) received over X.25 links are converted to SS7 MSUs for routing over the SS7 networks.

This protocol conversion does not affect the level four data. SCCP remains intact, with no conversion. This feature can be used for a variety of applications using the SCCP protocol over X.25 networks.

In addition to protocol conversion, the EAGLE 5 ISS also provides route management of X.25 logical channels. Traffic destined to a failed logical channel is diverted to an alternate route without loss of data. The EAGLE 5 ISS uses SS7 network management procedures to divert traffic and maintain data integrity.

The EAGLE 5 ISS supports 1024 logical channels. All X.25 entities are assigned an SS7 point code and SCCP subsystem number. The individual X.25 connections are assigned X.25 addresses, as well as alias point codes.

These are then mapped in the routing table to logical channels. This allows X.25 messages (which use connection-oriented procedures) to be routed and maintained in the SS7 network (which uses connectionless procedures).

Messages originating from the SS7 network destined for the X.25 network can be routed by the DPC assigned to the X.25 entity in the X.25 routing table (called Xpc). This allows SS7 entities to address the X.25 network without knowing X.25 addresses.

The X.25 routing table provides the X.25 address of each X.25 entity, an SS7 point code for each of the X.25 entities, the connection type used by the X.25 route, a subsystem number for SCCP routing, the method of routing to be used (Xpc or normal SS7 routing) and the logical channel to be used between each of the specified X.25 entities and the SS7 entities.

Routing by the X.25 point code assignment allows many SS7 entities to communicate to one X.25 entity without each SS7 entity having to know the X.25 address, and allows all SS7 entities to connect to the X.25 entity over one logical channel.

This provides for easier routing table administration. Without this capability, every possible connection between X.25 and SS7 entities would have to be defined in the X.25 routing table.

For more information on the X.25/SS7 gateway feature, see [X.25 Gateway Configuration](#) on page 13.

X.25/SS7 Gateway Routing

To support the gateway function, the entities within the X.25 network must be assigned an SS7 point code. This point code is assigned in the X.25 routing table using administration commands.

The routing table specifies the X.25 address, the SS7 point code assigned to both the X.25 entities and any SS7 entities that need to connect to X.25, a subsystem number for the X.25 entities, and the logical channel to be used on the X.25 link for connections between the specified entities.

Each EAGLE 5 ISS connection to the X.25 network is assigned an X.25 address as well. This allows routing of data from the X.25 network to the SS7 network. An SCCP subsystem number is assigned to the X.25 destination to enable global title translation to the X.25 entity.

Logical channels are also assigned in the X.25 routing table. Each X.25 entity must be assigned an SS7 destination to allow logical channel assignments to be made for the connection.

If there are to be several SS7 entities connecting to the X.25 entity over the same logical channel, a 'wild card' entry can be made in the routing table. This allows any SS7 entity to establish a connection over the specified logical channel, but only one connection can be made at any one time.

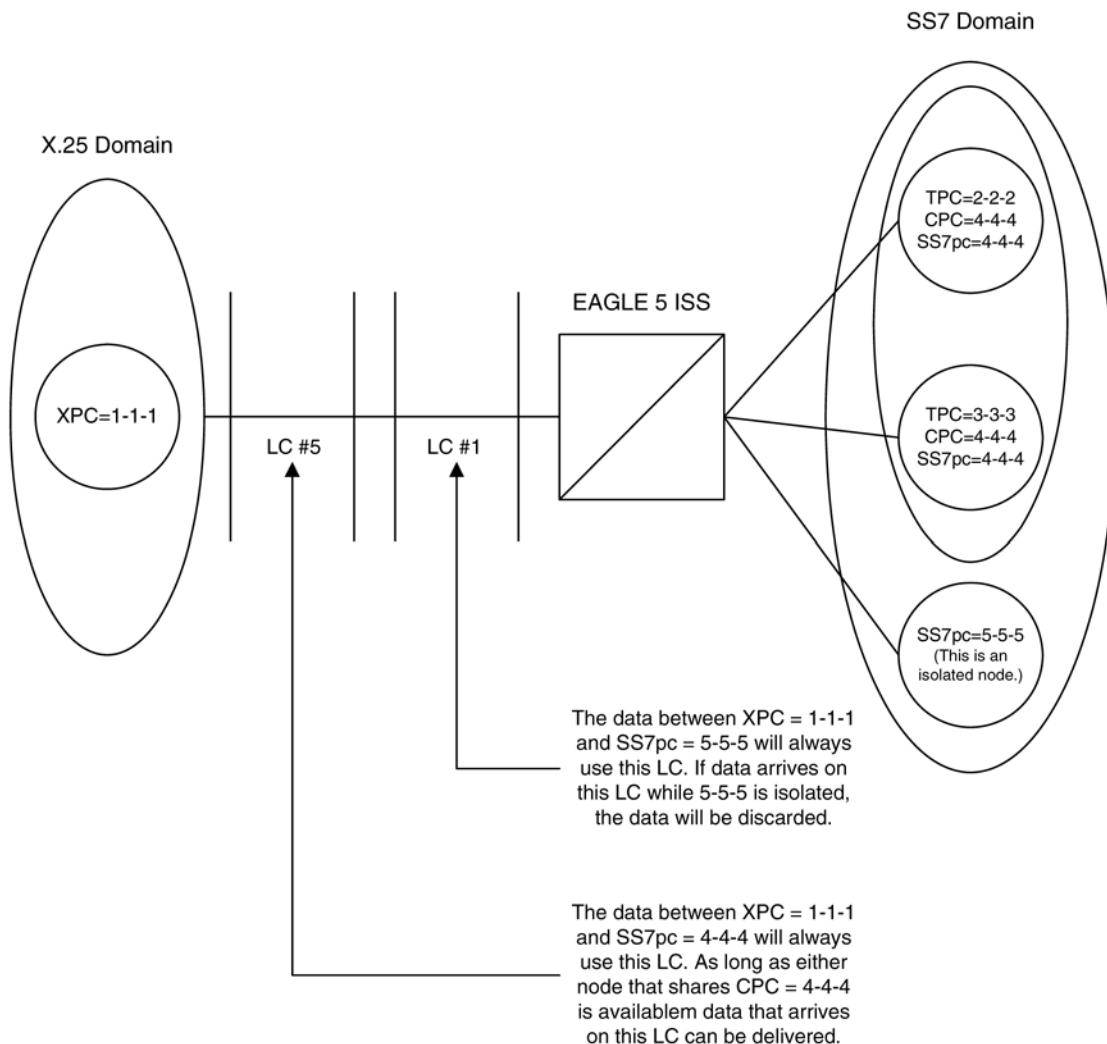
When data arrives on a LC destined for a node in the SS7 domain, the current X.25 gateway layer checks to see if the node is isolated. If so, the data is discarded.

This is shown in [Figure 37: X.25 Routing to a CPC](#) on page 227. This figure also shows that it is possible to connect an Xpc to an SS7 point code (SS7pc) through an LC, where the SS7pc is a capability point code (CPC). This technique provides a higher availability of service to the Xpc.

Note:

A CPC is a group of individual nodes, where each node is identified by an individual point code. Collectively, when these nodes are grouped by point codes into a CPC, this group of nodes provides a capability. In this case, the capability is global titling.

Figure 37: X.25 Routing to a CPC



Routing Management Mapping

The X.25/SS7 gateway also provides management procedures for failed X.25 logical channels. This feature allows traffic destined for failed logical channels to be rerouted to an alternate route.

When configuring route management mapping, called logical channel to network management mapping, or LC2NM, it must be determined if the X.25 entity will be expecting associated queries and responses to use the same logical channel or if they may be assigned to different logical channels.

If associated queries and responses can be received over different logical channels, then failure recovery through alternate routing can be supported.

If route management mapping is enabled, and the X.25 entity can receive associated queries and responses on different logical channels, data destined to a failed logical channel is diverted by forced rerouting procedures in the EAGLE 5 ISS to the alternate route. All other associated traffic

is diverted as well, and the logical channels to which associated traffic is assigned are made unavailable.

If the X.25 entity expects all associated queries and responses to be received on the same logical channel, traffic is still diverted to the alternate route if the logical channel fails. Forced rerouting procedures are not needed in this case.

If the alternate route is not available, the EAGLE 5 ISS uses level three network management procedures. For example, an X.25 Link Interface Module (LIM) determines a logical channel has failed. Network management diverts traffic away from the failed logical channel to a defined terminate route.

No network management messages are sent outside the EAGLE 5 ISS, and therefore should have no adverse effects on the SS7 network. The EAGLE 5 ISS uses SS7 network management procedures in software to divert traffic from the failed X.25 signaling link to another X.25 signaling link.

If route management mapping is not enabled on the X.25 linkset, there is no indication of logical channel failures. An unsolicited alarm message (UAM) output is created, which provides a textual message to indicate failure of an X.25 logical channel. All traffic destined to the failed logical channel is discarded.

If X.25 level 2 should fail within the X.25 LIM, all X.25 routes associated with the LIM are considered unavailable and forced rerouting procedures are used.

In either of the above cases, when the logical channel is restored to service, network management will divert traffic back to the newly restored logical channel.

SCCP Subsystem Management

The EAGLE 5 ISS provides SCCP subsystem management for all transactions sent to an SCP. In the case of the DTA feature, subsystem management is provided for the customized SCP. The customized SCP is deployed in a quad configuration adjacent to the EAGLE 5 ISS. The links connecting the EAGLE 5 ISS and the SCP must be configured in such a way to support SCCP subsystem management. The application supported by the dual SCPs is duplicated in both entities. The applications can be configured in one of the following two modes: dominant or load-shared.

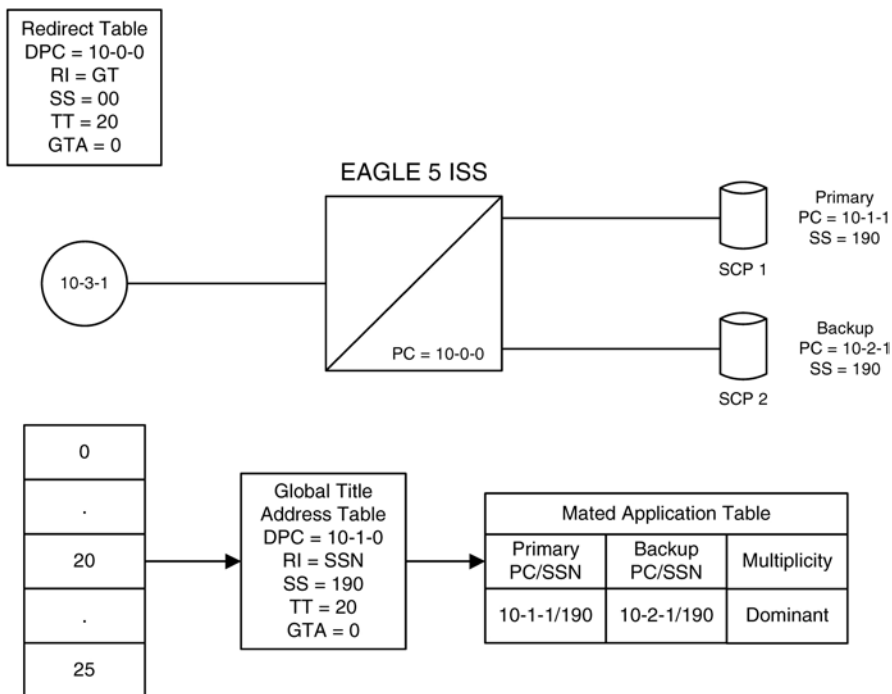
When configured as dominant, one SCP is configured to receive all queries. This assignment is made in EAGLE 5 ISS routing tables. In the event the dominant SCP fails, traffic is diverted by SCCP subsystem management to the mate application.

If load sharing is configured, both SCPs will receive queries. SCCP ensures that all associated transactions are sent to the same SCP. Load sharing allows traffic to be distributed to both SCPs evenly, preventing congestion at one SCP.

If there is a failure in a load sharing configuration, all traffic is diverted by SCCP subsystem management to the mate SCP. When the failed SCP is restored, the EAGLE 5 ISS resumes load sharing.

Figure 38: Configuration of GTT for Routing Management on page 229 shows an EAGLE 5 ISS configured with primary and backup SCPs.

Figure 38: Configuration of GTT for Routing Management



EAGLE 5 ISS Requirements

There are no specific hardware requirements to support the DTA feature. However, if the following specific situations exist, the following cards are required.

Table 18: Cards Required in Specific Situations

If	Required Card
Interworking with an X.25 network with the OCU interface	LIM-OCU*
Interworking with an X.25 network with the DSOA interface	LIM-DS0*
Interworking with an X.25 network with the V.35 interface	LIM-V.35*
STPLAN feature is used	Application Communication Module, DCM, E5-SLAN
Subsystem management is used	TSM-256, TSM-512, TSM-768, TSM-1024, DSM, E5-SM4G

If	Required Card
* A Link Interface Module with the AINF interface (labeled as either LIM or EILA) can also be used. The AINF interface can be configured as either an OCU, DS0, or V.35 interface.	

Configuring the EAGLE 5 ISS for the DTA Feature

This procedure is used to add all the items to the EAGLE 5 ISS's database that are necessary to implement the DTA feature.

The following features must be turned on:

- Gateway screening
- Global title translation
- X.25/SS7 gateway feature

Verify that these features are turned on by entering the `rtrv-feat` command. If any of these features are turned off, they can be turned on by entering one of the following commands:

- `chg-feat:gws=on` – if the gateway screening feature is off (GWS = off in the `rtrv-feat` command output)
- `chg-feat:gtt=on` – if the global title translation feature is off (GTT = off in the `rtrv-feat` command output)
- `chg-feat:x25g=on` – if the X.25 gateway feature is off (X25G = off in the `rtrv-feat` command output)

Note: Once the gateway screening, X.25 gateway, and global title translation features are turned on with the `chg-feat` command, they cannot be turned off.

The following items must be provisioned in the database before the EAGLE 5 ISS can be provisioned for the DTA feature:

- LIMs assigned to the `ss7gx25` application and LIMs assigned to the `ss7ansi` application that are necessary to implement the DTA feature – [Adding an X.25 LIM](#) on page 23 and "Adding an SS7 LIM" procedure in the *Database Administration Manual – System Management*. The LIMs can be verified by entering the `rtrv-card` command.
- Service modules assigned to either the `sccp` or `vsccp` applications that are necessary to implement the DTA feature - Adding a Service Module procedure in the *Database Administration Manual – Global Title Translation*. The service modules can be verified by entering the `rtrv-card` command.
- If you wish to redirect MSUs on IP cards (cards running the `iplim`, `iplimi`, `ss7ipgw`, `ipgwi`, or `ipsg` applications), then IP cards assigned to the `iplim`, `iplimi`, `ss7ipgw`, `ipgwi`, or `ipsg` applications must be in the database - see the Adding an IPLIMx Card, Adding an IPGWx Card, or Adding an IPSP Card procedures in the *Database Administration Manual - IP Secure Gateway*. The IP cards can be verified by entering the `rtrv-card` command. If MSUs on IP cards are being redirected, the IP cards must be assigned to SCTP associations, and routing keys, if applicable, according to the application assigned to the IP card. The IP configuration can be verified by entering these commands, as appropriate: `rtrv-appl-rtkey`, `rtrv-as`, `rtrv-assoc`, `rtrv-ip-lnk`, `rtrv-ls`, `rtrv-slk`. Perform the procedures in the *Database*

Administration Manual - IP⁷ Secure Gateway to update the IP⁷ Secure Gateway configuration as necessary.

- X.25 destination point codes (DPCs) and SS7 DPCs that are necessary to implement the DTA feature - "Adding a Destination Point Code" procedure in the *Database Administration Manual – SS7*. The DPCs can be verified by entering the `rtrv-dstn` command. The SS7 DPCs can be either ANSI, ITU-I, ITU-N, ITU-I Spare, ITU-N Spare, or ITU-N24 point codes. X.25 DPCs must be ANSI point codes.
- X.25 destinations that are necessary to implement the DTA feature – see the [Adding an X.25 Gateway Destination](#) on page 32 procedure. The X.25 destinations can be verified by entering the `rtrv-x25-dstn` command.
- Linksets whose adjacent point codes (APCs) are in the X.25 domain and linksets whose APCs are in the SS7 domain that are necessary to implement the DTA feature – see one of these procedures: "Adding an SS7 Linkset" procedure in the *Database Administration Manual – SS7*, [Adding an X.25 Linkset](#) on page 45, "Adding an SS7 Linkset" procedure in the *Database Administration Manual – SS7*, or [Changing an X.25 Linkset](#) on page 74. The APCs of SS7 linksets can be either ANSI, ITU-I, ITU-N, ITU-I Spare, ITU-N Spare, or ITU-N24 point codes. The APCs of X.25 linksets must be ANSI point codes. The linksets can be verified by entering the `rtrv-ls` command. The linksets whose traffic is to be redirected by the DTA feature, must have gateway screening allowed (specify the `gwsa=on` parameter) and must reference a gateway screening screen set. The name of the screen set is shown in the `SCRN` field of the `rtrv-ls` command output. The name of the screen set is specified by the `scrn` parameter in either the `ent-ls` or `chg-ls` commands. The screen set referenced by the linkset must be in the database. All gateway screening entities must be in the database before the necessary linkset can be added to the database or changed to reference the necessary screen set. See the "Gateway Screening Configuration" section to make sure that the necessary gateway screening entities are in the database for this feature. To enhance the reliability of the DTA feature, the gateway screening message discard function should be turned on with the `gwsd=on` parameter.
- Signaling links assigned to linksets containing X.25 APCs and signaling links assigned to linksets containing SS7 APCs that are necessary to implement the DTA feature – "Adding an SS7 Signaling Link" procedure in the *Database Administration Manual – SS7* and [Adding an X.25 Signaling Link](#) on page 106. The APCs of SS7 linksets can be either ANSI, ITU-I, ITU-N, ITU-I Spare, ITU-N Spare, or ITU-N24 point codes. The APCs of X.25 linksets must be ANSI point codes. The signaling links can be verified by entering the `rtrv-slk` command.
- Routes assigned to linksets containing X.25 APCs and routes assigned to linksets containing SS7 APCs that are necessary to implement the DTA feature - "Adding a Route Containing an SS7 DPC" and "Adding a Route Containing an X.25 DPC" procedures in the *Database Administration Manual – SS7*. The DPCs of SS7 routes and APCs of SS7 linksets can be either ANSI, ITU-I, ITU-N, ITU-I Spare, ITU-N Spare, or ITU-N24 point codes. The DPCs of X.25 routes and APCs of X.25 linksets must be ANSI point codes. The routes can be verified by entering the `rtrv-rte` command.
- X.25 routes that are necessary to implement the DTA feature – see [Adding an X.25 Route](#) on page 121. The X.25 routes can be verified by entering the `rtrv-x25-rte` command.

Gateway Screening Configuration

The DTA feature uses gateway screening to select the messages that are redirected. A gateway screening stop action set containing the `rdct` (redirect) gateway screening stop action must be assigned to one of these gateway screening entities where the gateway screening process stops (the `NSFI` of the screen is `STOP`).

- Allowed OPC
- Blocked OPC

- Allowed SIO
- Allowed DPC
- Blocked DPC
- Allowed Destination Field
- Allowed ISUP Message Type

Enter the `rtrv-gws-actset` command to display the gateway screening stop action sets in the database. The database contains one gateway screening stop action set that contain the `rdct` gateway screening stop action as shown in bold in the example output. This gateway screening stop action is always in the database and cannot be changed or removed.

```
rlghncxa03w 06-10-07 00:17:31 GMT EAGLE5 36.0.0
ACT ACT ACT ACT ACT ACT ACT ACT ACT ACT ACT
ID NAME 1 2 3 4 5 6 7 8 9 10
---
1 copy copy
2 rdct rdct
3 cr copy rdct
```

GWS action set table is (3 of 16) 19% full

For more information on configuring gateway screening stop action sets, see the “Configuring Gateway Screening Stop Action Sets” procedure in the *Database Administration Manual - Gateway Screening*.



CAUTION

CAUTION: Redirecting SLTA/SLTM messages prevents SLTA/SLTM messages from being returned to the EAGLE 5 ISS. The signaling link carrying these messages will fail if these messages are not returned to the EAGLE 5 ISS. To prevent SLTA/SLTM messages from being redirected, gateway screening stop action sets containing the redirect stop action should not be assigned to the following screens:

- Allowed OPC screens containing the adjacent point code of a linkset
- Allowed SIO screens containing the service indicator values 1 (SI=1) or 2 (SI=2)
- Allowed DPC screens containing the EAGLE 5 ISS’s point code.

To verify that the screen set being used with the gateway screening redirect function, enter the `rtrv-scrset:scrn=<screen set name assigned to the linkset being used>` command. If the last screen in the screen set is OPC, BLKOPC, SIO, DPC, BLKDPC, DESTFLD, or ISUP, enter the gateway screening retrieve command corresponding to the last screen in the screen set, with the screening reference name shown in the `rtrv-scrset` output. For example, if the last screen in the screen set is ISUP, enter the `rtrv-scr-isup` command with the `sr` parameter. If the NSR/ACT value shown in the retrieve output is a gateway screening stop action set name that contains the `rdct` stop action, shown in the `rtrv-gws-actset` output, this screen set can be used for the gateway screening redirect function. If you wish to use this screen set, but the `rdct` gateway screening stop action is not assigned to the last screen in the screen set, go to the *Database Administration Manual - Gateway Screening* and perform one of these procedures, as appropriate, to assign the `rdct` gateway screening stop action to the last screen in the screen set.

- “Changing an Allowed ISUP Message Type Screen”
- “Changing an Allowed Affected Destination Field Screen”
- “Changing a Blocked DPC Screen”
- “Changing an Allowed DPC Screen”
- “Changing an Allowed SIO Screen”
- “Changing a Blocked OPC Screen”

- “Changing an Allowed OPC Screen”

If the last screen in the screen set is CGPA, TT, CDPA, or AFTPC, it is recommended that either this screen set is changed so that the last screen in the screen set is OPC, BLKOPC, SIO, DPC, BLKDPC, DESTFLD, or ISUP with the `rdct` gateway screening stop action, or that another screen set with OPC, BLKOPC, SIO, DPC, BLKDPC, DESTFLD, or ISUP as the last screen in the screen set with the `rdct` gateway screening stop action be used. To find another screen set, enter the `rtrv-scrset` command, then enter the `rtrv-scrset` command again with one of the screen set names shown in the first `rtrv-scrset` output. If the last screen in the screen set is OPC, BLKOPC, SIO, DPC, BLKDPC, DESTFLD, or ISUP, enter the gateway screening retrieve command corresponding to the last screen in the screen set, with the screening reference name shown in the `rtrv-scrset` output. Repeat this entering the `rtrv-scrset` commands until a desirable screen set is found. If a desirable screen set cannot be found, either add a new screen set, or change the existing screen set. To add a new screen set, go to the *Database Administration Manual - Gateway Screening* and perform one of these procedures, as appropriate, and assign the `rdct` gateway screening stop action to the last screen in the screen set.

- “Adding an Allowed ISUP Message Type Screen”
- “Adding an Allowed Affected Destination Field Screen”
- “Adding a Blocked DPC Screen”
- “Adding an Allowed DPC Screen”
- “Adding an Allowed SIO Screen”
- “Adding a Blocked OPC Screen”
- “Adding an Allowed OPC Screen”

If you wish to change the existing screen set, go to the *Database Administration Manual - Gateway Screening* and perform one of these procedures, as appropriate. Make sure the last screen in the screen set has the `rdct` gateway screening stop action assigned.

- “Changing an Allowed ISUP Message Type Screen”
- “Changing an Allowed Affected Destination Field Screen”
- “Changing a Blocked DPC Screen”
- “Changing an Allowed DPC Screen”
- “Changing an Allowed SIO Screen”
- “Changing a Blocked OPC Screen”
- “Changing an Allowed OPC Screen”

Verify that the necessary gateway screening entities have been configured with the required gateway screening stop action set, by entering the appropriate gateway screening retrieve command specifying the `actname` parameter with the gateway screening stop action name shown in the `rtrv-gws-actset` command output.

- `rtrv-scr-opc:actname=rdct` – to display the allowed OPC screens
- `rtrv-scr-blkopc:actname=rdct` – to display the blocked OPC screens
- `rtrv-scr-sio:actname=rdct` – to display the allowed SIO screens
- `rtrv-scr-dpc:actname=rdct` – to display the allowed DPC screens
- `rtrv-scr-blkdpc:actname=rdct` – to display the blocked DPC screens
- `rtrv-scr-destfld:actname=rdct` – to display the allowed destination field screens
- `rtrv-scr-isup:actname=rdct` – to display the allowed ISUP message type screens

If a gateway screening entity is configured to redirect, the entry `STOP` appears in the `NSFI` field, the `NSR/ACT` field contains the name of the gateway screening stop action set specified in the gateway screening retrieve command (see the following example).

```
rlghncxa03w 06-10-07 00:17:31 GMT EAGLE5 36.0.0
SCREEN = ALLOWED OPC
SR      NI      NC      NCM      NSFI      NSR/ACT
opc1    010      010      010      STOP      RDCT
opc1    010      010      012      STOP      RDCT
```

If the necessary gateway screening entities are not in the database, add them to the database using one of these procedures in the *Database Administration Manual - Gateway Screening*.

- “Adding an Allowed ISUP Message Type Screen”
- “Adding an Allowed Affected Destination Field Screen”
- “Adding a Blocked DPC Screen”
- “Adding an Allowed DPC Screen”
- “Adding an Allowed SIO Screen”
- “Adding a Blocked OPC Screen”
- “Adding an Allowed OPC Screen”

If the necessary gateway screening entities are in the database, use one these procedures in the *Database Administration Manual - Gateway Screening* to assign the redirect gateway screening stop action to them.

- “Changing an Allowed ISUP Message Type Screen”
- “Changing an Allowed Affected Destination Field Screen”
- “Changing a Blocked DPC Screen”
- “Changing an Allowed DPC Screen”
- “Changing an Allowed SIO Screen”
- “Changing a Blocked OPC Screen”
- “Changing an Allowed OPC Screen”



CAUTION

CAUTION: When Gateway Screening is in the screen test mode, as defined by the linkset parameters `gwsa=off` and `gwsn=on`, the gateway screening action in the gateway screening stop action set specified by the `actname` parameter of the gateway screening screen set at the end of the gateway screening process will be performed.

A screen set is required to start the screening process. Enter the `rtrv-scrset` command to verify that the necessary screen set is in the database. If the necessary screen set is not in the database, use the “Adding a Screen Set” in the in the *Database Administration Manual - Gateway Screening* and add the necessary screen set to the database. If the necessary screen set is in the database and the next screening function identifier (NSFI) needs to be changed, use the “Changing a Screen Set” in the in the *Database Administration Manual - Gateway Screening* to change the NSFI of the screen set.

Canceling the `RTRV-GTT` and `RTRV-GTA` Commands

Because the `rtrv-gtt` and `rtrv-gta` commands used in this procedure can output information for a long period of time, the `rtrv-gtt` and `rtrv-gta` commands can be canceled and the output to the terminal stopped. There are three ways that the `rtrv-gtt` and `rtrv-gta` commands can be canceled.

- Press the F9 function key on the keyboard at the terminal where the `rtrv-gtt` or `rtrv-gta` commands were entered.
- Enter the `canc-cmd` without the `trm` parameter at the terminal where the `rtrv-gtt` or `rtrv-gta` commands were entered.
- Enter the `canc-cmd:trm=<xx>`, where `<xx>` is the terminal where the `rtrv-gtt` or `rtrv-gta` commands were entered, from another terminal other than the terminal where the `rtrv-gtt` or `rtrv-gta` commands were entered. To enter the `canc-cmd:trm=<xx>` command, the terminal must allow Security Administration commands to be entered from it and the user must be allowed to enter Security Administration commands. The terminal's permissions can be verified with the `rtrv-secu-trm` command. The user's permissions can be verified with the `rtrv-user` or `rtrv-secu-user` commands.

For more information about the `canc-cmd` command, go to the *Commands Manual*.

1. Verify that the gateway screening redirect function is disabled by entering the `rtrv-gws-redirect` command.

The following is an example of the possible output.

```
rlghncxa03w 06-10-07 00:17:31 GMT EAGLE5 36.0.0
ENABLED DPCA          RI  SSN  TT      GTA
Redirect function data is not provisioned.
```

If the gateway screening redirect function is enabled, the `ent-gws-redirect` command in [Step 2](#) on page 236 cannot be executed.

2. Provision the gateway screening redirect function by entering the following command.

This example is using the destination point code (`dpc`) 009-002-001, the routing indicator (`ri`) GT, the subsystem number (`ssn`) 15, the global title translation type (`tt`) 225, the global title address (`gta`) 9105551212, and the `enabled` parameter is equal to `on`.

```
ent-gws-redirect:dpc=009-002-001:ri=gt:ssn=15:tt=225
:gta=9105551212:enabled=on
```

- `:dpc/dpca/dpci/dpcn/dpcn24` – The destination point code, either an ANSI, ITU-I, ITU-N, ITU-I Spare, ITU-N Spare, or ITU-N24 point code, that the message is being redirected to. The point code used for this parameter must be in the database as a destination point code of a route, shown in the `rtrv-rte` output, or must be the STP's site point code, shown in the `rtrv-sid` output.

`:dpc/dpca` – an ANSI point code

`:dpci` – an ITU-I or ITU-I Spare point code

`:dpcn` – a 14-bit ITU-N or 14-bit ITU-N Spare point code

`:dpcn24` – a 24-bit ITU-N point code

If you wish to use a destination point code as a value for this parameter, verify that the destination point code has a route assigned to it by entering the `rtrv-rte` command with the point code value being assigned to the gateway screening redirect function. The `dpc` parameter specified with the `rtrv-rte` command must correspond to the parameter value being specified as shown in the list preceding this paragraph.

For this example, enter the `rtrv-rte:dPCA=009-002-001` command. The following is an example of the possible output.

```
rlghncxa03w 06-10-07 00:19:31 GMT EAGLE5 36.0.0
DPCA          ALIASI          ALIASN/N24    LSN          RC          APCA
009-002-001  -----  -----  ls02         0          009-002-001
RTX:No       CLLI=dtac11i
```

If you wish to use the STP's point code for the `dpc` parameter, enter the `rtrv-sid` command to find the STP's point code. The following is an example of the possible output.

```
rlghncxa03w 06-10-07 00:20:31 GMT EAGLE5 36.0.0
PCA          PCI          PCN          CLLI          PCTYPE
144-201-001  0-123-1      11211       rlghncxa03w  ANSI
              s-0-123-1    s-11211

CPCA
002-002-002  002-002-003  002-002-004  002-002-005
002-002-006  002-002-007  002-002-008  002-002-009
004-002-001  004-003-003  144-212-003

CPCA (LNP)
005-005-002  005-005-004  005-005-005

CPCI
1-001-1      1-001-2      1-001-3      1-001-4
1-002-1      1-002-2      1-002-3      1-002-4
2-001-1      7-222-7

CPCN
02091        02092        02094        02097
02191        02192        11177
```

The EAGLE 5 ISS's point code is shown in either the PCA, PCI, PCN, or PCN24 fields of the `rtrv-sid` command output. The `rtrv-sid` command will show either the PCN or PCN24 fields along with the PCA and PCI fields.

- `:ri` – The routing indicator for the redirected message.

If the routing indicator is `ssn`, the DPC and SSN shown in the output of the `rtrv-gws-redirect` command, is the final destination of the redirected message. If the routing indicator is `gt`, additional global title translation is required to determine the final destination of the redirected message.

- `:ssn` – The CDPA subsystem to which the redirected message is bound for
- `:tt` – The CDPA translation type of the global title translation
- `:gta` – The CDPA global title translation address. Hexadecimal digits cannot be specified for the `gta` parameter. Only decimal digits can be specified for the `gta` parameter,
- `:enabled` – Whether the messages that have passed GWS are to be redirected (on) or discarded based on the linkset's `gwsd` parameter value (off). If the enabled parameter is off and the linkset's `gwsd` value is on, the MSU is discarded, MRN 1084 is generated, and the DTAMSULOST measurement is pegged. If the enabled parameter is off and the linkset's `gwsd` value is off, the MSU is routed to its original destination, MRN 1084 is not generated, and the DTAMSULOST measurement is not pegged.

When the command has been completed successfully, the following message should appear.

```
rlghncxa03w 06-10-07 00:21:31 GMT EAGLE5 36.0.0
ENT-GWS-REDIRECT: MASP A - COMPLTD
```

- Verify the changes by entering the `rtrv-gws-redirect` command.

The following is an example of the possible output.

```
rlghncxa03w 06-10-07 00:22:31 GMT EAGLE5 36.0.0
ENABLED DPCA          RI  SSN  TT      GTA
on       009-002-001  GT  15   225    9105551212
```

- Verify if the enhanced global title translation feature is on or off by entering the `rtrv-feat` command.

If the enhanced global title translation feature is on, the `EGTT` field should be set to `on`.

Note: The `rtrv-feat` command output contains other fields that are not used by this procedure. If you wish to see all the fields displayed by the `rtrv-feat` command, see the `rtrv-feat` command description in the *Commands Manual*.

If the enhanced global title translation feature is on, the `rtrv-tt`, `ent-tt`, `rtrv-gtt`, and `ent-gtt` commands cannot be executed. Instead, the `rtrv-gttset`, `ent-gttset`, `rtrv-gttsetl`, `ent-gttsetl`, `rtrv-gta`, and `ent-gta` are used to verify and configure the global title translation data.

Note: If the enhanced global title translation is on, skip [Step 5](#) on page 238, and [Step 6](#) on page 238, and go to [Step 7](#) on page 239.

- Verify the global title translation data in the database for the translation type specified in the output of [Step 3](#) on page 238 by entering the `rtrv-gtt` command with the `type` and `gta` parameters, specifying the values shown in [Step 3](#) on page 238 in the `TT` and `GTA` fields of the `rtrv-gws-redirect` command output.

For this example, enter this command.

```
rtrv-gtt:type=225:gta=9105551212
```

The following is an example of the possible output.

```
rlghncxa03w 06-10-07 00:24:31 GMT EAGLE5 36.0.0
TYPEA  TTN          NDGT
225    DTA7         10
GTT TABLE IS 10% FULL.      (27000 of 269999)

START GTA          END GTA          XLAT  RI  PCA          SSN  NGT
9105551212        DPCSSN GT  009-002-001  15  ---
```

If the global title translation data is shown in the `rtrv-gtt` command output, no further action is necessary. Go to [Step 9](#) on page 240.

- Verify that the global title translation type shown in the output of [Step 3](#) on page 238, in the `TT` field, is in the database by entering the `rtrv-tt` command with the `type` parameter corresponding to the point code type shown in the `rtrv-gws-redirect` output and shown in [Table 19: Translation Type Parameters](#) on page 239.

Table 19: Translation Type Parameters

Point Code Type	DPC Parameter shown in the <code>rtrv-gws-redirect</code> output	Translation Type Parameter
ANSI	DPC/DPCA	typea
ITU-I or ITU-I Spare	DPCI	typei
ITU-N or ITU-N Spare	DPCN	typen
ITU-N24	DPCN24	typen24

In this example, the global title translation type is 225 and the DPC value is an ANSI point code. The `typea` parameter should be specified with the `rtrv-tt` command. The translation type is shown in the `TYPEA` field. For this example, enter this command.

```
rtrv-tt:typea=225
```

The following is an example of the possible output.

```
rlghncxa03w 06-10-07 00:25:31 GMT EAGLE5 36.0.0
TYPEA  TTN      NDGT
225    DTA7     10
```

If the translation type is shown in the `rtrv-tt` output, perform the “Adding a Global Title Translation” procedure in the *Database Administration Manual - Global Title Translation* and configure a global title translation entry that contains the values shown in the `rtrv-gws-redirect` output in [Step 3](#) on page 238. This procedure is finished.

If the translation type is not shown in the `rtrv-tt` output, perform the “Adding a Translation Type” and “Adding a Global Title Translation” procedures in the *Database Administration Manual - Global Title Translation* and configure a global title translation entry that contains the values shown in the `rtrv-gws-redirect` output in [Step 3](#) on page 238. This procedure is finished.

Note: If the enhanced global title translation is off, do not perform [Step 7](#) on page 239, [Step 8](#) on page 240, and [Step 9](#) on page 240. This procedure is finished.

- Verify that the global title translation type specified in the output of [Step 3](#) on page 238, in the `TT` field, is in the database by entering the `rtrv-gttset` command with the `tt` parameter.

For this example, enter the `rtrv-gttset:tt=225` command. The following is an example of the possible output.

```
rlghncxa03w 06-10-07 00:27:31 GMT EAGLE5 36.0.0
```

```
GTIA  TT  NP      NAI  GTTSN
2     225 --      ---  dta7
```

If the translation type is not in the database, this message is displayed in the scroll area of the terminal display.

```
No GTT Selectors matching the specified criteria were found.
```

If the translation type is shown in the `rtrv-gttset` command output, go to [Step 8](#) on page 240 and verify that the global title address data is in the database.

If the translation type is not shown in the `rtrv-gttset` command output, perform the “Adding a GTT Set,” “Adding a GTT Selector,” and “Adding Global Title Address Information” procedures in the Database *Administration Manual* - Global Title Translation and configure a global title address entry that contains the values shown in the `rtrv-gws-redirect` output in [Step 3](#) on page 238. This procedure is finished.

8. The new global title address data must be in the database.

Verify the global title translation data in the database for the translation type specified in the output of [Step 7](#) on page 239 by entering the `rtrv-gta` command with the GTTSN value shown in the output of [Step 7](#) on page 239, and with the GTA, SSN, and DPC values shown in the output of [Step 3](#) on page 238. For this example, enter this command.

```
rtrv-gta:gttsn=dta7:gta=9195551212:ssn=15:pca=009-002-001
```

The following is an example of the possible output.

```
rlghncxa03w 06-10-07 00:28:31 GMT EAGLE5 36.0.0
GTTSN      NETDOM  NDGT
dta7      ansi     10
GTA TABLE IS 1 % FULL (17 of 269999)

START GTA  END GTA    XLAT  RI  PCA          SSN CCGT NTT
```

If the required global title translation data is shown in the `rtrv-gta` command output, no further action is necessary. Go to [Step 9](#) on page 240.

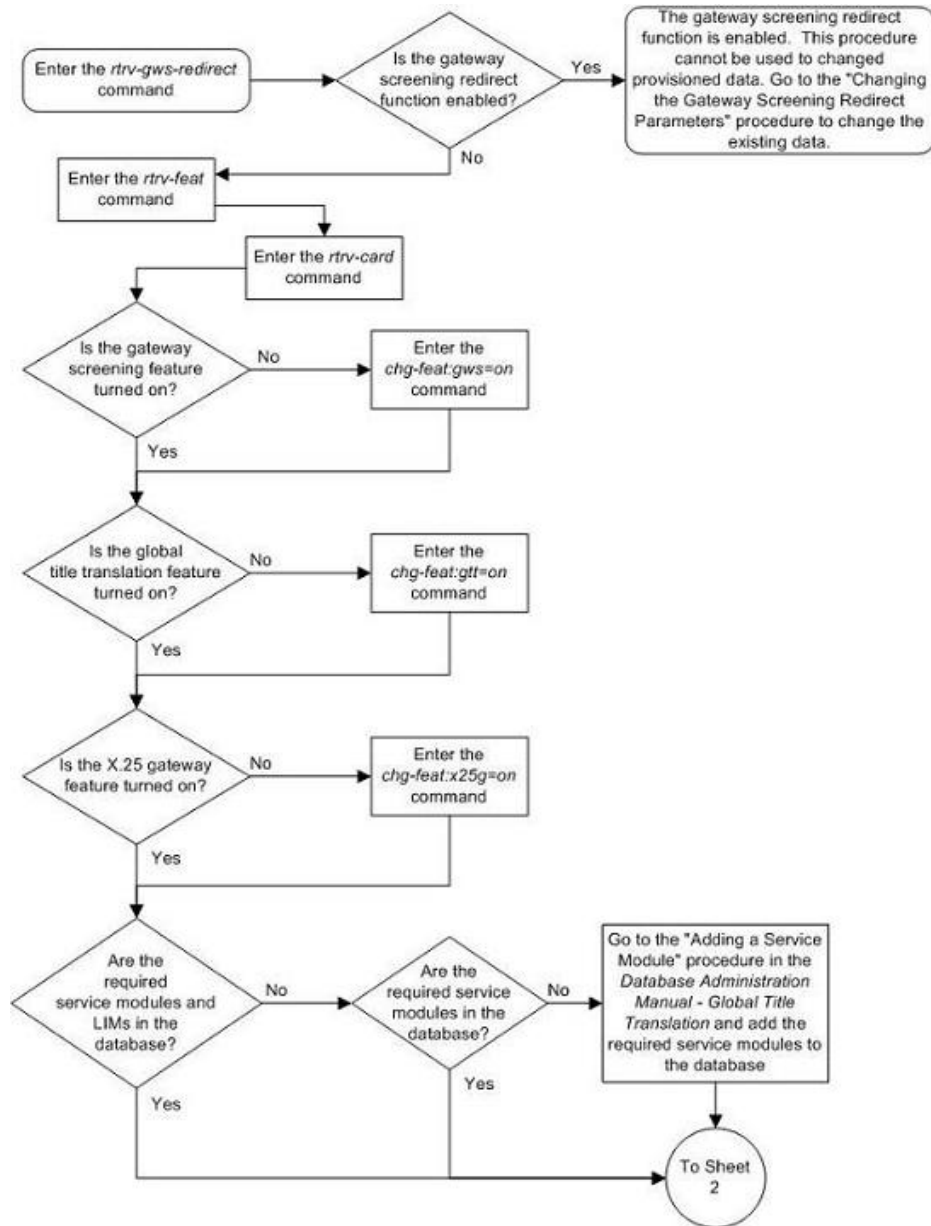
If the required global title translation data is not shown in the `rtrv-gta` command output, perform the “Adding Global Title Address Information” procedure in the Database *Administration Manual* - Global Title Translation and configure a global title address entry that contains the values shown in the `rtrv-gws-redirect` output in [Step 3](#) on page 238. This procedure is finished.

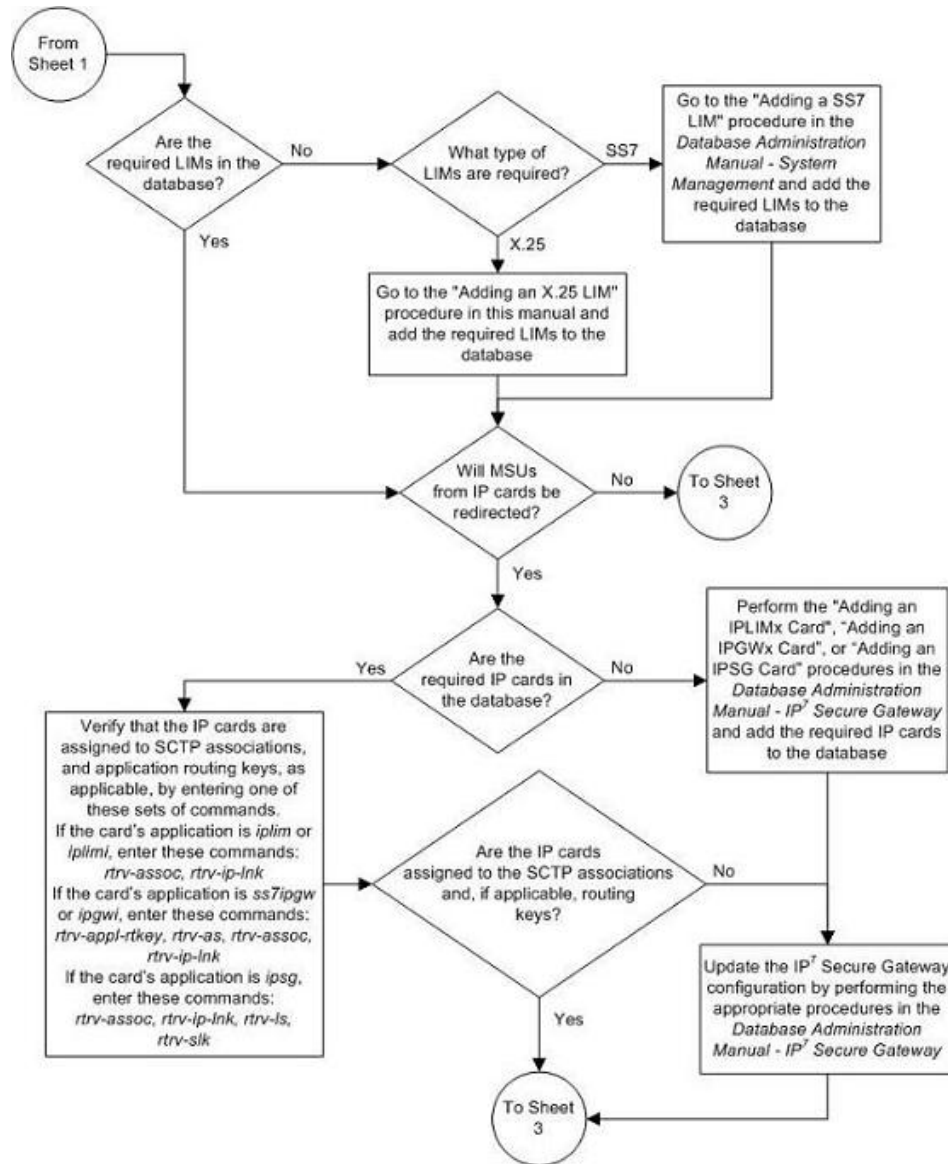
9. Backup the new changes using the `chg-db:action=backup:dest=fixed` command.

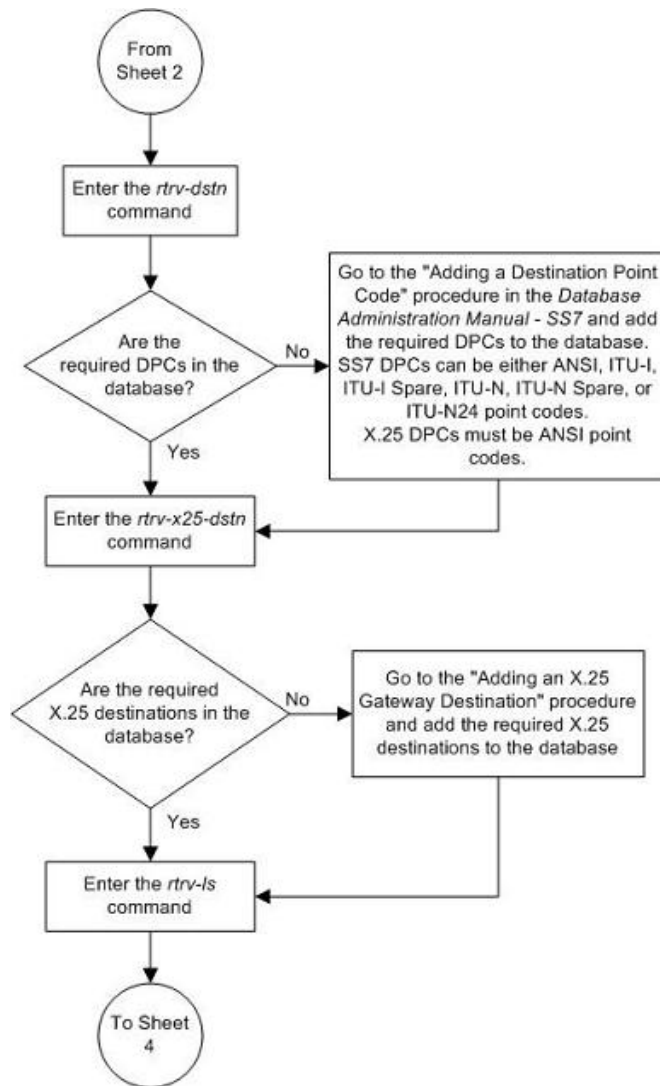
The following messages should appear, the active Maintenance and Administration Subsystem Processor (MASP) appears first.

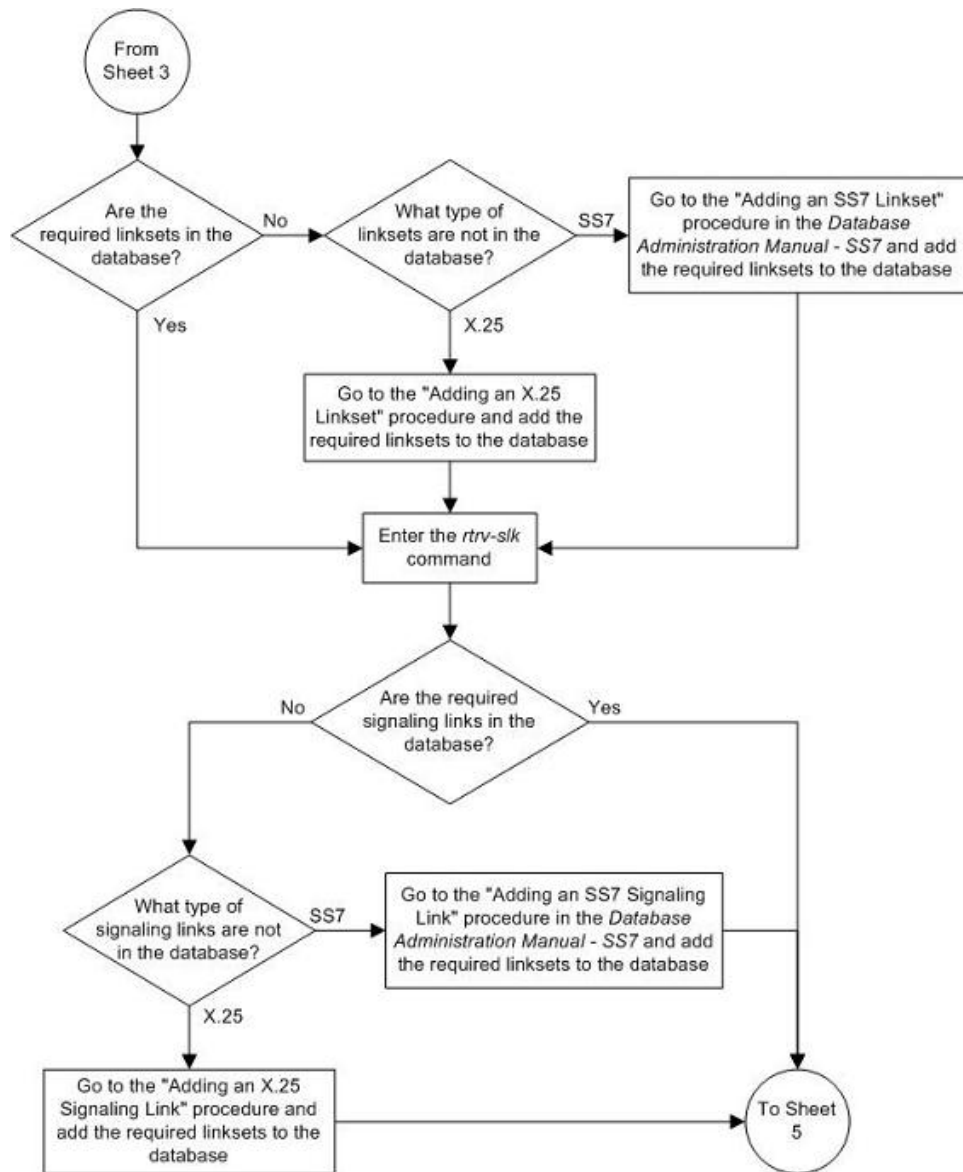
```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk complete.
BACKUP (FIXED) : MASP A - Backup starts on standby MASP.
BACKUP (FIXED) : MASP A - Backup on standby MASP to fixed disk complete.
```

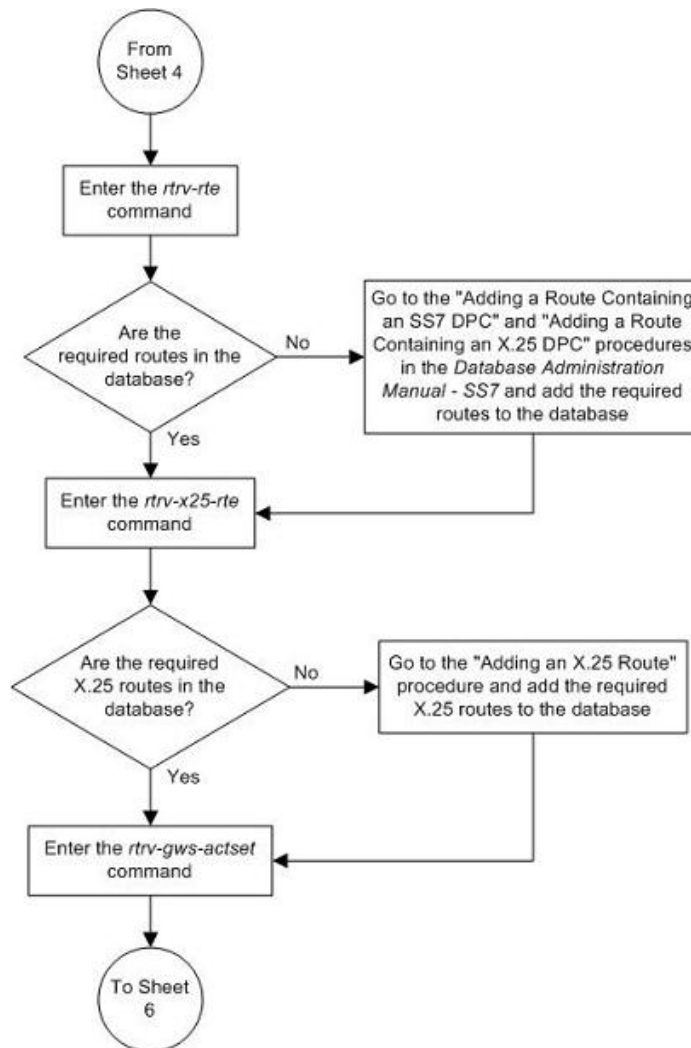
Figure 39: Configuring for the DTA Feature

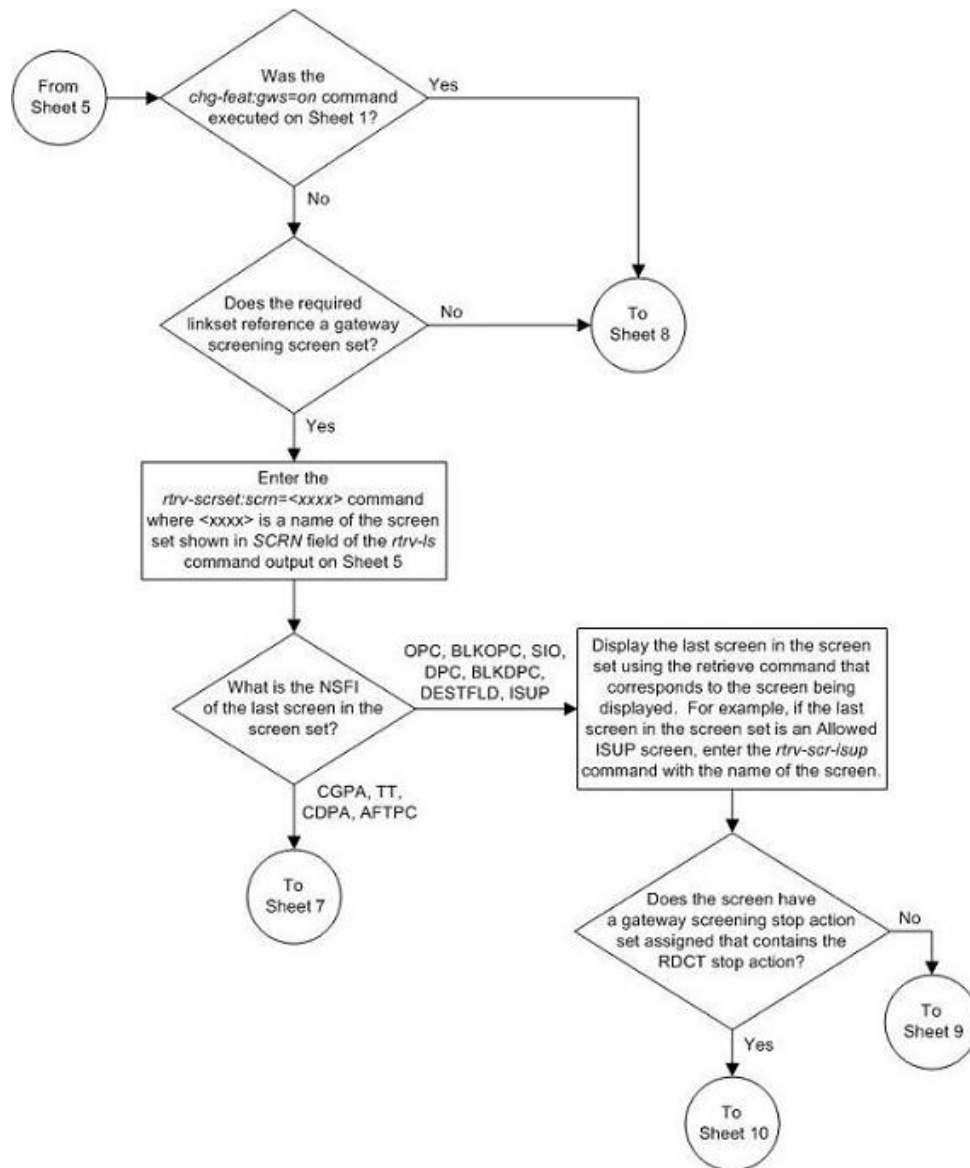


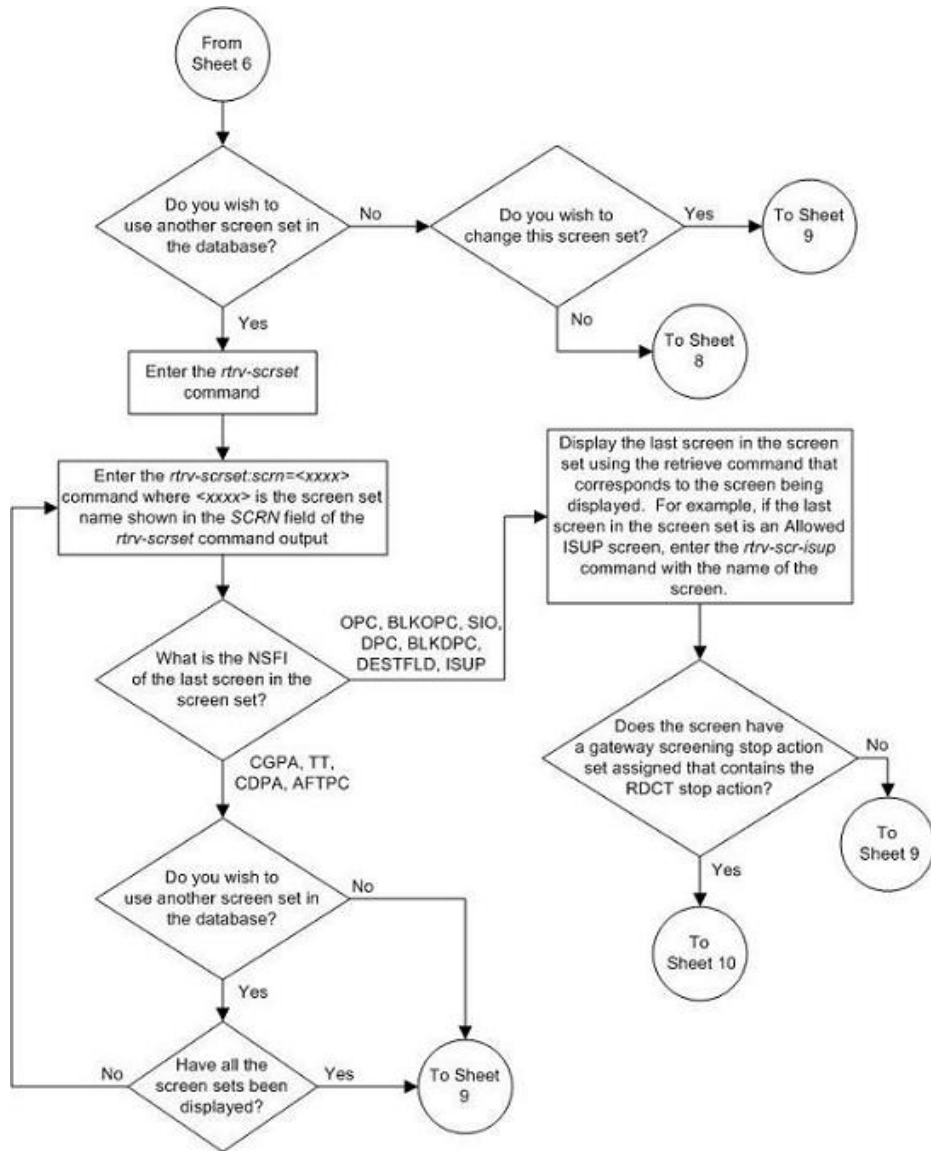


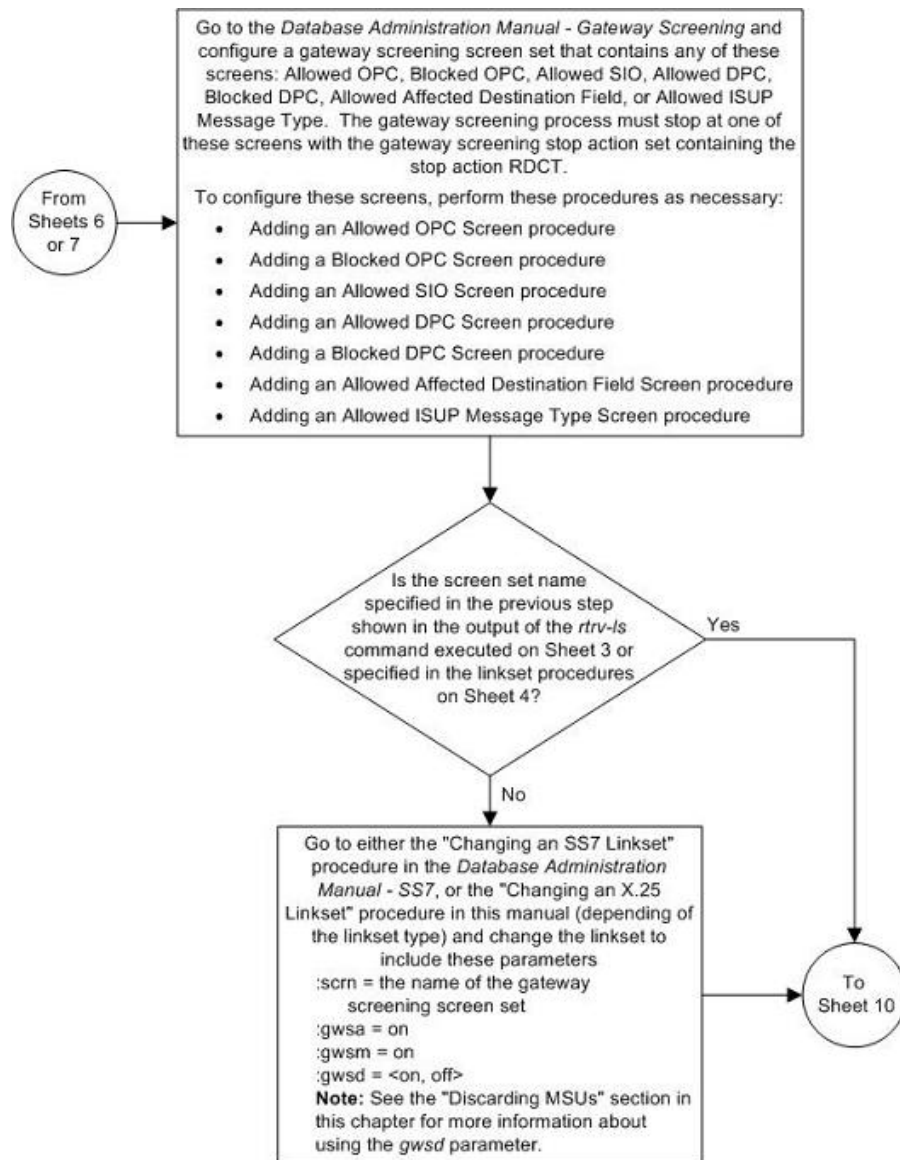


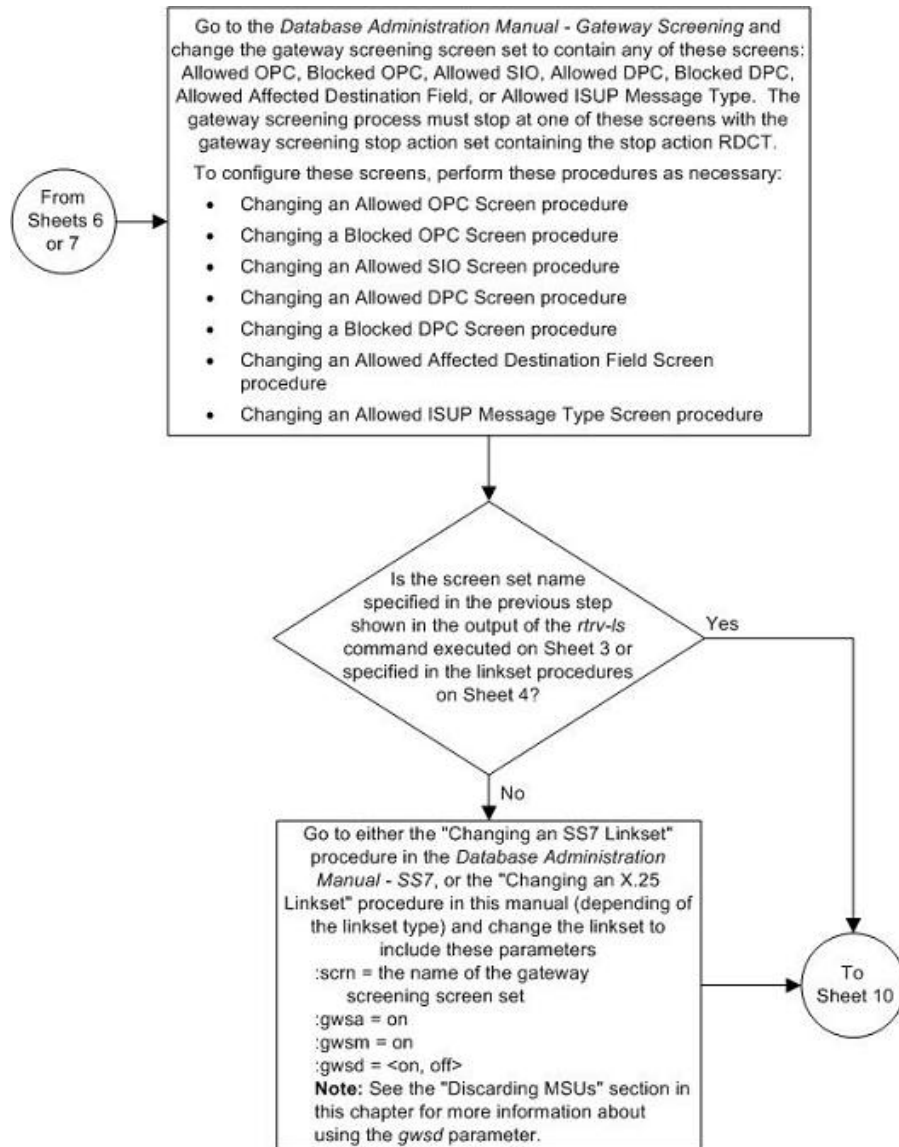


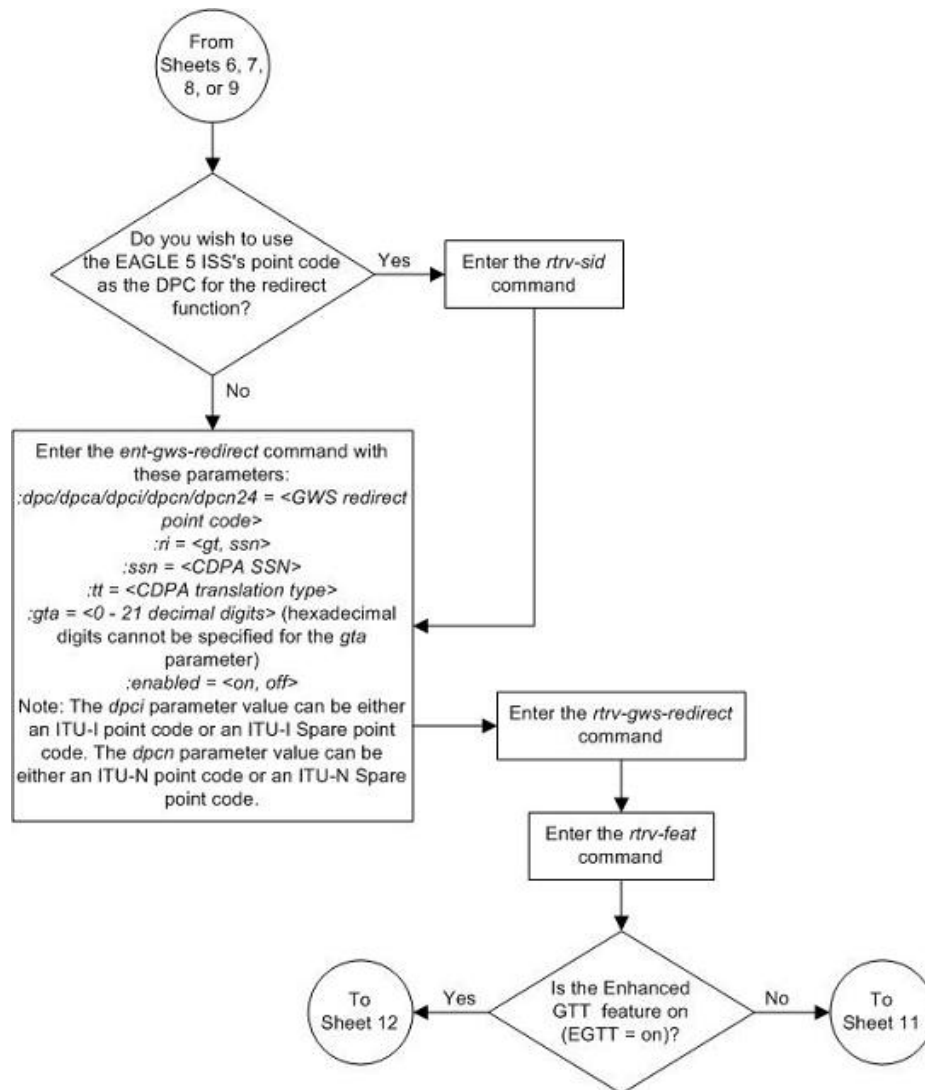


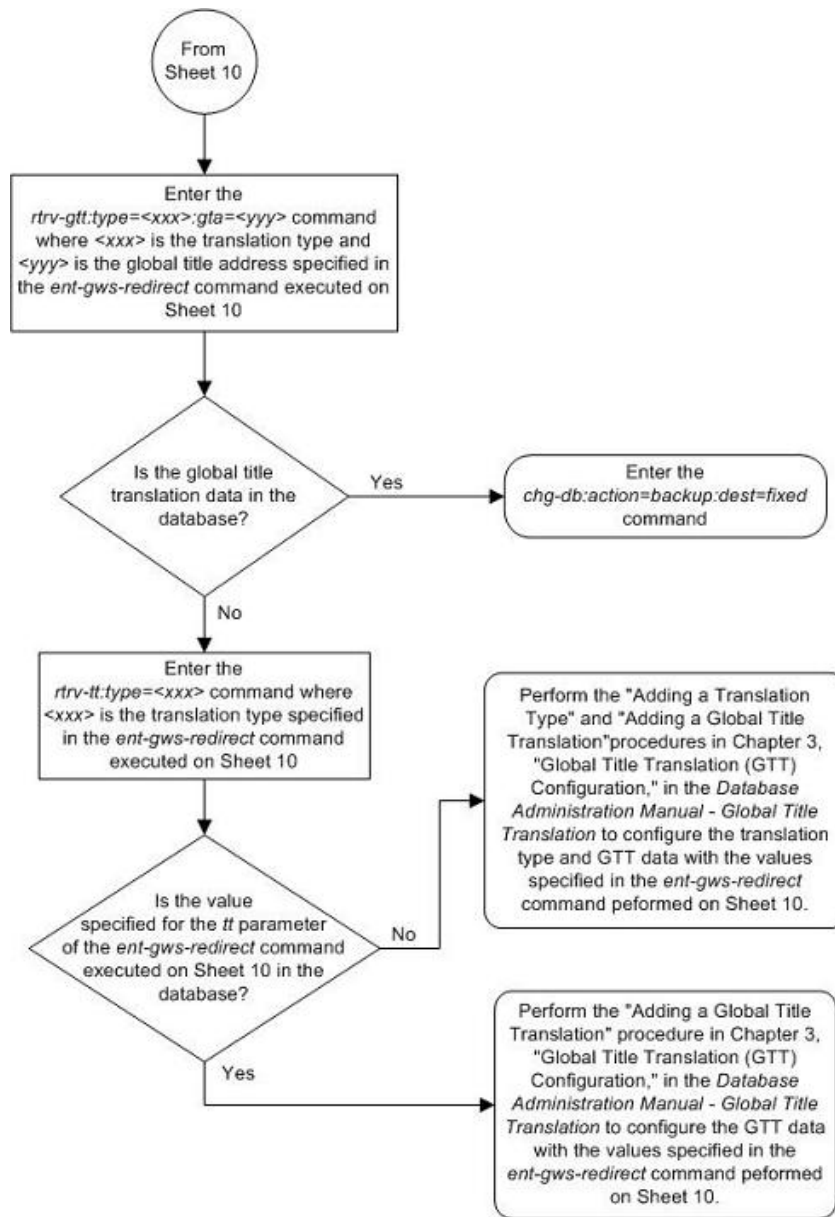


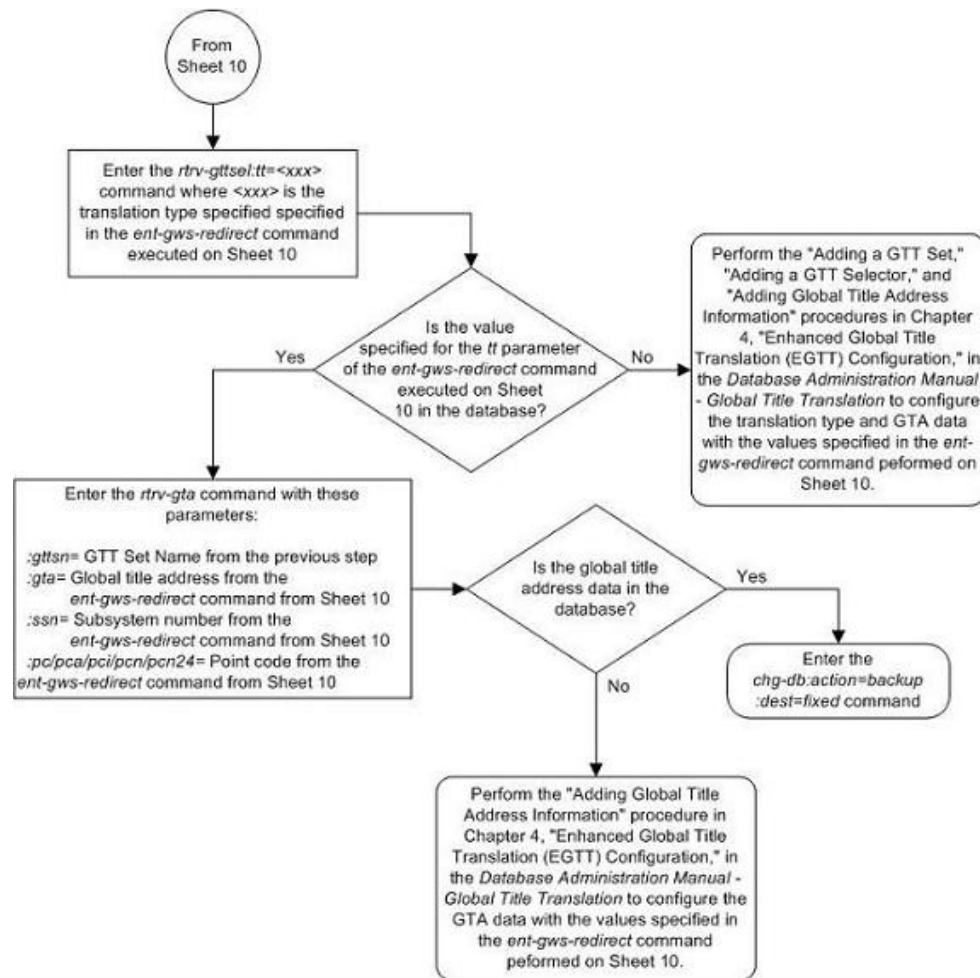












Changing the Gateway Screening Redirect Parameters

To change the configuration to support the DTA feature, one or more of the gateway screening redirect function's attributes can be changed using the `chg-gws-redirect` command. This procedure shows the steps necessary to change these attributes.

The gateway screening redirect function's data must be in the database and the gateway screening redirect function must be enabled, shown by the entry on in the enabled field of the `rtrv-gws-redirect` command output.

Any of the gateway screening redirect function's attributes can be changed. The new attributes, and any database entities required to support these attributes, must be in the database.

Canceling the RTRV-GTT and RTRV-GTA Commands

Because the `rtrv-gtt` and `rtrv-gta` commands used in this procedure can output information for a long period of time, the `rtrv-gtt` and `rtrv-gta` commands can be canceled and the output to the terminal stopped. There are three ways that the `rtrv-gtt` and `rtrv-gta` commands can be canceled.

- Press the F9 function key on the keyboard at the terminal where the `rtrv-gtt` or `rtrv-gtacommands` were entered.
- Enter the `canc-cmd` without the `trm` parameter at the terminal where the `rtrv-gtt` or `rtrv-gtacommands` were entered.
- Enter the `canc-cmd:trm=<xx>`, where `<xx>` is the terminal where the `rtrv-gtt` or `rtrv-gtacommands` were entered, from another terminal other than the terminal where the `rtrv-gtt` or `rtrv-gtacommands` were entered. To enter the `canc-cmd:trm=<xx>` command, the terminal must allow Security Administration commands to be entered from it and the user must be allowed to enter Security Administration commands. The terminal's permissions can be verified with the `rtrv-secu-trm` command. The user's permissions can be verified with the `rtrv-user` or `rtrv-secu-user` commands.

For more information about the `canc-cmd` command, go to the *Commands Manual*.

The examples in this procedure are used to change the gateway screening redirect function's attributes to these values. The routing indicator is not being changed.

- `:dpc - 009-003-001`
- `:ssn - 45`
- `:tt - 175`
- `:gta - 3365841342`

1. Verify the gateway screening redirect function attributes by entering the `rtrv-gws-redirect` command.

The following is an example of the possible output.

```
rlghncxa03w 06-10-07 00:17:31 GMT EAGLE5 36.0.0
ENABLED DPCA          RI  SSN  TT      GTA
on           003-175-010 GT  15   225    9105551212
```

If the DPC, shown in the DPC field, is not being changed, skip, [Step 2](#) on page 253, and [Step 3](#) on page 253, and go to [Step 4](#) on page 254.

2. Verify that the new DPC is in the database and has a route assigned to it.

Note:

If the DPC is being changed to the EAGLE 5 ISS's point code, skip step 2 and go to step 3.

Verify this by entering the `rtrv-rte` command with the new DPC, in this example, 009-003-001.

```
rlghncxa03w 06-10-07 00:19:31 GMT EAGLE5 36.0.0
DPCA          ALIASI          ALIASN/N24    LSN          RC          APCA
009-003-001  -----          -----          1s02         0           009-001-001
                                           RTX:No      CLLI=dtaclli
```

If the required route to the DPC is not shown in the `rtrv-rte` command output, go to the "Adding a Route Containing an X.25 DPC" or "Adding a Route Containing an SS7 DPC" procedures in the *Database Administration Manual - SS7* and add the route to the DPC to the database.

3. Display the EAGLE 5 ISS's point code by entering the `rtrv-sid` command.

Note:

If the DPC is being changed to a point code in the routing table, shown in the output of step 2, skip step 3 and go to [Step 4](#) on page 254.

The following is an example of the possible output.

```

rlghncxa03w 06-10-07 00:20:31 GMT EAGLE5 36.0.0
PCA          PCI          PCN          CLLI          PCTYPE
144-201-001  0-123-1          11211       rlghncxa03w  ANSI
              s-0-123-1        s-11211

CPCA
002-002-002  002-002-003     002-002-004  002-002-005
002-002-006  002-002-007     002-002-008  002-002-009
004-002-001  004-003-003     144-212-003

CPCA (LNP)
005-005-002  005-005-004     005-005-005

CPCI
1-001-1      1-001-2          1-001-3       1-001-4
1-002-1      1-002-2          1-002-3       1-002-4
2-001-1      7-222-7

CPCN
02091        02092            02094          02097
02191        02192            11177
    
```

The EAGLE 5 ISS's point code is shown in either the PCA, PCI, PCN, or PCN24 fields of the `rtrv-sid` command output. The `rtrv-sid` command will show either the PCN or PCN24 fields along with the PCA and PCI fields.

4. Change the parameters for the gateway screening redirect function by entering the `chg-gws-redirect` command with any of these parameters:

-

For this example, enter this command. In this example, the `ri` parameter is not being changed.

```
chg-gws-redirect:dpc=009-003-001:ssn=45:tt=175:gta=3365841342
```

When the command has been completed successfully, the following message should appear.

```

rlghncxa03w 06-10-07 00:21:31 GMT EAGLE5 36.0.0
CHG-GWS-REDIRECT: MASP A - COMPLTD
    
```

5. Verify the changes by entering the `rtrv-gws-redirect` command.

The following is an example of the possible output.

```

rlghncxa03w 06-10-07 00:22:31 GMT EAGLE5 36.0.0
ENABLED DPCA          RI  SSN  TT      GTA
on       009-003-001  GT  45   175    3365841342
    
```

If only the DPC parameter was changed in [Step 4](#) on page 254, skip [steps 6](#) on page 254 through 10, go to [step 11](#) on page 257.

6. Verify if the enhanced global title translation feature is on or off by entering the `rtrv-feat` command.

If the enhanced global title translation feature is on, the `EGTT` field should be set to on.

For this example, the enhanced global title translation feature is on.

Note:

The `rtrv-feat` command output contains other fields that are not used by this procedure. If you wish to see all the fields displayed by the `rtrv-feat` command, see the `rtrv-feat` command description in the *Commands Manual*.

If the enhanced global title translation feature is on, the `rtrv-tt`, `ent-tt`, `rtrv-gtt`, and `ent-gtt` commands cannot be executed. Instead, the `rtrv-gttset`, `ent-gttset`, `rtrv-gttsetl`, `ent-gttsetl`, `rtrv-gta`, and `ent-gta` are used to verify and configure the global title translation data.

- The new global title address data must be in the database.

Note:

If the enhanced global title translation is on, skip [steps 7](#) on page 255 and [8](#) on page 255, and go to [step 9](#) on page 256.

Verify the global title translation data in the database for the translation type specified in the output of [step 5](#) on page 254 by entering the `rtrv-gtt` command with the `type` and `gta` parameters. For this example, enter this command.

```
rtrv-gtt:type=175:gta=3365841342
```

The following is an example of the possible output.

```
rlghncxa03w 06-10-07 00:24:31 GMT EAGLE5 36.0.0
TYPEA TTN NDGT
175 DTA7 10
GTT TABLE IS 10% FULL. (27000 of 269999)

START GTA          END GTA          XLAT  RI  PCA          SSN  NGT
3365841342        -----          DPCSSN GT  009-003-001  45  ---
```

If the global title translation data is shown in the `rtrv-gtt` command output, no further action is necessary. Go to [step 11](#) on page 257.

- The new translation type must be in the database.

Verify that the global title translation type specified in the `rtrv-gws-redirect` output in [step 5](#) on page 254 in the TT field, is in the database by entering the `rtrv-tt` command with the `type` parameter corresponding to the point code type shown in the `rtrv-gws-redirect` output in [step 5](#) on page 254 and [Table 20: Translation Type Parameters](#) on page 255.

Table 20: Translation Type Parameters

Point Code Type	DPC Parameter shown in the <code>rtrv-gws-redirect</code> output	Translation Type Parameter
ANSI	DPC/DPCA	typea
ITU-I or ITU-I Spare	DPCI	typei
ITU-N or	DPCN	typen

Point Code Type	DPC Parameter shown in the <code>rtrv-gws-redirect</code> output	Translation Type Parameter
ITU-N Spare		
ITU-N24	DPCN24	typen24

In this example, the new global title translation type is 175. The `typea` parameter should be specified with the `rtrv-tt` command. The translation type is shown in the `TYPEA` field. For this example, enter this command.

```
rtrv-tt:typea=175
```

The following is an example of the possible output.

```
rlghncxa03w 06-10-07 00:25:31 GMT EAGLE5 36.0.0
TYPEA  TTN      NDGT
175    DTA7     10
```

If the translation type is shown in the `rtrv-tt` output, perform the “Adding a Global Title Translation” procedure in the *Database Administration Manual - Global Title Translation* and configure a global title translation entry that contains the values shown in the `rtrv-gws-redirect` output in [step 5](#) on page 254. This procedure is finished. If the translation type is not shown in the `rtrv-tt` output, perform the “Adding a Translation Type” and “Adding a Global Title Translation” procedures in the *Database Administration Manual - Global Title Translation* and configure a global title translation entry that contains the values shown in the `rtrv-gws-redirect` output in [step 5](#) on page 254. This procedure is finished.

- Verify that the global title translation type specified in the output of [step 5](#) on page 254, in the `TT` field, is in the database by entering the `rtrv-gttset` command with the `tt` parameter.

Note:

If the enhanced global title translation is off, do not perform steps 9, 10, and 11. This procedure is finished.

For this example, enter the `rtrv-gttset:tt=175` command. The following is an example of the possible output.

```
rlghncxa03w 06-10-07 00:27:31 GMT EAGLE5 36.0.0
GTIA  TT  NP      NAI  GTTSN
2     175 --      ---  dta7
```

If the translation type is not in the database, this message is displayed in the scroll area of the terminal display.

```
No GTT Selectors matching the specified criteria were found.
```

If the translation type is shown in the `rtrv-gttset` command output, go to [step 10](#) on page 257 and verify that the global title address data is in the database.

If the translation type is not shown in the `rtrv-gttset` command output, perform the “Adding a GTT Set,” “Adding a GTT Selector,” and “Adding Global Title Address Information” procedures in the *Database Administration Manual - Global Title Translation* and configure a global title address entry that contains the values shown in the `rtrv-gws-redirect` output in step 3. This procedure is finished.

10. The new global title address must be in the database.

Verify the global title translation data in the database for the translation type specified in the output of [step 5](#) on page 254 by entering the `rtrv-gta` command with the GTTSN value shown in the output of [step 9](#) on page 256 and with the GTA, SSN, and DPC values shown in the output of [step 5](#) on page 254. For this example, enter this command.

```
rtrv-gta:gttsn=dta7:gta=3365841342:pca=009-003-001:ssn=45
```

```
rlghncxa03w 06-10-07 00:28:31 GMT EAGLE5 36.0.0
GTTSN      NETDOM  NDGT
t800      ansi    10
GTA TABLE IS 1 % FULL (17 of 269999)

START GTA  END GTA   XLAT  RI  PCA          SSN CCGT NTT
```

If the required global title translation data is shown in the `rtrv-gta` command output, no further action is necessary. Go to [step 11](#) on page 257.

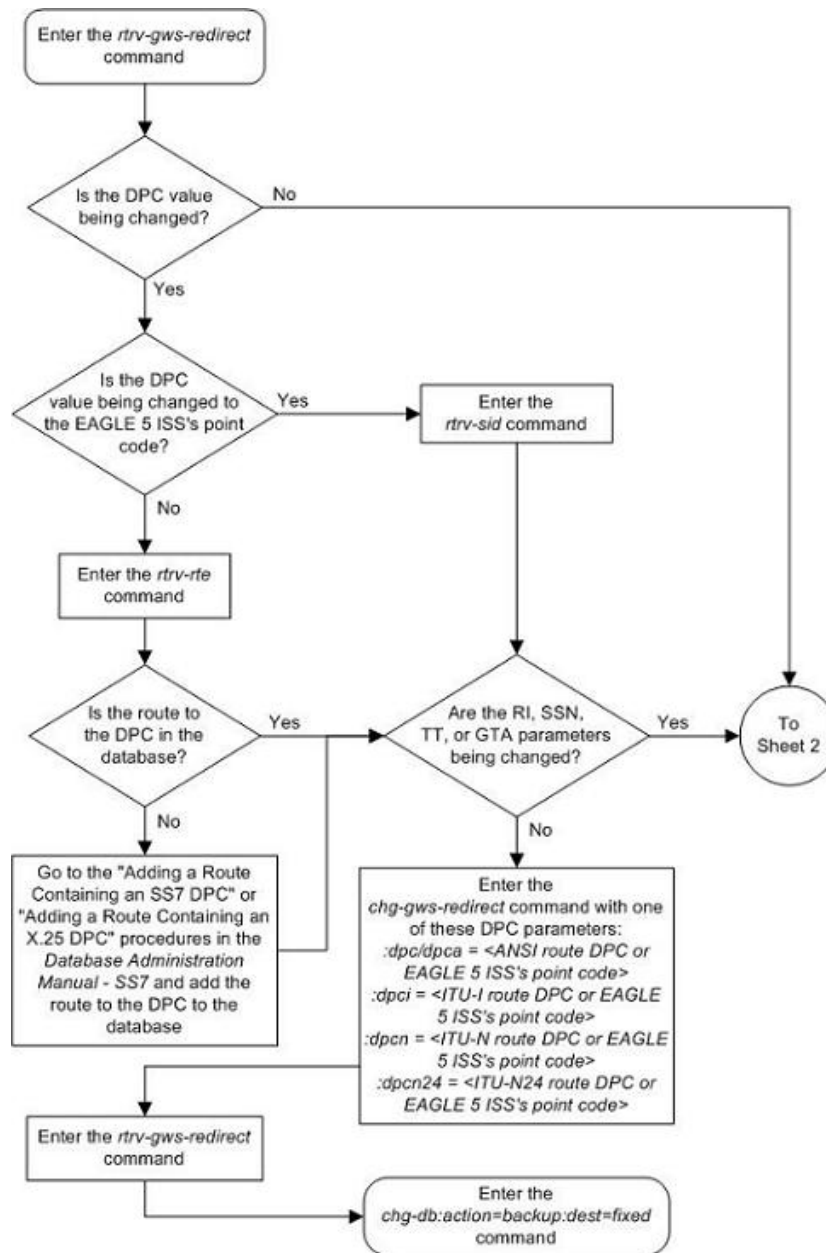
If the required global title translation data is not shown in the `rtrv-gta` command output, perform the “Adding Global Title Address Information” procedure in the *Database Administration Manual - Global Title Translation* and configure a global title address entry that contains the values shown in the `rtrv-gws-redirect` output in [step 5](#) on page 254. This procedure is finished.

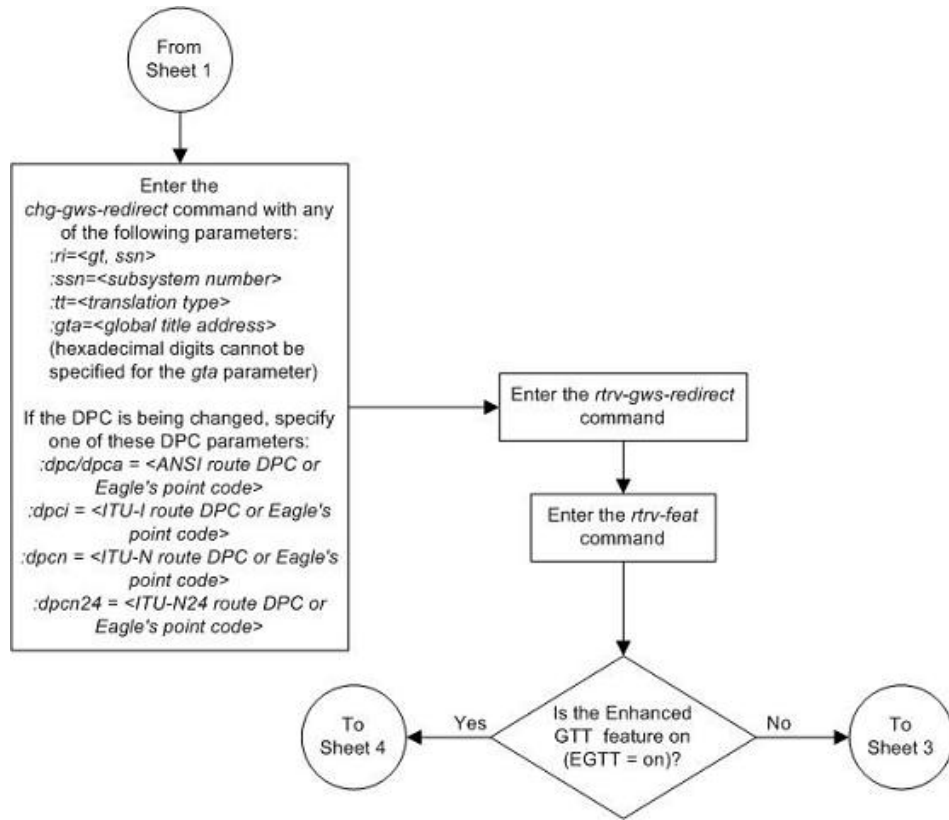
11. Backup the new changes using the `chg-db:action=backup:dest=fixed` command.

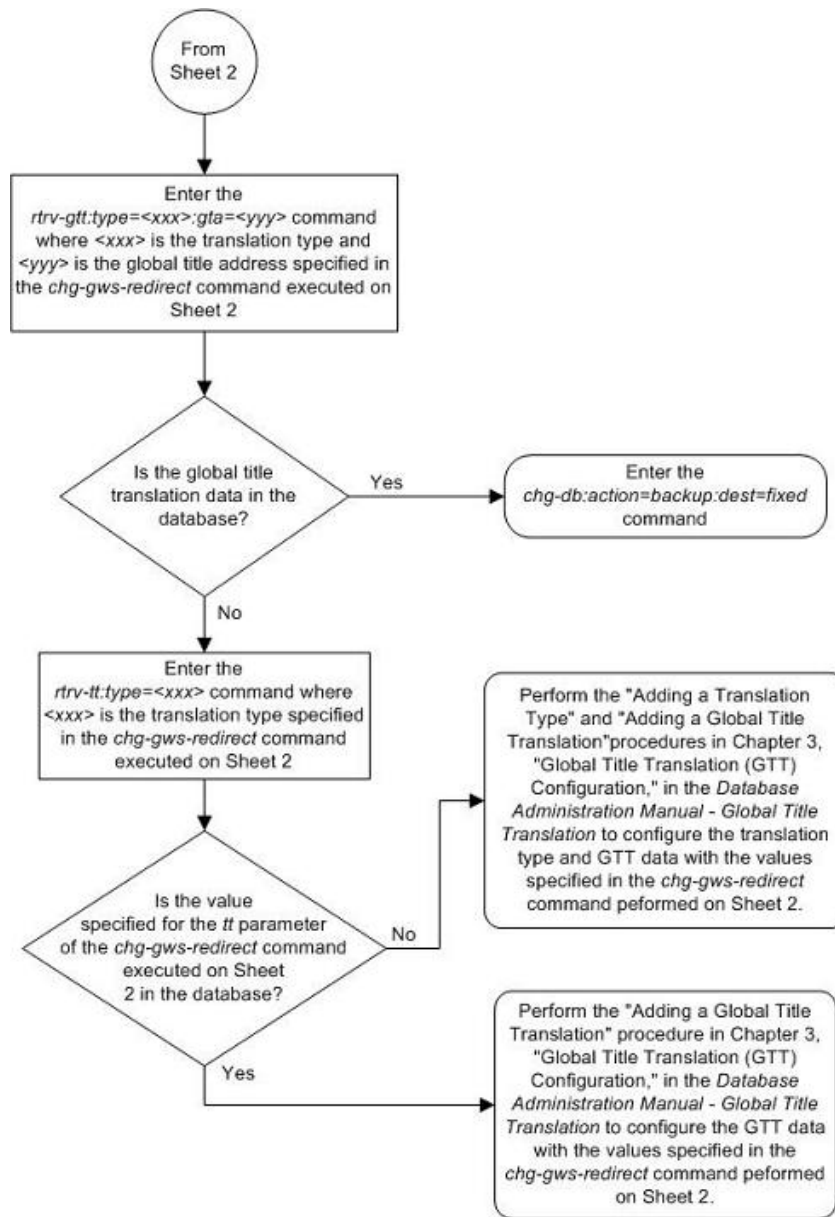
The following messages should appear, the active Maintenance and Administration Subsystem Processor (MASP) appears first.

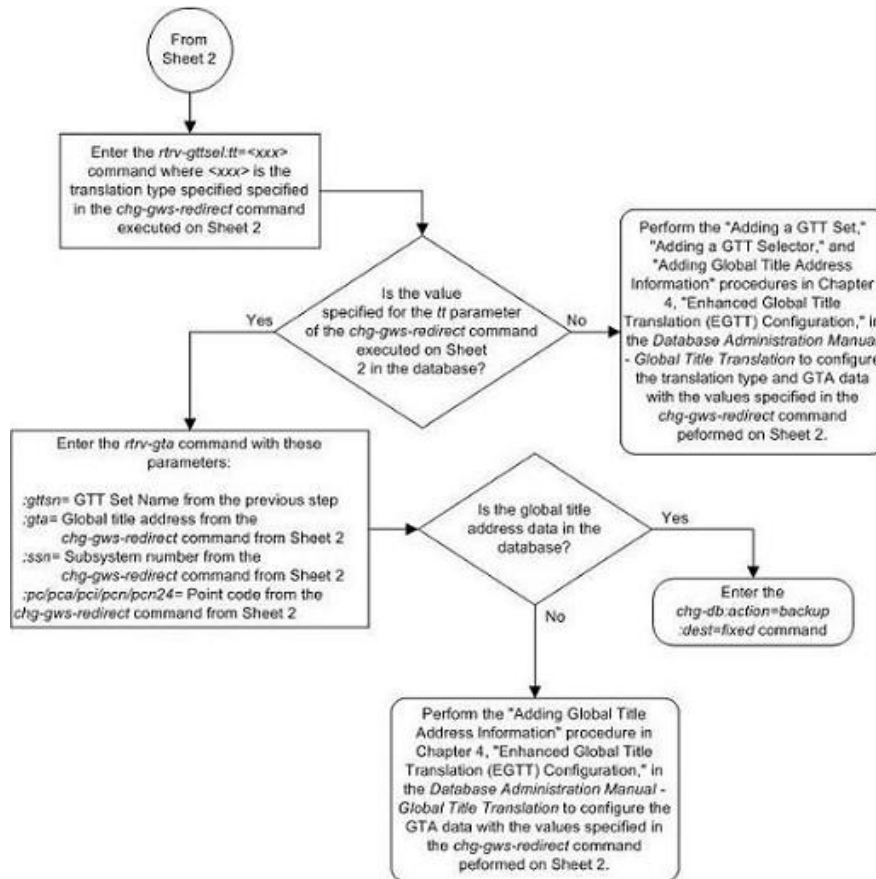
```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk complete.
BACKUP (FIXED) : MASP A - Backup starts on standby MASP.
BACKUP (FIXED) : MASP A - Backup on standby MASP to fixed disk complete.
```

Figure 40: Changing the Gateway Screening Redirect Parameters









Disabling the Gateway Screening Redirect Function

This procedure is used to turn off the gateway screening redirect function using either the `dlt-gws-redirect` or `chg-gws-redirect` commands. Turning off the gateway screening redirect function also turns off the DTA feature.

1. Verify that the gateway screening redirect function is enabled by entering the `rtrv-gws-redirect` command.

The following is an example of the possible output.

```

rlghncxa03w 06-10-07 00:17:31 GMT EAGLE5 36.0.0
ENABLED DPCA      RI  SSN  TT      GTA
on      009-002-001 GT  15   225    9105551212
    
```

2. Disable the gateway screening redirect function by entering the `dlt-gws-redirect` command or the `chg-gws-redirect:enabled=off` command.

When the `dlt-gws-redirect` command has been completed successfully, the following message should appear.

```
rlghncxa03w 06-10-07 00:18:31 GMT EAGLE5 36.0.0
DLT-GWS-REDIRECT: MASP A - COMPLTD
```

When the `chg-gws-redirect` command has been completed successfully, the following message should appear.

```
rlghncxa03w 06-10-07 00:19:31 GMT EAGLE5 36.0.0
CHG-GWS-REDIRECT: MASP A - COMPLTD
```

3. Display the gateway screening stop action sets in the database by entering the `rtrv-gws-actset` command.

The entry `rdct` is displayed in the `ACT1` through the `ACT10` fields in any gateway screening stop action sets that have the redirect gateway screening stop action assigned to them. The following is an example of the possible output.

```
rlghncxa03w 06-10-07 00:20:31 GMT EAGLE5 36.0.0
ACT  ACT  ACT  ACT  ACT  ACT  ACT  ACT  ACT  ACT  ACT  ACT
ID  NAME  1    2    3    4    5    6    7    8    9    10
--  ---  ---  ---  ---  ---  ---  ---  ---  ---  ---  ---
1   copy  copy
2   rdct  rdct
3   cr    copy rdct
GWS action set table is (3 of 16) 19% full
```

4. All gateway screening entities that have been assigned the redirect function must have the redirect function turned off.

Check the gateway screening entities for any screening references that have the redirect gateway screening stop action assigned to them.

Enter each of the following commands with the `actname` parameter specifying the name of the gateway screening stop action set shown in step 3 that contains the redirect gateway screening stop action. If a redirect gateway screening stop action has been assigned to a gateway screening entity, the name of the gateway screening stop action appears after the `NSR/ACT` field.

If a redirect gateway screening stop action has not been assigned to a gateway screening entity, the command is rejected with this message.

```
E3680 Cmd Rej: No match on ACTNAME parameter during retrieve
```

```
rtrv-scr-opc:actname=rdct
```

The following is an example of the possible output.

```
rlghncxa03w 06-10-07 00:21:31 GMT EAGLE5 36.0.0
SCREEN = ALLOWED OPC
SR  NI    NC    NCM    NSFI    NSR/ACT
DTA1 240    001    010    STOP    RDCT
```

```
rtrv-scr-blkopc:actname=rdct
```

The following is an example of the possible output.

```
rlghncxa03w 06-10-07 00:22:31 GMT EAGLE5 36.0.0
SCREEN = BLOCKED OPC
```

```
SR      NI      NC      NCM      NSF1      NSR/ACT
DTA2    C        C        C        STOP      RDCT
```

```
rtrv-scr-sio:actname=rdct
```

The following is an example of the possible output.

```
rlghncxa03w 06-10-07 00:23:31 GMT EAGLE5 36.0.0
SCREEN = ALLOWED SIO
SR      NIC     PRI     SI     H0      H1      NSF1      NSR/ACT
DTA3    1       3       4     --      --      STOP      RDCT
```

```
rtrv-scr-dpc:actname=rdct
```

The following is an example of the possible output.

```
rlghncxa03w 06-10-07 00:24:31 GMT EAGLE5 36.0.0
SCREEN = ALLOWED DPC
SR      NI      NC      NCM      NSF1      NSR/ACT
DTA4    243      015      001      STOP      RDCT
```

```
rtrv-scr-blkdpc:actname=rdct
```

The following is an example of the possible output.

```
rlghncxa03w 06-10-07 00:25:31 GMT EAGLE5 36.0.0
SCREEN = BLOCKED DPC
SR      NI      NC      NCM      NSF1      NSR/ACT
DTA5    C        C        C        STOP      RDCT
```

```
rtrv-scr-destfld:actname=rdct
```

The following is an example of the possible output.

```
rlghncxa03w 06-10-07 00:26:31 GMT EAGLE5 36.0.0
SCREEN = ALLOWED DESTFLD
SR      NI      NC      NCM      NSF1      NSR/ACT
DTA6    240      001      010      STOP      RDCT
```

- If any of the necessary gateway screening entities displayed in step 4 have been assigned a gateway screening stop action containing the redirect gateway screening stop action, change the gateway screening stop action for these entities to a gateway screening stop action displayed in step 3 that does not have the redirect gateway screening stop action assigned to it, or to have no gateway screening stop action set assigned to the gateway screening entity with the `actname=none` parameter.

These command examples are based on the example outputs shown in step 4.

```
chg-scr-opc:sr=dta1:ni=240:nc=001:ncm=010:actname=none
```

When this command has successfully completed, the following message should appear.

```
rlghncxa03w 06-10-07 00:27:31 GMT EAGLE5 36.0.0
CHG-SCR-OPC: SCREEN SET AFFECTED - DTA1 55% FULL
CHG-SCR-OPC: MASP A - COMPLTD
```

```
chg-scr-blkdpc:sr=dta2:nc=c:ni=c:ncm=c:actname=none
```

When this command has successfully completed, the following message should appear.

```
rlghncxa03w 06-10-07 00:28:31 GMT EAGLE5 36.0.0
```

```
CHG-SCR-BLKOPC: SCREEN SET AFFECTED - DTA2 55% FULL
CHG-SCR-OPC: MASP A - COMPLTD
```

```
chg-scr-sio:sr=dta3:nic=1:pri=3:si=4:actname=none
```

When this command has successfully completed, the following message should appear.

```
rlghncxa03w 06-10-07 00:29:31 GMT EAGLE5 36.0.0
CHG-SCR-SIO: SCREEN SET AFFECTED - DTA3 55% FULL
CHG-SCR-SIO: MASP A - COMPLTD
```

```
chg-scr-dpc:sr=dta4:ni=243:nc=015:ncm=001:actname=none
```

When this command has successfully completed, the following message should appear.

```
rlghncxa03w 06-10-07 00:30:31 GMT EAGLE5 36.0.0
CHG-SCR-DPC: SCREEN SET AFFECTED - DTA4 55% FULL
CHG-SCR-DPC: MASP A - COMPLTD
```

```
chg-scr-blkdpc:sr=dta5:nc=c:ni=c:ncm=c:actname=none
```

When this command has successfully completed, the following message should appear.

```
rlghncxa03w 06-10-07 00:31:31 GMT EAGLE5 36.0.0
CHG-SCR-BLKDPC: SCREEN SET AFFECTED - DTA5 55% FULL
CHG-SCR-BLKDPC: MASP A - COMPLTD
```

```
chg-scr-destfld:sr=dta6:ni=240:nc=001:ncm=010:actname=none
```

When this command has successfully completed, the following message should appear.

```
rlghncxa03w 06-10-07 00:32:31 GMT EAGLE5 36.0.0
CHG-SCR-DESTFLD: SCREEN SET AFFECTED - DTA6 55% FULL
CHG-SCR-DESTFLD: MASP A - COMPLTD
```

- Verify that the changes have been made by entering any of the following commands with the actname parameter and the name of the gateway screening stop action set used in step 4.

```
rtrv-scr-opc:actname=rdct
```

```
rtrv-scr-blkopc:actname=rdct
```

```
rtrv-scr-sio:actname=rdct
```

```
rtrv-scr-dpc:actname=rdct
```

```
rtrv-scr-blkdpc:actname=rdct
```

```
rtrv-scr-destfld:actname=rdct
```

None of the screens should contain any entries assigned to the gateway screening redirect function. When each these commands are executed, this message should appear.

```
E3680 Cmd Rej: No match on ACTNAME parameter during retrieve
```

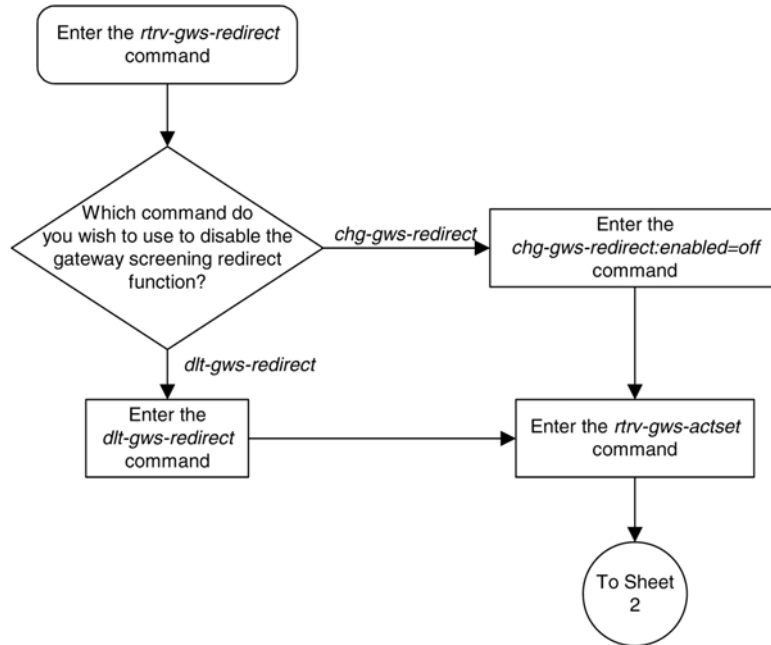
- Backup the new changes using the `chg-db:action=backup:dest=fixed` command.

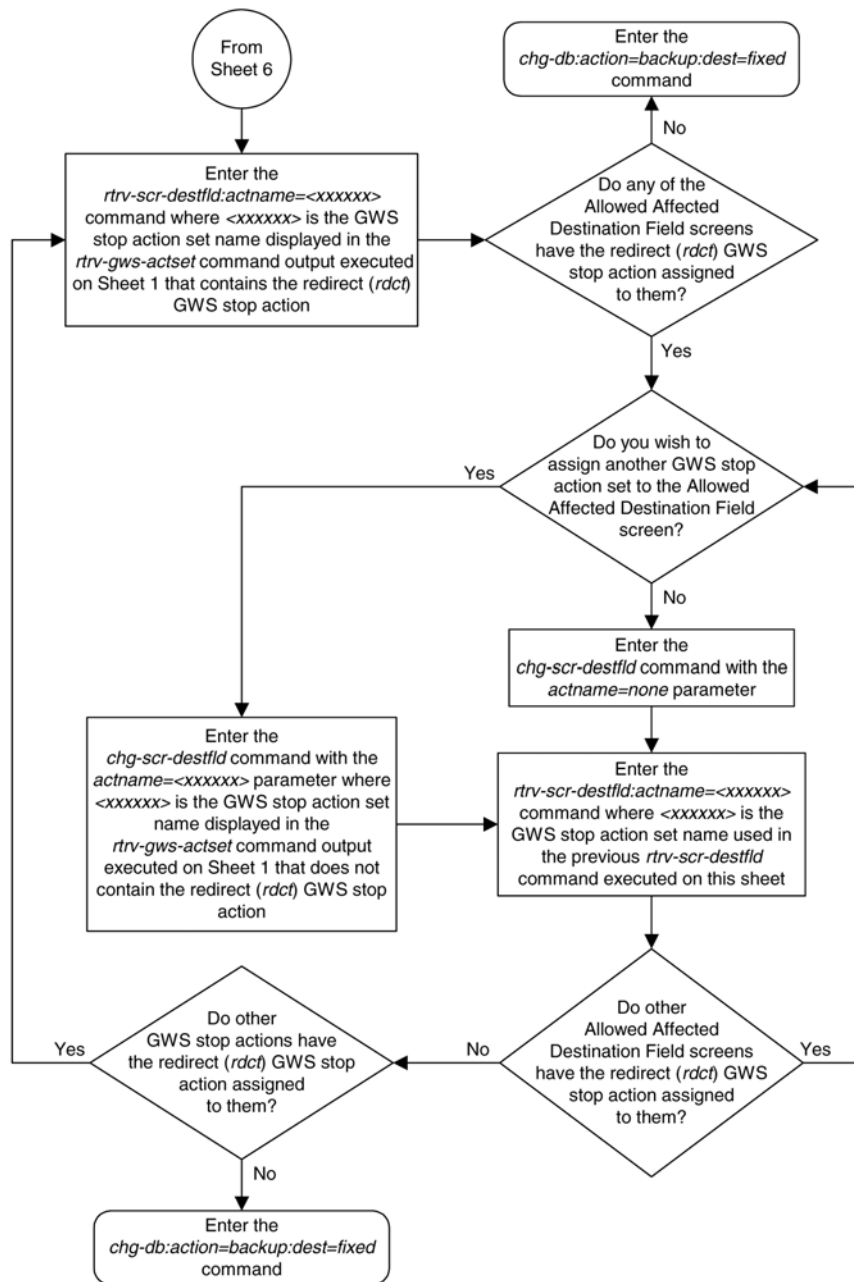
The following messages should appear, the active Maintenance and Administration Subsystem Processor (MASP) appears first.

```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk complete.
```


BACKUP (FIXED) : MASP A - Backup starts on standby MASP.
BACKUP (FIXED) : MASP A - Backup on standby MASP to fixed disk complete.

Figure 41: Disabling the Gateway Screening Redirect Function





Chapter 5

GSM MAP Screening Configuration

Topics:

- [Introduction Page 268](#)
- [GSM MAP Screening Overview Page 268](#)
- [GSM MAP Screening Details Page 271](#)
- [GSM MAP Screening Example Page 288](#)
- [GSM MAP Screening Procedures Page 289](#)
- [Activating the GSM MAP Screening Feature Page 293](#)
- [Configuring the MTP MAP Screening Feature Page 304](#)
- [Configuring a Linkset for the GSM MAP Screening Feature Page 309](#)
- [Changing the System-Wide GSM MAP Screening Options Page 321](#)
- [Adding a GSM Subsystem Number Screening Entry Page 324](#)
- [Removing a GSM Subsystem Number Screening Entry Page 327](#)
- [Adding a GSM MAP Screening Operation Code Page 329](#)
- [Removing a GSM MAP Screening Operation Code Page 347](#)
- [Changing a GSM MAP Screening Operation Code Page 351](#)
- [Adding a GSM MAP Screening Entry Page 365](#)
- [Removing a GSM MAP Screening Entry Page 398](#)
- [Changing a GSM MAP Screening Entry Page 407](#)
- [Changing the GSM MAP Screening TCAP Continue and End Message Processing Option Page 428](#)

Chapter 5, GSM MAP Screening Configuration, describes the GSM MAP Screening feature and the procedures necessary to configure the EAGLE 5 ISS to support this feature.

Introduction

Traditionally, STP message screening has been limited to the MTP and SCCP levels; this has been sufficient to meet operators' needs. However, GSM mobile operators have an increasing need for screening at the Mobile Application Part (MAP) level. This need is driven by advanced network capabilities and proliferating roaming agreements.

New features that require this enhanced screening capability are Inter-operator Short Message Service (SMS) and Any Time Interrogation (ATI). The GSM MAP Screening feature focuses on solving the screening needs associated with ATI, which is defined in MAP version 3. An ATI message allows an external server to interrogate an HLR and obtain information about the location and/or state of a GSM subscriber. It may be desirable to control which external entities can request this information, and what information they can request before allowing the message to pass through to the HLR.

This feature allow the user to provision which MAP SSNs are affected, which MAP operations codes to screen, which origination points are allowed, and which error messages to use.

Note:

GSM MAP Screening can be used with linksets containing ITU international or ITU national adjacent point codes whether or not the Enhanced GSM MAP Screening feature is enabled and on. GSM MAP Screening can be used with linksets containing ANSI adjacent point codes only if the Enhanced GSM MAP screening feature is enabled and on.

GSM MAP Screening Overview

An SCCP MSU arrives at the EAGLE 5 ISS on a linkset with the `gsmscrn` parameter value set to `on`. If the DPC of the MSU is the EAGLE 5 ISS's point code, the MSU is processed by Global Title Translation and Gateway Screening on the called party address (CDPA). Any applicable SCCP/MTP conversions are also performed on the MSU. The MSU is passed on to GSM MAP Screening. GSM MAP screening is then performed on the MSU before forwarding it to the destination. If the `gsmscrn` parameter of the linkset is set to `off`, GSM MAP Screening is not performed on the MSU.

If the DPC of the MSU is not the EAGLE 5 ISS's point code, the message is routed to its destination using MTP routing. GSM MAP Screening is not performed on the MSU.

If the MTP MAP Screening feature is enabled and turned on, and the DPC of the MSU is not the EAGLE 5 ISS's point code, the MSU (SCCP message types 9 - UDT, or 10 - UDTs only) is sent to GSM MAP Screening without being processed by Global Title Translation and Gateway Screening on the called party address. GSM MAP screening is then performed on the MSU before forwarding the MSU to its destination.

When GSM MAP Screening on the message has completed, the EAGLE 5 ISS performs one of the following actions:

- Route the message to destination
- Discard the message
- Forward the message to a new destination

- Duplicate the message. Send the original message to the original destination, and send the duplicate message to a new destination.
- Duplicate the message and send the duplicate message to a new destination. Discard the original message.
- Return an error message to the originator.

GSM MAP screening first checks to see whether the calling party SSN and called party SSN are present and targeted to be screened or not.

If both SSNs are targeted, it then checks for the MAP operations code of the message to know whether it is targeted to be screened or not. If the MAP operations code is not targeted to be screened, then the EAGLE 5 ISS either discards or routes the message, defined by the `GSMDFLT` parameter of the `chg-stpopts` command. If the MAP operations code is targeted to be screened, GSM MAP screening checks the calling party address of the message to know whether it is targeted for screening or not.

If the CGPA (calling party address) of the message is not targeted for GSM MAP Screening, then the screening action defined in the MAP operations code table by the `dfltact` parameter of the `ent-gsms-opcode` command is performed on the message.

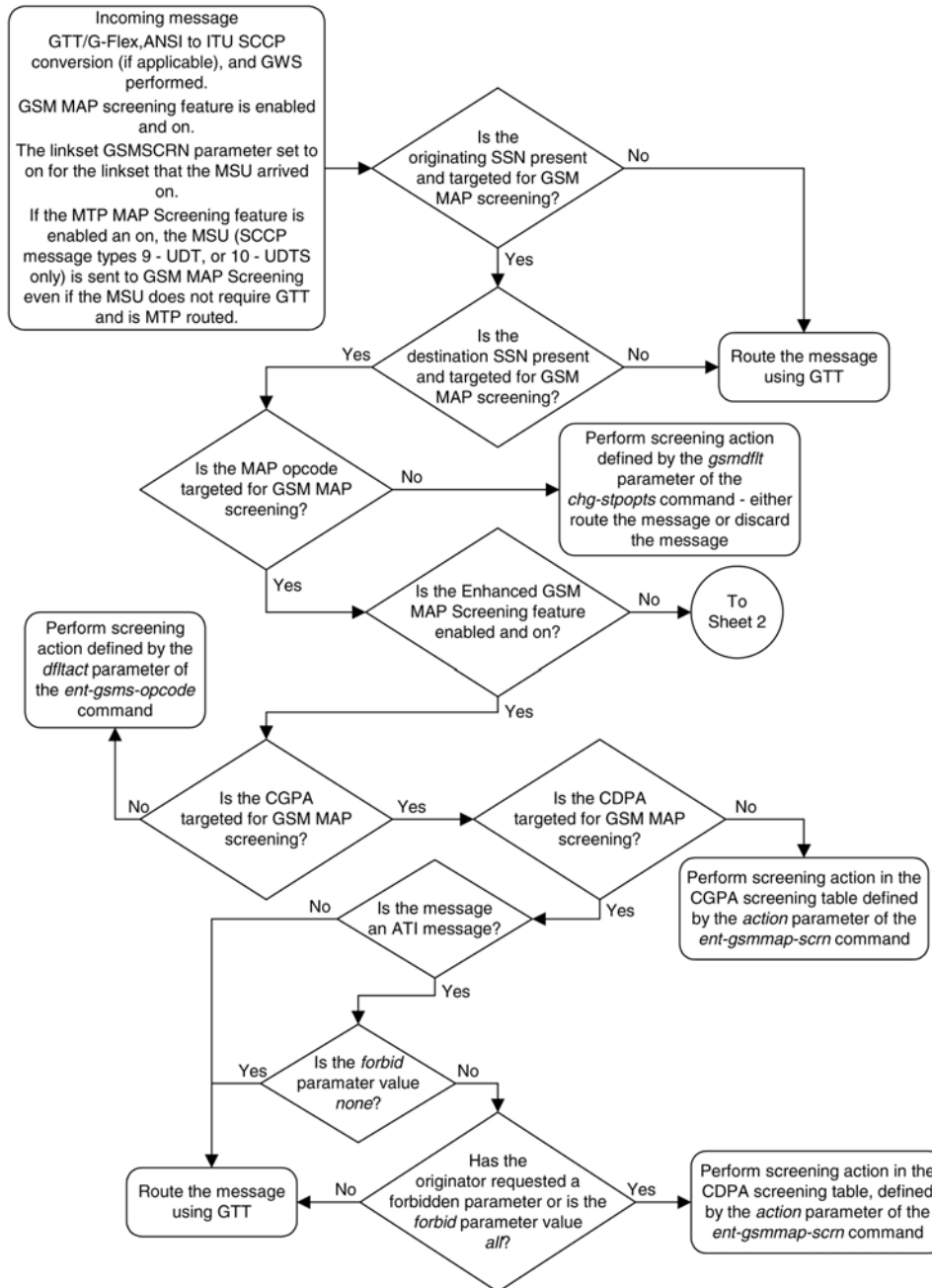
If the CGPA of the message is targeted for screening and the Enhanced GSM MAP Screening feature is enabled and on, GSM MAP Screening checks the CDPA (called party address) of the message to know whether or not it is targeted for screening. If the CDPA of the message is targeted for screening, GSM MAP screening checks to see if the ATI request contains the forbidden parameter value provisioned for the CDPA. If there is no forbidden parameter in the ATI request, the message is not an ATI request, or the provisioned forbidden parameter value for the CDPA is `none`, the message is routed to the destination. If the message is an ATI request and contains the forbidden parameter value provisioned for the CDPA, or the provisioned forbidden parameter value is `all`, GSM MAP screening performs the screening action defined in the CDPA screening table by the `action` parameter of the `ent-gsmmap-scrn` command.

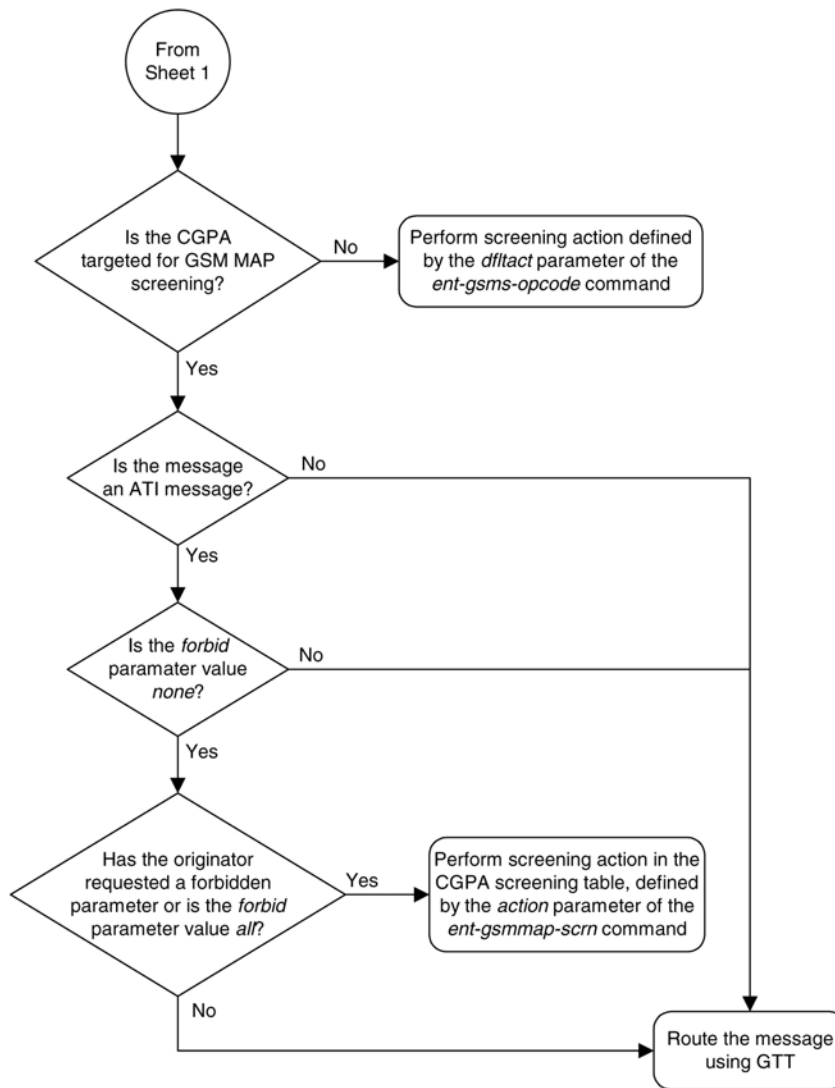
If the CDPA of the message is not targeted for screening, GSM MAP screening checks to see if the ATI request contains the forbidden parameter value provisioned for the CGPA. If there is no forbidden parameter in the ATI request, the message is not an ATI request, or the provisioned forbidden parameter value for the CGPA is `none`, the message is routed to the destination. If the message is an ATI request and contains the forbidden parameter value provisioned for the CGPA, or the provisioned forbidden parameter value is `all`, GSM MAP screening performs the screening action defined in the CGPA screening table by the `action` parameter of the `ent-gsmmap-scrn` command.

If the CGPA of the message is targeted for screening and the Enhanced GSM MAP Screening feature is not enabled and off, GSM MAP Screening checks the CGPA (calling party address) of the message to know whether or not it is targeted for screening. If the CGPA of the message is targeted for screening, GSM MAP screening checks to see if the ATI request contains the forbidden parameter value provisioned for the CGPA. If there is no forbidden parameter in the ATI request, the message is not an ATI request, or the provisioned forbidden parameter value for the CGPA is `none`, the message is routed to the destination. If the message is an ATI request and contains the forbidden parameter value provisioned for the CGPA, or the provisioned forbidden parameter value is `all`, GSM MAP screening performs the screening action defined in the CGPA screening table by the `action` parameter of the `ent-gsmmap-scrn` command.

Figure 42: GSM MAP Screening Overview on page 270 shows overview of GSM MAP screening functionality.

Figure 42: GSM MAP Screening Overview





GSM MAP Screening Details

GSM MAP screening verifies the MAP message format and performs screening before the message is routed to the destination. The following database tables are used in performing GSM MAP screening:

- SSN table
- MAP operations code table
- STP option table
- MAP screening table

GSM MAP Screening is performed in the following stages.

1. The following fields from SCCP message are decoded:

- The SSN from the calling party address
- The SSN from the called party address
- The global title address from the calling party address
- The global title address from the called party address (only if the Enhanced GSM MAP Screening feature is enabled and turned on).

Note: If the MTP MAP Screening is enabled and turned on, the MSU (SCCP message types 9 - UDT, or 10 - UDTS only) is sent to GSM MAP Screening even if the MSU does not require GTT and is MTP routed.

2. GSM MAP Screening performs a lookup in the origination SSN table for an entry with the SSN of calling party address. If an entry is not found, GSM MAP screening is stopped and the message is routed to its destination using global title translation.
3. GSM MAP Screening performs a lookup in the destination SSN table for an entry with the SSN of called party address. If an entry is not found, GSM MAP screening is stopped and the message is routed to its destination using global title translation.
4. GSM MAP Screening checks to see if the CGPA and CDPA GTI values are supported in the EAGLE 5 ISS. The EAGLE 5 ISS supports only these GTI values: for an ANSI message - GTI value of 2; for an ITU message - GTI values of 2 or 4. If the CGPA and CDPA GTI values are supported, the GTA values are decoded. If the GTI values are not supported in the EAGLE 5 ISS, the GTA, NAI, and NP values for the CGPA or CDPA are set to asterisk (*). The asterisk (*) values for the GTA, NAI, and NP parameters allows the action of the provisioned wildcard entries for the CGPA/CDPA MAP screening tables to be performed, or the action for the OPCODE table to be performed (if no wildcard entries are provisioned for the CGPA or CDPA in the GSM MAP screening table).
5. The MAP operations code and parameters are extracted from the MAP message. If the TCAP Package Type of the message is ITU TC-BEGIN, GSM MAP Screening continues.

If the GMSTCAPCE SCCP option is set to on and the TCAP Package Type is either ITU TC-CONTINUE or ITU TC-END, GSM MAP Screening continues. In order for GSM MAP Screening to be performed on these messages, the messages must meet the following requirements:

- ITU TC-CONTINUE messages must have an Invoke component type.
- ITU TC-END messages must have a Return-Result (Test) type.

If the TCAP Package Type of the message is not ITU TC-BEGIN, GSM MAP Screening is stopped and the message is routed to its destination using global title translation, as if the message passed GSM MAP screening.

If the GMSTCAPCE SCCP option is set to on, and the TCAP Package Type of the message is not ITU TC-CONTINUE or ITU TC-END, GSM MAP Screening is stopped and the message is routed to its destination using global title translation, as if the message passed GSM MAP screening.

If the TCAP portion is not in a valid format, the action defined by the GSM MAP screening decode error action from the STP option table (pass or discard) is performed and a UIM is generated indicating that an Invalid TCAP message received.

6. GSM MAP Screening performs a lookup in the MAP screening table for an entry with the MAP operations code of the MAP message. If an entry is not found, the default action from the STP option table is performed. If the default action parameter value is `pass`, the message is routed to its destination. If the default action parameter value is `discard`, the message is discarded.

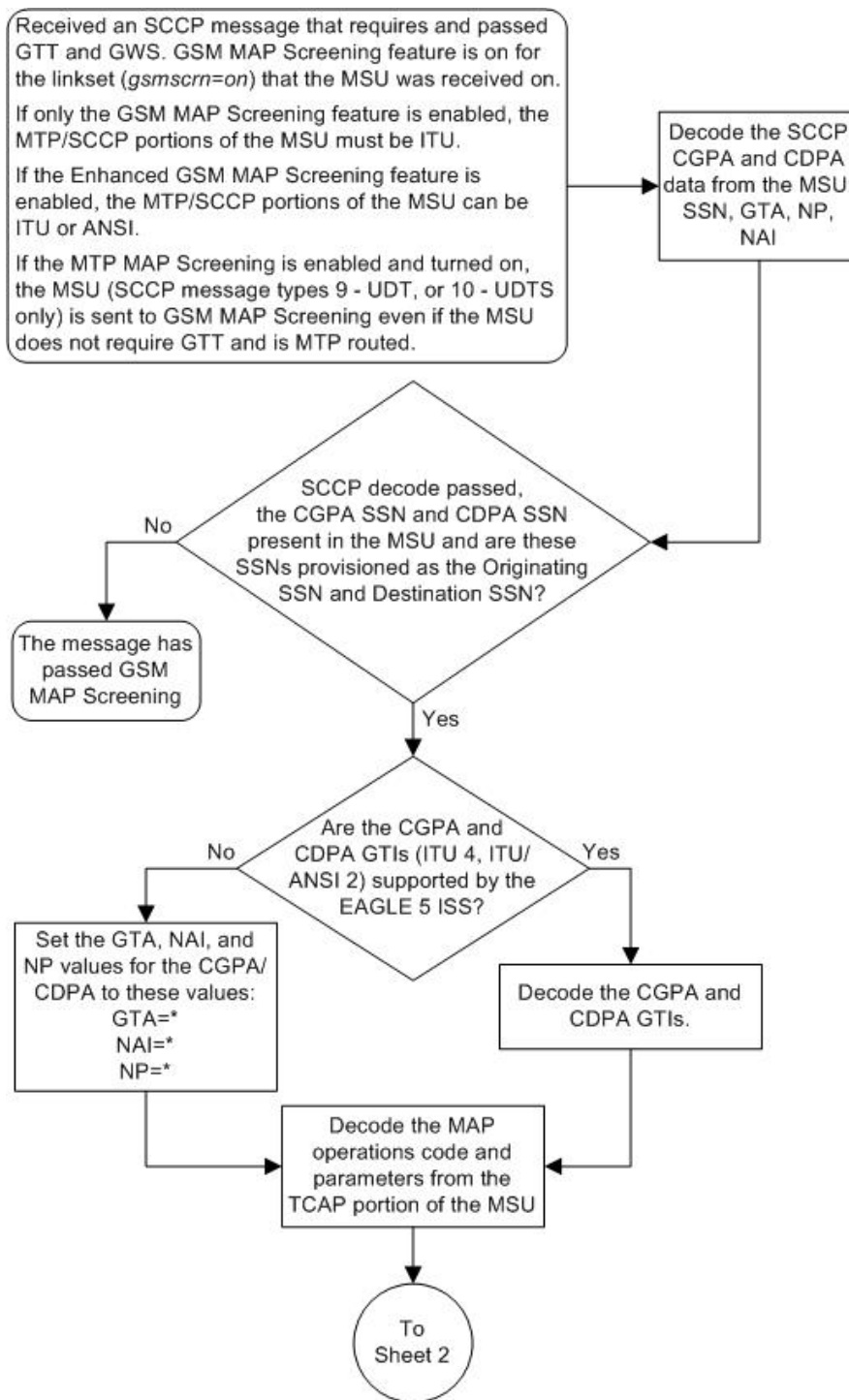
7. GSM MAP Screening performs a lookup in the GSM MAP screening table for an entry containing the global title address of the calling party address. If an entry is not found in the GSM MAP screening table, the screening action defined in the GSM MAP operations code table by the `df1tact` parameter of the `ent-gsms-opcode` command is performed.
8. If the Enhanced GSM MAP Screening feature is enabled and turned on, GSM MAP Screening performs a lookup for an entry for the called party address in the GSM MAP screening table.
9. If an entry is found in the MAP screening table, the forbidden parameter from the GSM MAP screening table is checked. If the forbidden parameter value is `none`, the message is routed to its destination. If the forbidden parameter value is `all`, the screening action defined in the GSM MAP screening table by the `action` parameter of the `ent-gsmmap-scrn` command is performed. For any other forbidden parameter, the parameter list of the message is examined. If the message is an ATI request and the forbidden parameter is found in the parameter list, then the screening action defined in the GSM MAP screening table by the `action` parameter of the `ent-gsmmap-scrn` command is performed.

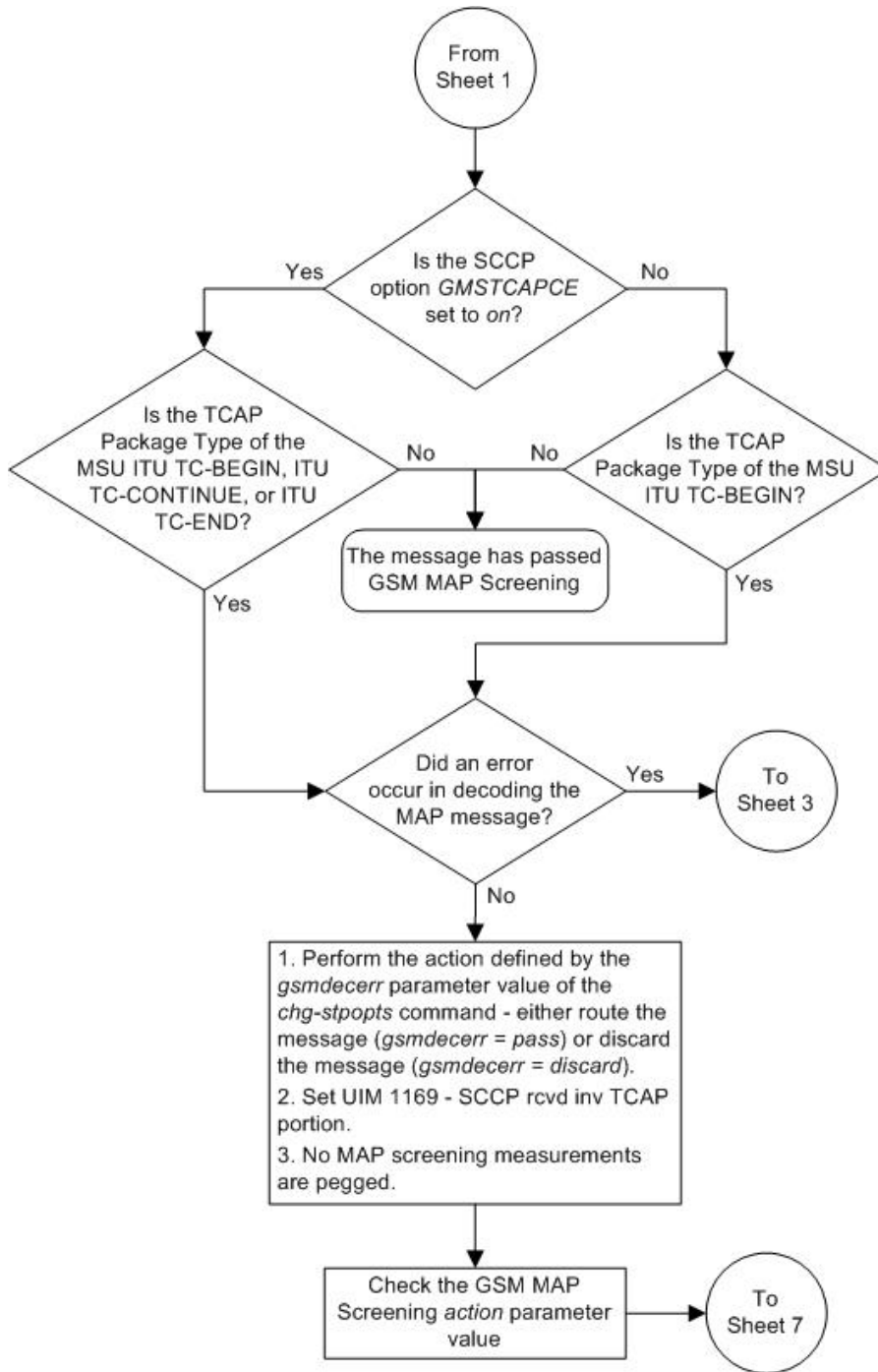
The screening actions defined by the `df1tact` parameter of the `ent-gsms-opcode` command and the `action` parameter of the `ent-gsmmap-scrn` command are:

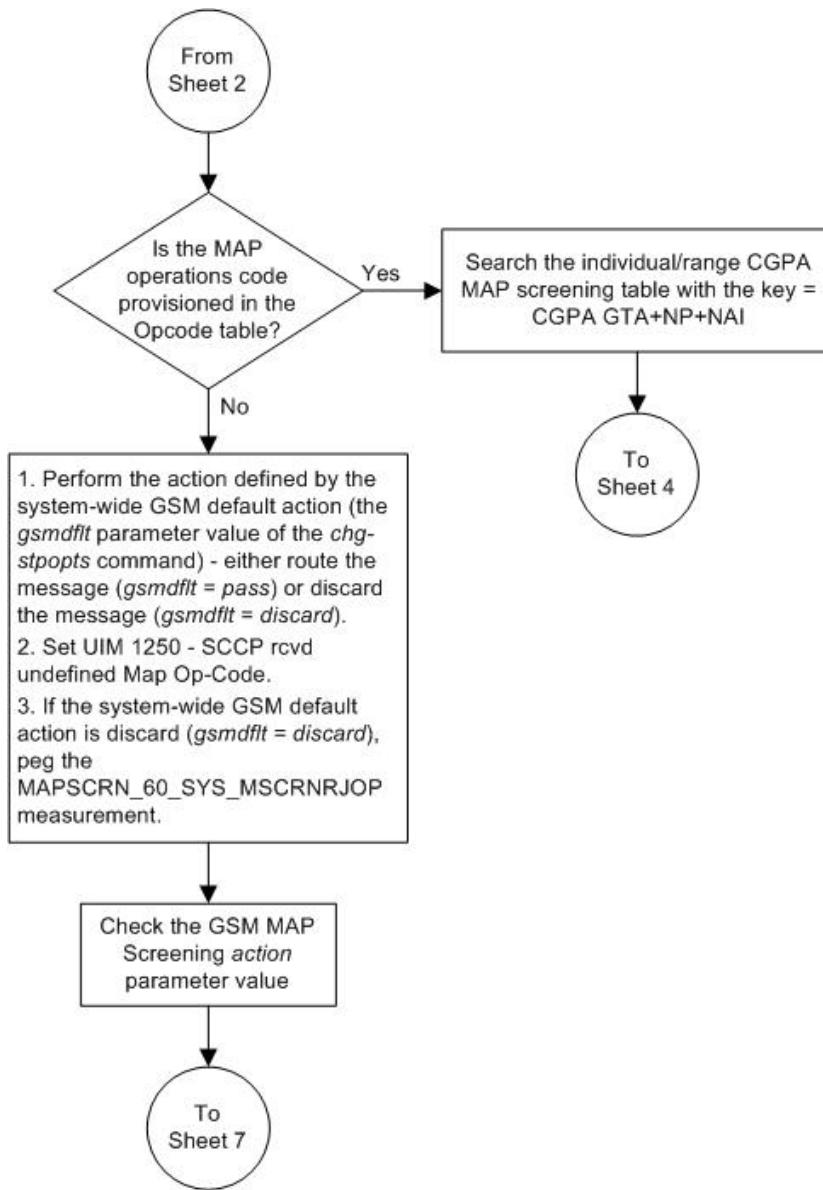
- **DISCARD** – do not route the MSU. The MSU is discarded (thrown away) and the appropriate UIM is issued. This is the default action value.
- **PASS** – route the message as normal to the destination and the appropriate UIM is issued.
- **ATIERR** – do not route the MSU and send a rejection message back to the originator.
- **ROUTE** – route the message as normal to the original destination node, defined by global title translation.
- **FORWARD** – route the original message to the forward node. The original message is not sent to the original node. If, however, the forwarded node is not available for routing then the MSU is routed to the original node, defined by global title translation.
- **DUPLICATE** – route the message as normal to the original destination, defined by global title translation, and route a copy of the original message to the duplicate node. If the MSU fails to route to the duplicate node, then a UIM is generated indicating the duplicate routing failure.
- **DUPLICATE AND DISCARD** – route the original message to the duplicate node. The original message is not sent to the original node. If, however, the duplicate node is not available for routing then the MSU is discarded.

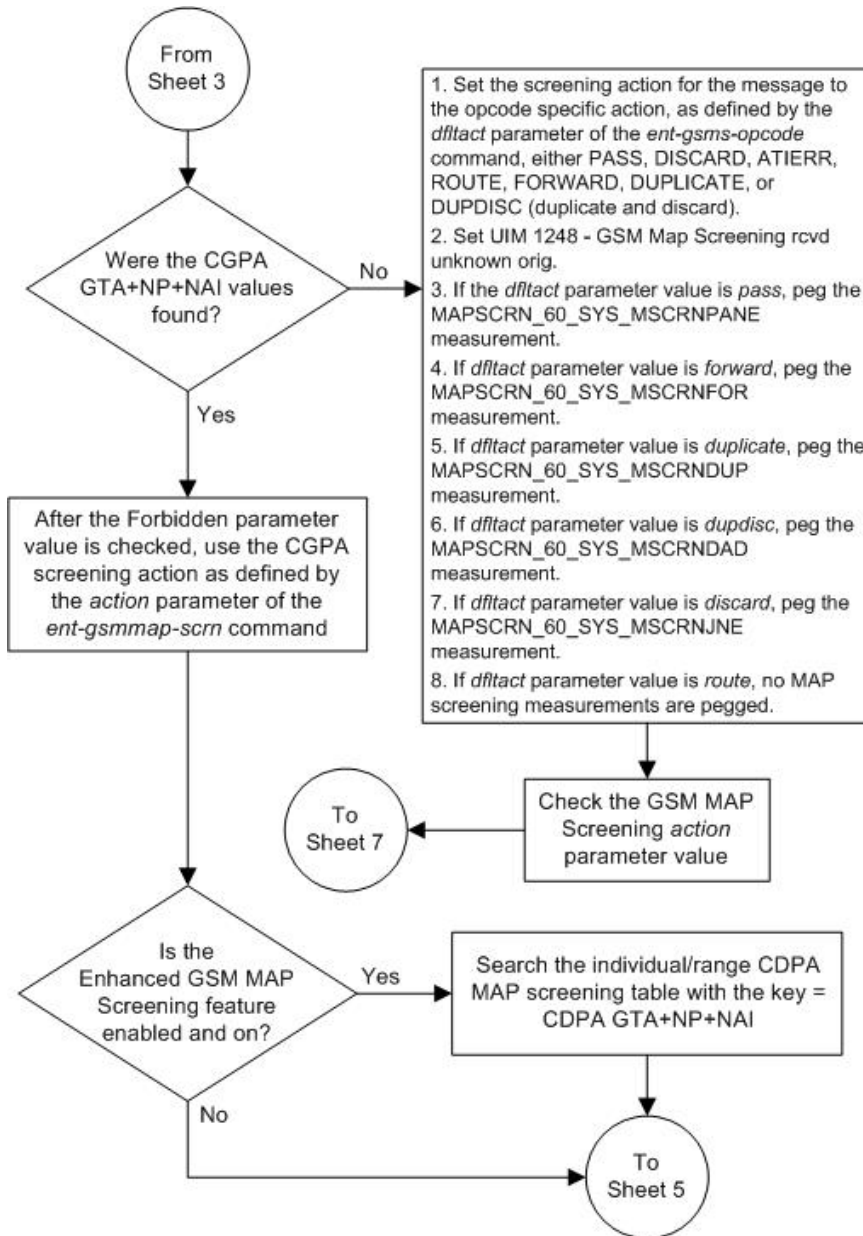
Figure 43: GSM MAP Screening Details on page 273 shows how GSM MAP screening is performed.

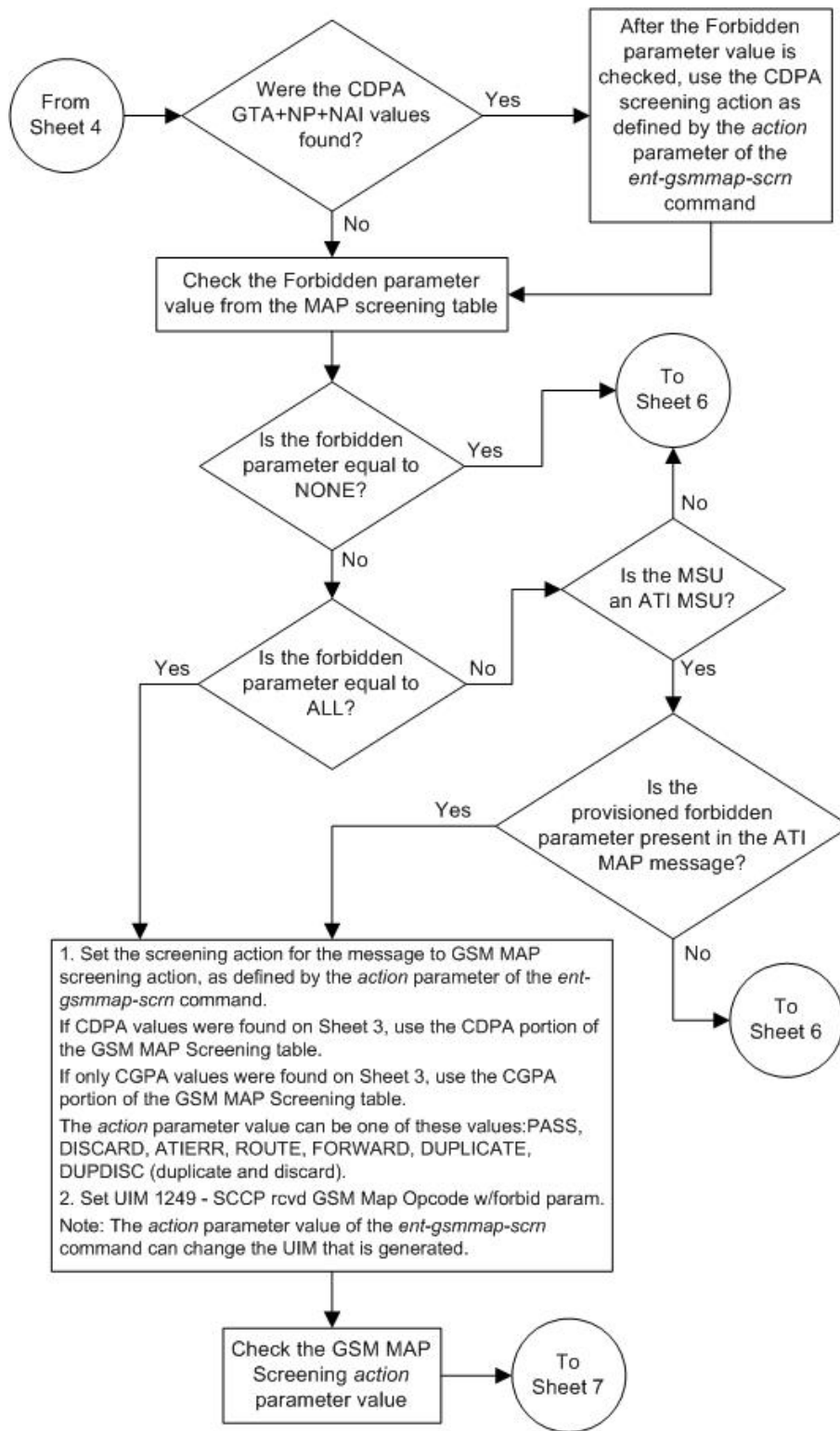
Figure 43: GSM MAP Screening Details

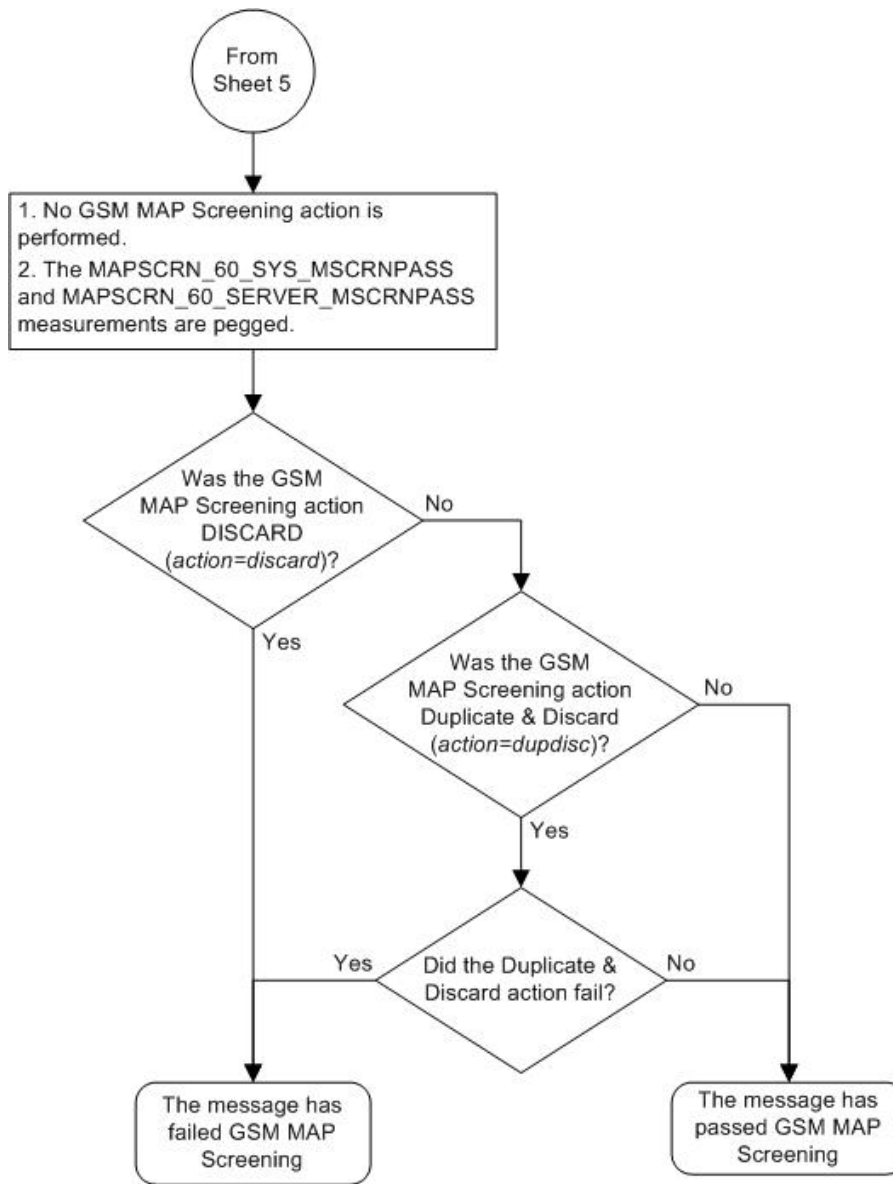


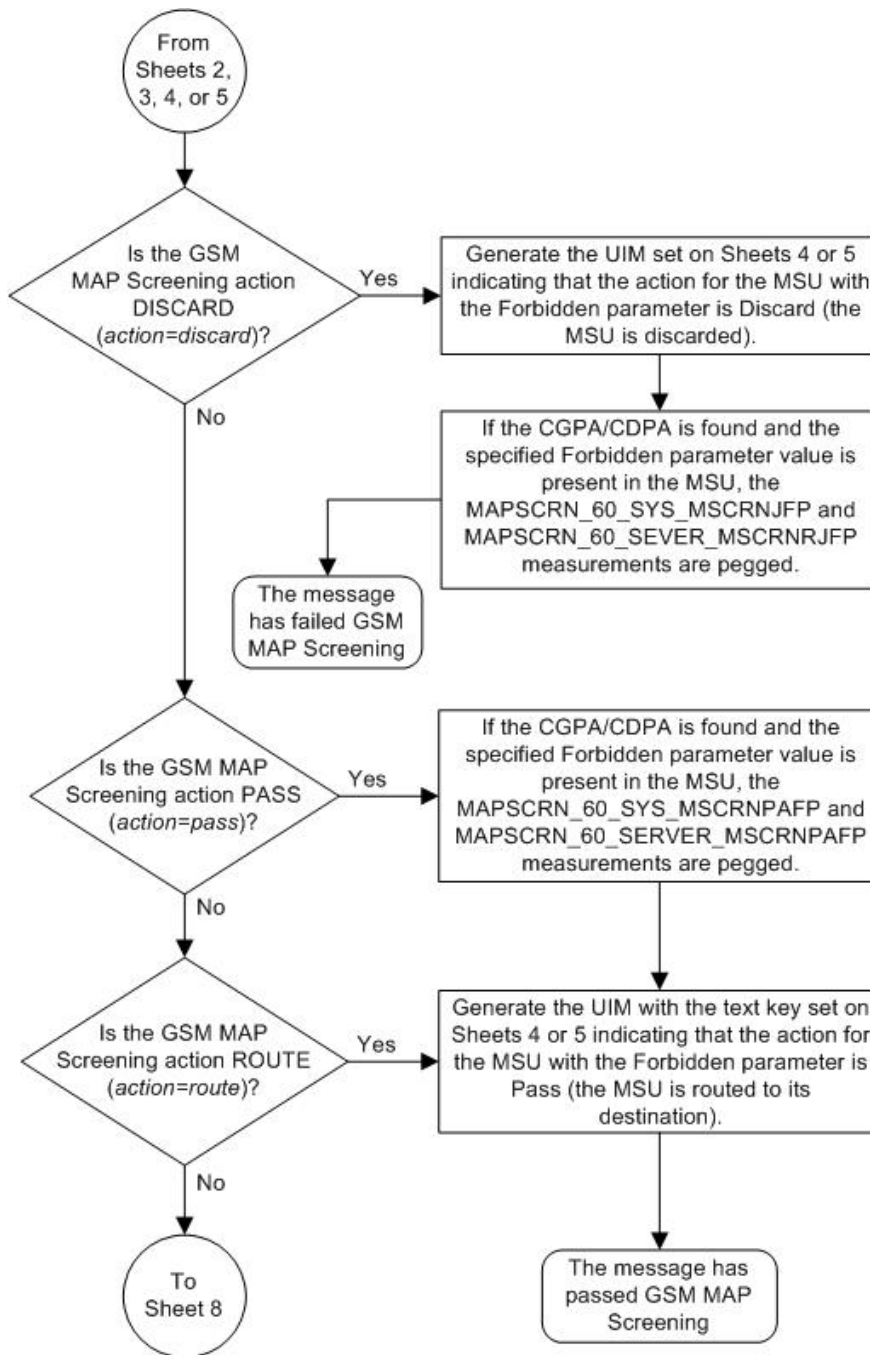


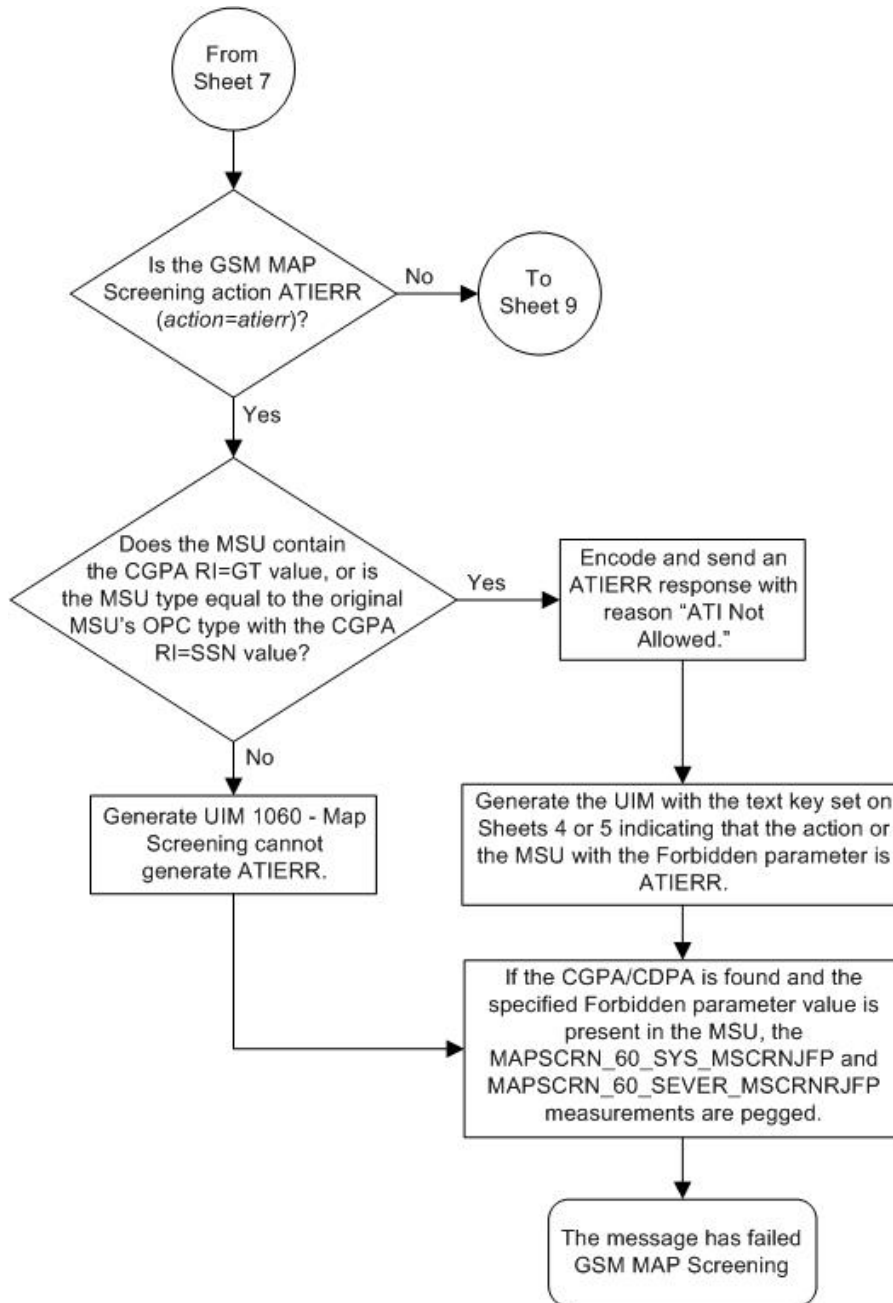


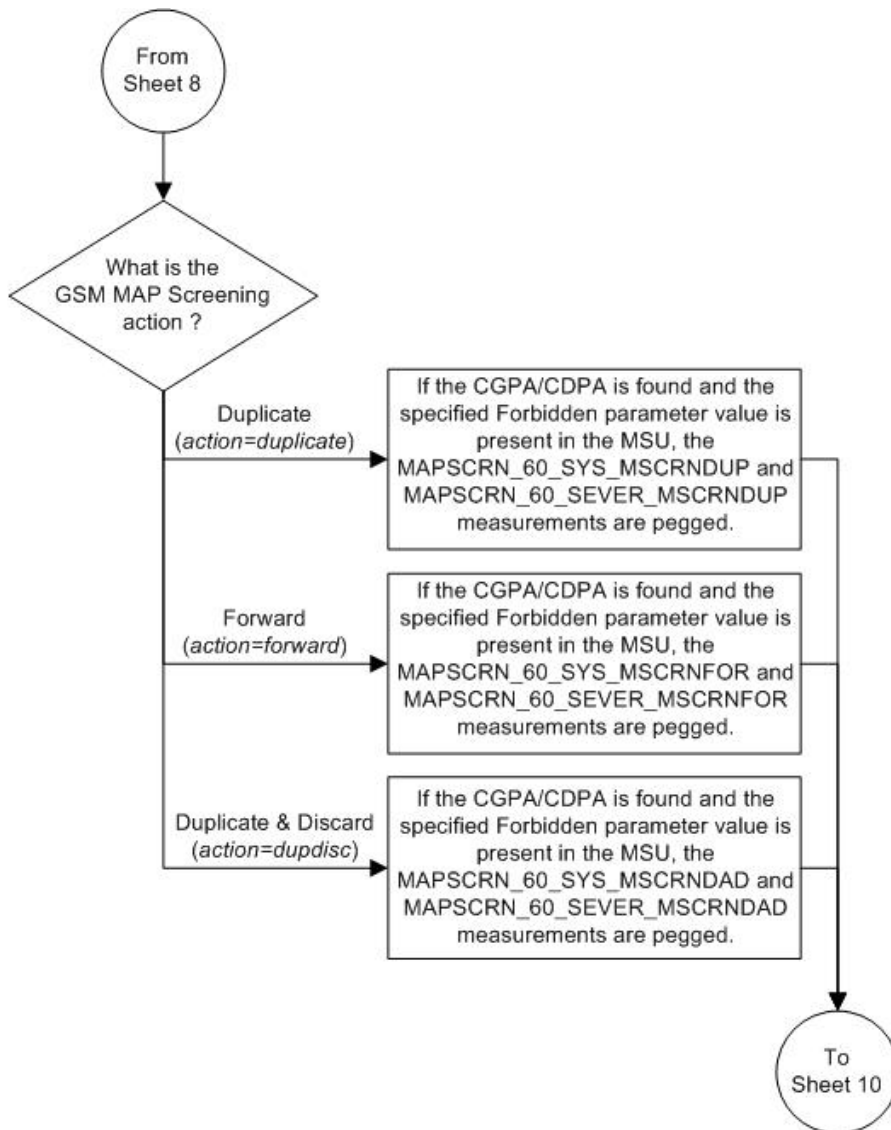


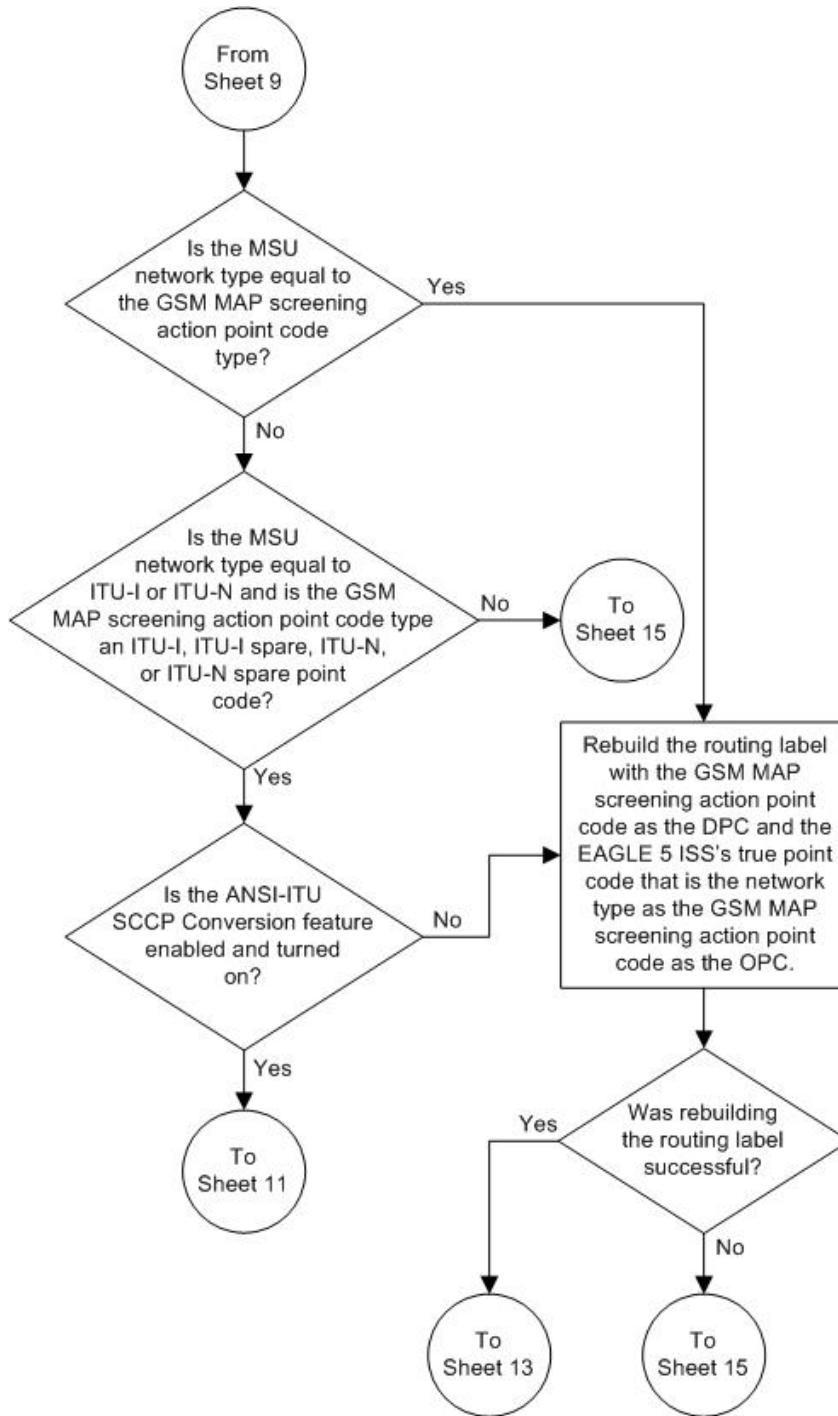


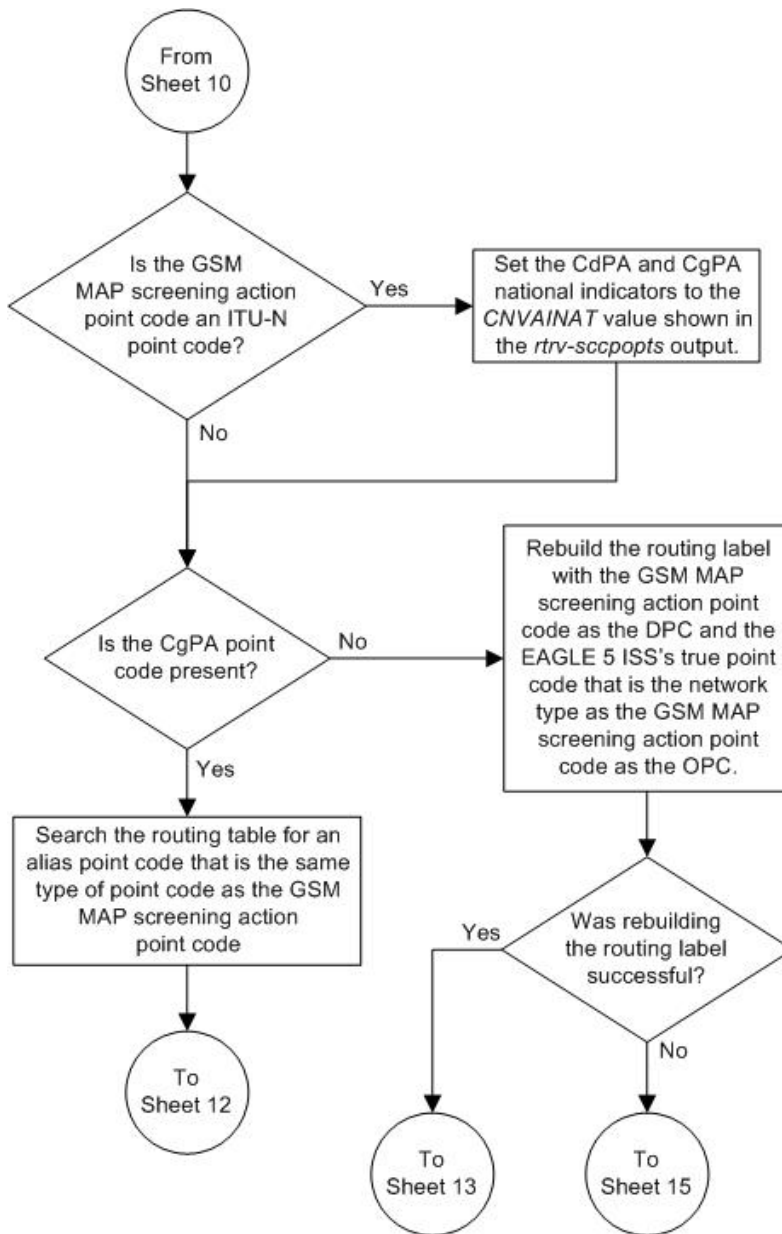


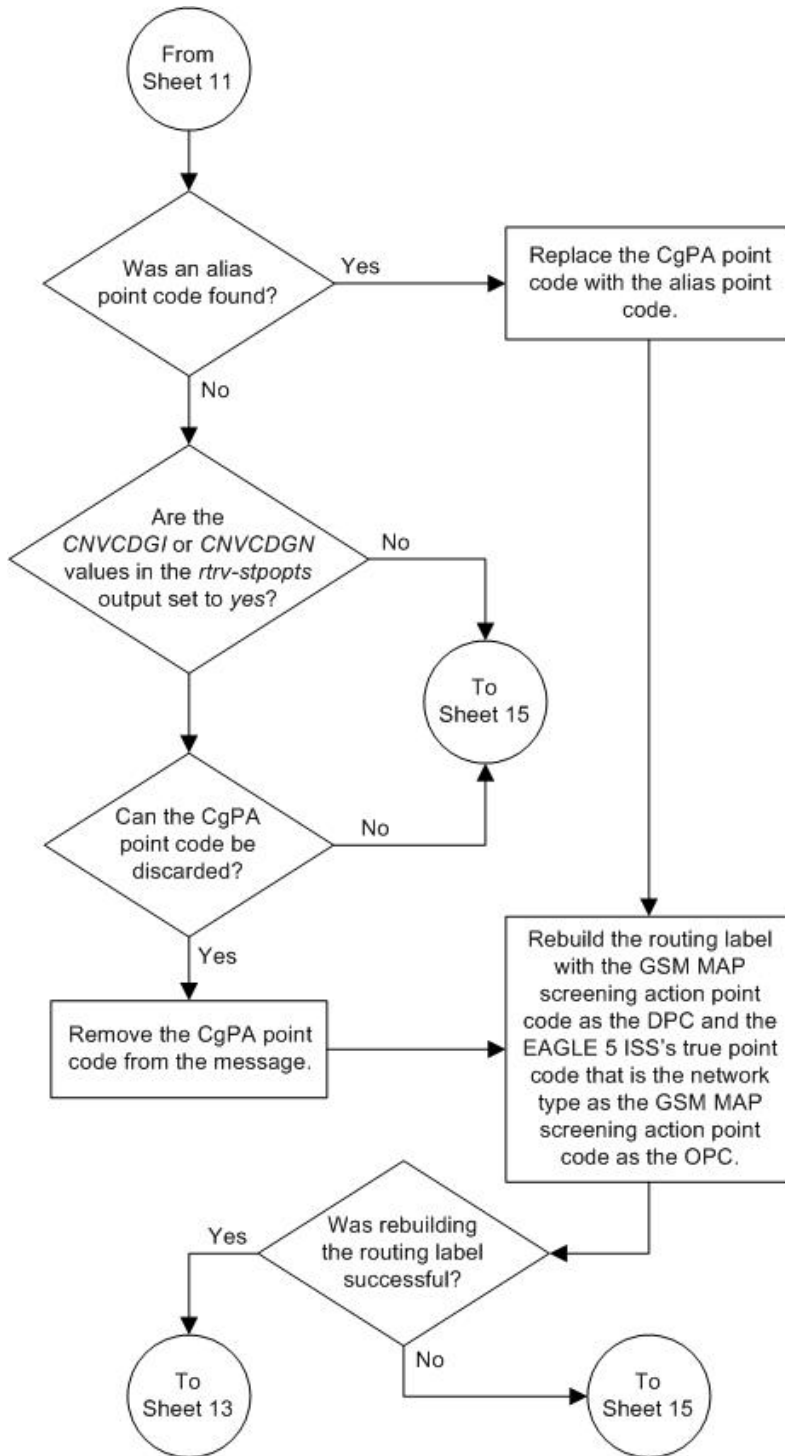


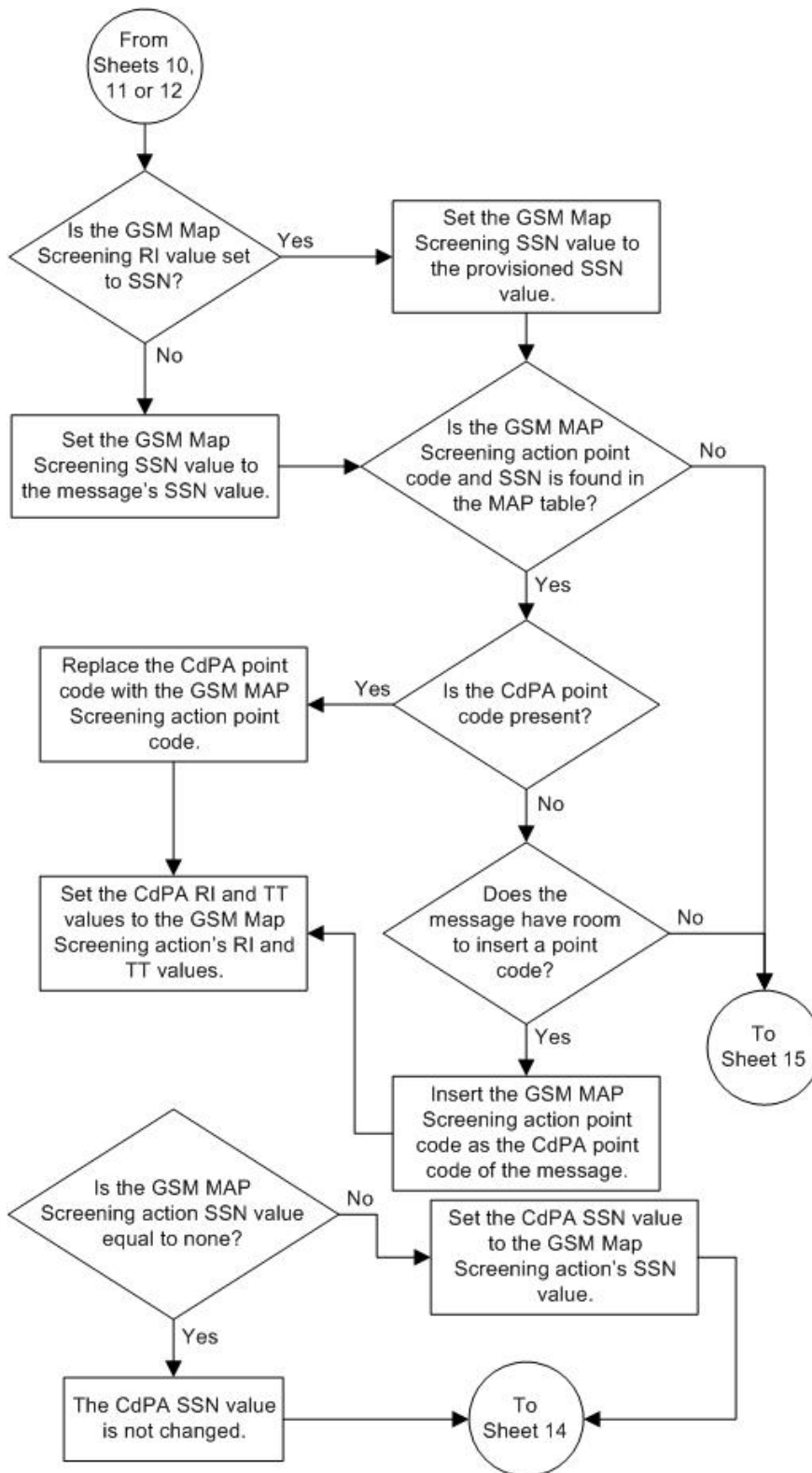


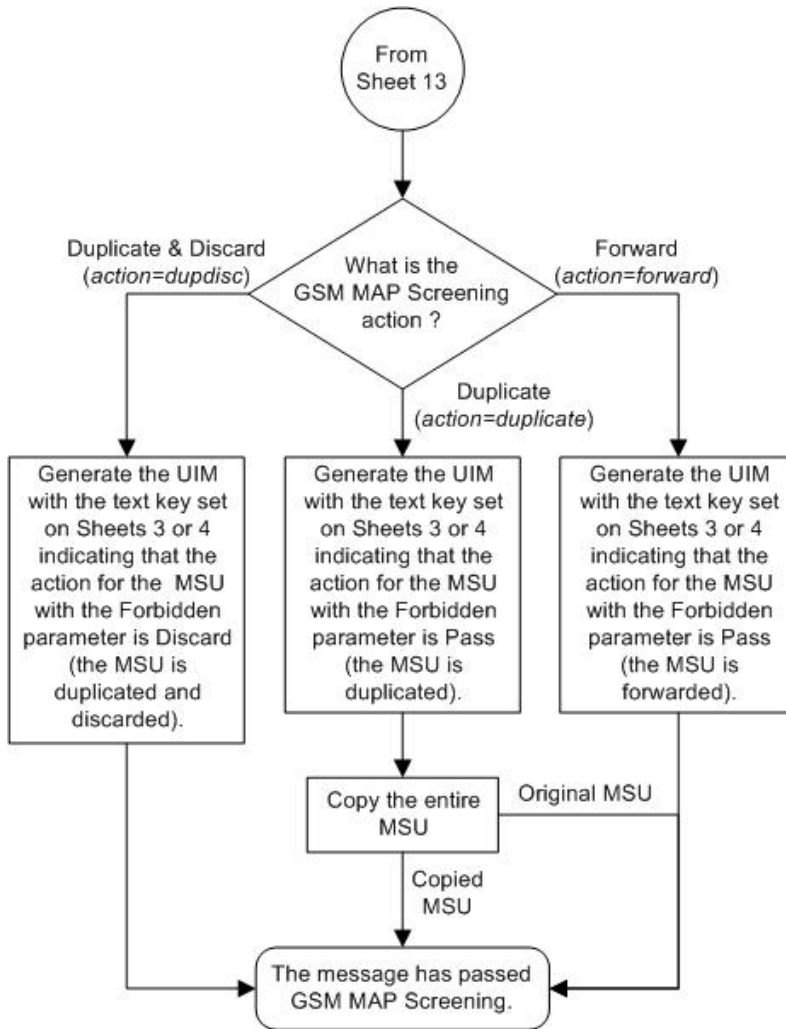


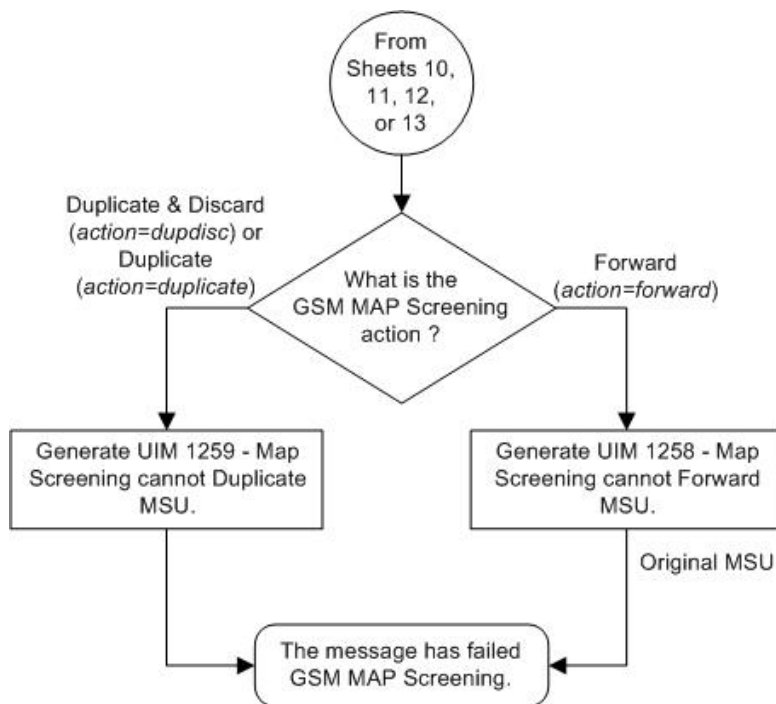












GSM MAP Screening Example

Table 21: Example GSM MAP Screening Table on page 288 shows an example of the GSM MAP screening table.

Table 21: Example GSM MAP Screening Table

Authorized Origination Point (E.164 address)	Numbering Plan	Nature of Address Indicator	MAP Operations Code	Forbidden Parameters	Screening Action
6611273888	1	4	ATI_Request	All	Discard
6611273444	1	4	SRI_for_SM	All	Discard
6611273444	1	4	ATI_Request	Subscriber state	ATI-error
5431111888	1	4	FW_SM	None	----
5431111777	1	4	ATI_Request	All	Pass

In this example,

- Any ATI_Request message from 6611273888 containing the numbering plan value of 1 and nature of address indicator value of 4 would be discarded.
- Any SRI_for_SM from 6611273444 containing the numbering plan value of 1 and nature of address indicator value of 4 would be discarded.
- An ATI_Request message from 6611273444 containing the numbering plan value of 1 and nature of address indicator value of 4 requesting the Location only would be routed. An ATI_Request message from 6611273444 requesting both the Location and Subscriber state would result in an ATI-error message being sent back to the originator. An ATI_Request message from 6611273444 requesting the Subscriber state only would result in an ATI-error message being sent back to the originator.
- A FW_SM message from 5431111888 containing the numbering plan value of 1 and nature of address indicator value of 4 would be routed successfully, because no parameters are forbidden.
- Any ATI_Request from 5431111777 containing the numbering plan value of 1 and nature of address indicator value of 4 would be routed successfully because of the “Pass” screening action. This could be used for testing purposes prior to screening.

[Table 22: System-Wide Screening Table](#) on page 289 shows an example of the system-wide screening table. It specifies the action to be taken in the event that a MAP operations code was defined for MAP screening, but no specific entry was found in the MAP screening table.

Table 22: System-Wide Screening Table

MAP Operations Code	Operations Code Specific Screening Action
ATI	ATI-error
SRI_for_SM	Discard

GSM MAP Screening Procedures

The following procedures describe the steps needed to add, remove, or change GSM MAP Screening data in the database.

The items administered in this section are:

- Linkset with GSM MAP Screening enabled
- STP options for GSM MAP Screening
- GSM SSN
- GSM Opcodes
- GSM MAP Screening entries
- An option to enable or disable the processing of GSM MAP Screening TCAP Continue and TCAP End messages.

The procedures shown in this chapter use a variety of commands. For more information on these commands, refer to the *Commands Manual*.

Figure 44: GSM MAP Screening Database Relationships on page 291 shows the relationships of the database elements that are configured in these procedures.

The following is a brief description of the GSM MAP Screening entities. These entities must be configured in the order that they are shown.

1. The Global Title Translation (GTT) feature must be turned on with the `chg-feat` command using the `gtt=on` parameter. The global title translation feature must be on before the GSM MAP Screening feature can be enabled and turned on. Verify that the GTT feature is on using the `rtrv-feat` command.

Note: Once the Global Title Translation (GTT) feature is turned on with the `chg-feat` command, it cannot be turned off.

The GTT feature must be purchased before turning on the GTT feature. If you are not sure whether you have purchased the GTT feature, contact your Tekelec Sales Representative or Account Representative.

2. The GSM MAP Screening feature must be enabled with the `enable-ctrl-feat` command, and turned on with the `chg-ctrl-feat` command. Verify the status of the GSM MAP Screening feature with the `rtrv-ctrl-feat` command.

Note: Once the GSM MAP Screening feature is enabled and turned on, it cannot be disabled or turned off.

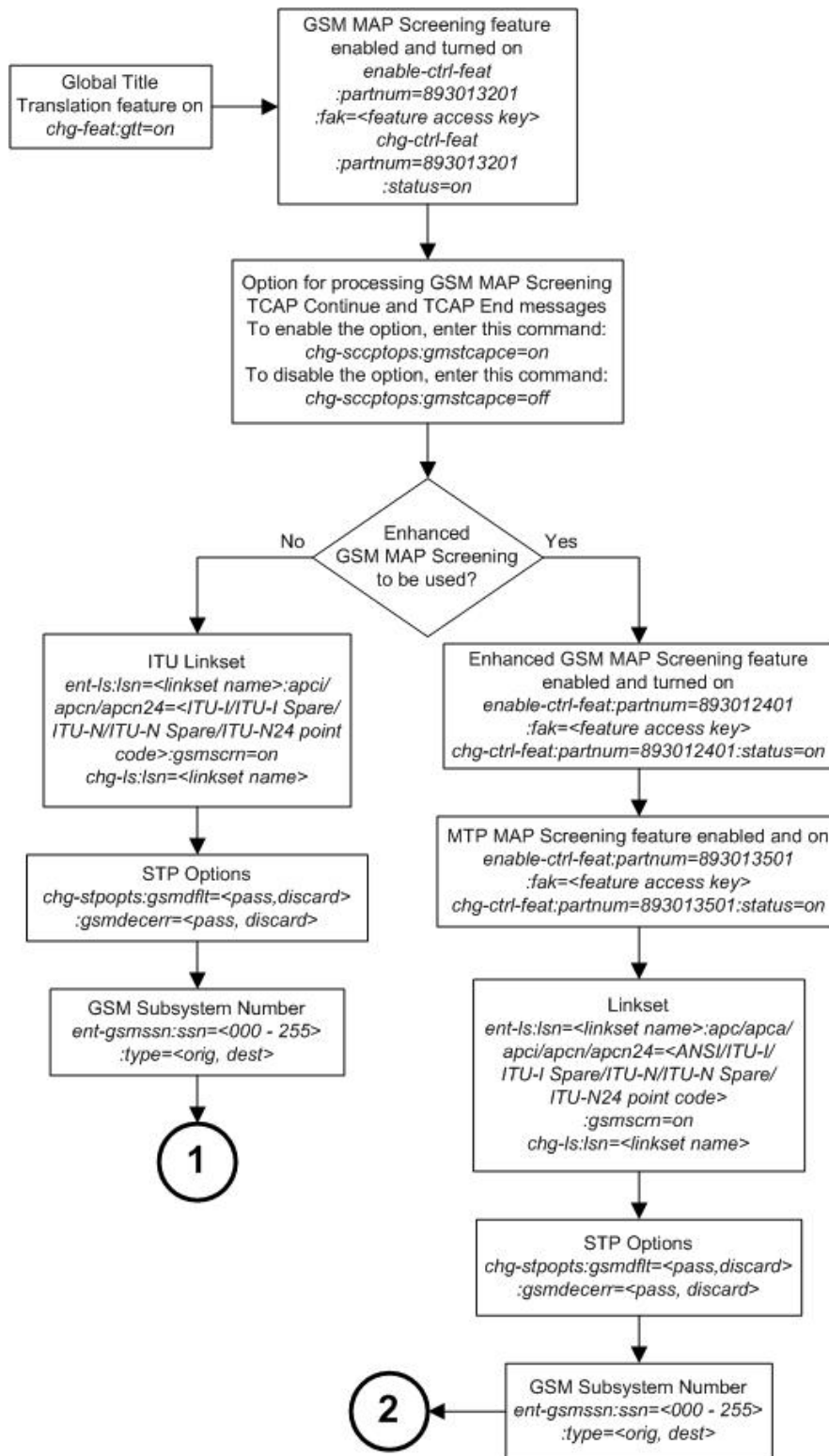
3. GSM MAP Screening can process TCAP Continue and TCAP End messages in addition to TCAP Begin messages by setting the SCCP option parameter `GMSTCAPCE` to `on` with the `chg-sccpopts` command. Setting the SCCP option parameter `GMSTCAPCE` to `off` disables the processing of the TCAP Continue and TCAP End messages. The current value of the `GMSTCAPCE` parameter is shown in the `rtrv-sccpopts` output. For more information on setting the SCCP option parameter `GMSTCAPCE`, see the *Changing the GSM MAP Screening TCAP Continue and End Message Processing Option* on page 428 procedure.
4. To use GSM MAP Screening on all types of linksets including ANSI linksets, or to provision CDPA entries in the GSM MAP Screening table, the Enhanced GSM MAP Screening feature must be enabled with the `enable-ctrl-feat` command, and turned on with the `chg-ctrl-feat` command. Verify the status of the Enhanced GSM MAP Screening features with the `rtrv-ctrl-feat` command.

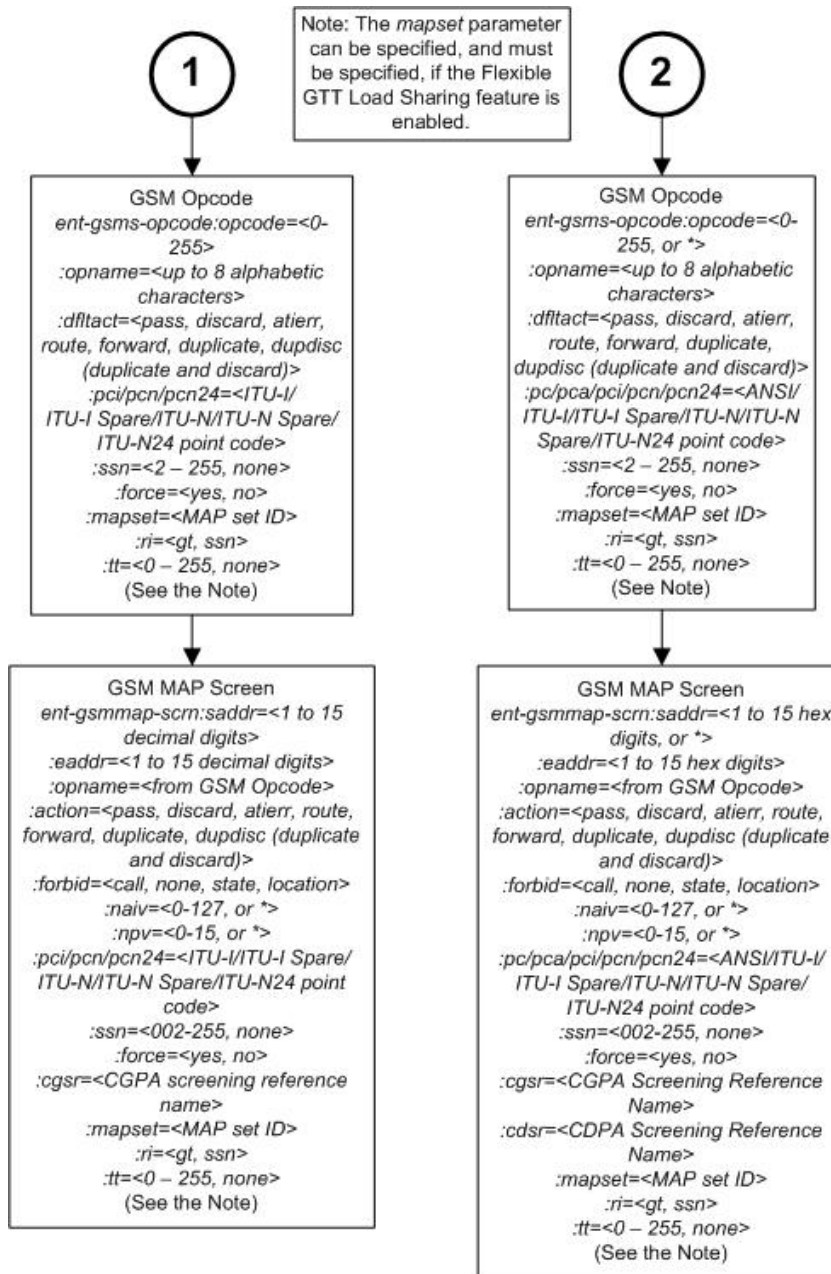
Note: Once the Enhanced GSM MAP Screening feature is enabled and turned on, it cannot be disabled or turned off.

5. MSUs that do not require global title translation and are MTP routed can be sent to GSM MAP Screening only if the MTP MAP Screening feature is enabled with the `enable-ctrl-feat` command, and turned on with the `chg-ctrl-feat` command. The Enhanced GSM MAP Screening feature must be enabled and turned on to enable and turn on the MTP MAP Screening feature.
6. Linksets containing the `gsmscrn=on` parameter must be in the database. The `gsmscrn=on` parameter allows the messages on these linksets to be screened by the GSM MAP Screening feature. Verify this with the `rtrv-ls` command. If the necessary linksets are not in the database, add them with the `ent-ls` command, specifying the `gsmscrn=on` parameter. If the necessary linksets are in the database, but do not contain the `gsmscrn=on` parameter, change these linksets with the `chg-ls` command, specifying the `gsmscrn=on` parameter. If the Enhanced GSM MAP screening feature is enabled and on, the adjacent point code of the linkset can be any type. If the Enhanced GSM MAP screening feature is not enabled and off, the adjacent point code of the linkset can be either an ITU international, ITU international spare, or 14 bit

- ITU national, 14-bit ITU national spare, or 24-bit ITU national point code. The EAGLE 5 ISS can contain either 14 bit or 24-bit ITU national point codes, but not both at the same time.
7. The GSM MAP screening options, `gsmdf1t` (GSM MAP screening default action) and `gsmdecerr` (GSM MAP screening decode error action), can be changed with the `chg-stpopts` command. The current values for these options can be verified with the `rtrv-stpopts` command. The `GSMDFLT` parameter allows the user to specify the default screening action (PASS or DISCARD) that occurs when a MAP operations code contained in the MSU is not found in the GSM MAP operations code table. The `gsmdecerr` parameter allows the user to specify the default screening action (PASS or DISCARD) that occurs when an error is detected in the TCAP layer of the MSU being screened. Such errors included an invalid value for a parameter, length error, missing data, and so on.
 8. The origination and destination subsystem numbers that are being screened using the GSM MAP screening feature need to be provisioned in the database. These subsystem numbers are shown in the `rtrv-gsmssn-scrn` command and provisioned using the `ent-gsmssn-scrn` command.
 9. The concerned GSM MAP screening operation codes and the default screening action for the operation code need to be provisioned in the database. These operation codes are shown in the `rtrv-gsms-opcode` command and provisioned using the `ent-gsms-opcode` command. The `ent-gsms-opcode` allows the user to provision a list of all operation codes that the EAGLE 5 ISS uses in performing GSM screening. If a point code and subsystem number is provisioned for the GSM MAP screening operation code, the point code and subsystem number must be shown in the `rtrv-map` output. If the flexible GTT Load Sharing feature is enabled, a MAP set containing the point code and subsystem number must be assigned to the GSM MAP screening operation code. For more information on provisioning GSM MAP screening operation codes, see the [Adding a GSM MAP Screening Operation Code](#) on page 329 procedure.
 10. The GSM MAP screening entries that filter or allow TCAP messages for certain MAP operation codes need to be provisioned in the database. The GSM MAP screening entries are shown in the `rtrv-gsmmap-scrn` command and provisioned using the `ent-gsmmap-scrn` command. The messages are filtered or allowed based on the origination addresses (`saddr/eaddr`), numbering plan value (`npv`), nature of address indicator value (`naiv`), MAP opnames (`opname`), and forbidden (`forbid`) parameters. If the Enhanced GSM MAP Screening feature is enabled and on, the CGPA and CDPA of the messages are checked by the GSM MAP Screening table. If the Enhanced GSM MAP Screening feature is not enabled and off, only the CGPA of the messages are checked by the GSM MAP Screening table. If a point code and subsystem number is provisioned for the GSM MAP screening entry, the point code and subsystem number must be shown in the `rtrv-map` output. If the Flexible GTT Load Sharing feature is enabled, a MAP set containing the point code and subsystem number must be assigned to the GSM MAP screening entry. For more information on provisioning GSM MAP screening operation entries, see the [Adding a GSM MAP Screening Entry](#) on page 365 procedure.

Figure 44: GSM MAP Screening Database Relationships





Activating the GSM MAP Screening Feature

The GSM MAP screening feature is activated by enabling the GSM MAP Screening feature with the `enable-ctrl-feat` command, then by turning the feature on with the `chg-ctrl-feat` command. The status of the GSM MAP Screening feature can be verified with the `rtrv-ctrl-feat` command. Before the GSM MAP Screening feature is activated, the global title translation feature must be on. This can be verified with the `rtrv-feat` command.

Note: Once the global title translation feature is turned on with the `chg-feat` command, it cannot be turned off.

The global title translation feature must be purchased before you turn the feature on with the `chg-feat` command. If you are not sure if you have purchased the global title translation feature, contact your Tekelec Sales Representative or Account Representative.

This procedure can also be used to enable and turn on the Enhanced GSM MAP Screening feature. The `enable-ctrl-feat` and `chg-ctrl-feat` commands are used to enable and turn on the Enhanced GSM MAP Screening feature. The GSM MAP Screening feature must be enabled and turned on before the Enhanced GSM MAP Screening feature is enabled and turned on.

The `enable-ctrl-feat` command enables the feature by inputting the feature's access key and the feature's part number with these parameters:

`: fak` – The feature access key supplied by Tekelec. The feature access key contains 13 alphanumeric characters and is not case sensitive.

`: partnum` – The Tekelec-issued part number of the GSM MAP Screening and Enhanced GSM MAP Screening features.

- The GSM MAP Screening feature, 893013201
- The Enhanced GSM MAP Screening feature, 893012401

The `enable-ctrl-feat` command requires that the database contain a valid serial number for the EAGLE 5 ISS, and that this serial number is locked. This can be verified with the `rtrv-serial-num` command. The EAGLE 5 ISS is shipped with a serial number in the database, but the serial number is not locked. The serial number can be changed, if necessary, and locked once the EAGLE 5 ISS is on-site, with the `ent-serial-num` command. The `ent-serial-num` command uses these parameters.

`: serial` – The serial number assigned to the EAGLE 5 ISS. The serial number is not case sensitive.

`: lock` – Specifies whether or not the serial number is locked. This parameter has only one value, `yes`, which locks the serial number. Once the serial number is locked, it cannot be changed.

Note: To enter and lock the EAGLE 5 ISS's serial number, the `ent-serial-num` command must be entered twice, once to add the correct serial number to the database with the `serial` parameter, then again with the `serial` and the `lock=yes` parameters to lock the serial number. You should verify that the serial number in the database is correct before locking the serial number. The serial number can be found on a label affixed to the control shelf (shelf 1100).

The GSM MAP Screening and Enhanced GSM MAP Screening features cannot be temporarily enabled (with the temporary feature access key).

Once these features have been enabled, the features must be activated with the `chg-ctrl-feat` command. The `chg-ctrl-feat` command uses these parameters:

`: partnum` – The Tekelec-issued part number of the GSM MAP Screening and Enhanced GSM MAP Screening features.

- The GSM MAP Screening feature, 893013201
- The Enhanced GSM MAP Screening feature, 893012401

`: status=on` – used to activate the features that customer has purchased and enabled.

Note: Once the GSM MAP Screening and Enhanced GSM MAP Screening features are turned on, they cannot be turned off.

The status of the features in the EAGLE 5 ISS is shown with the `rtrv-ctrl-feat` command.

The GSM MAP Screening feature requires that service modules are installed and provisioned in the EAGLE 5 ISS. The Enhanced GSM MAP Screening feature require that DSMs or E5-SM4G cards are installed and provisioned in the EAGLE 5 ISS. TSMs are shown by the entry TSM in the TYPE column of the `rtrv-card` output and SCCP in the APPL column of the `rtrv-card` output. DSMs and E5-SM4G cards are shown by the entry DSM in the TYPE column of the `rtrv-card` output and SCCP in the APPL column of the `rtrv-card` output.

If the Enhanced GSM MAP Screening feature is being enabled and turned on, any cards with the TSM card type running the SCCP application in the EAGLE 5 ISS must be replaced by DSMs or E5-SM4G cards. Contact the Customer Care Center before replacing any service modules. Refer to [Customer Care Center](#) on page 4 for the contact information.

1. Display the status of the controlled features by entering the `rtrv-ctrl-feat` command.

The following is an example of the possible output.

```
rlghncxa03w 06-10-28 21:15:37 GMT EAGLE5 36.0.0
The following features have been permanently enabled:

Feature Name           Partnum    Status   Quantity
Command Class Management 893005801 on       ----
LNP Short Message Service 893006601 on       ----
Intermed GTT Load Sharing 893006901 on       ----
XGTT Table Expansion     893006101 on       400000
XMAP Table Expansion     893007710 off      ----
Large System # Links     893005910 on       2000
Routesets                893006401 on       6000
HC-MIM SLK Capacity     893012707 on       64

The following features have been temporarily enabled:

Feature Name           Partnum    Status   Quantity   Trial Period Left
Zero entries found.

The following features have expired temporary keys:

Feature Name           Partnum
Zero entries found.
```

If the GSM MAP Screening feature (shown in the `rtrv-ctrl-feat` output as GSM Map Screening (GMS)) is enabled and on, no further action is necessary. This procedure does not need to be performed.

If you wish to use the Enhanced GSM MAP Screening feature, and the Enhanced GSM MAP Screening feature (shown in the `rtrv-ctrl-feat` output as Enhanced GMS (EGMS)) is enabled and on, no further action is necessary. This procedure does not need to be performed.

If the GSM MAP Screening feature is enabled and off, skip steps 2 through 7 and go to step 8.

If the Enhanced GSM MAP Screening feature is enabled and off, skip steps 2 through 10 and go to step 11.

2. Display the cards in the EAGLE 5 ISS using the `rtrv-card` command.

The GSM MAP Screening feature requires that service modules are in the database. The Enhanced GSM MAP Screening feature requires that DSMs or E5-SM4G cards are in the database. This is an example of the possible output.

```
rlghncxa03w 06-10-25 09:58:31 GMT EAGLE5 36.0.0
```

CARD	TYPE	APPL	LSET NAME	LINK	SLC	LSET NAME	LINK	SLC
1113	GPSM	EOAM						
1114	TDM-A							
1115	GPSM	EOAM						
1116	TDM-B							
1117	MDAL							
1201	LIMDS0	SS7ANSI	sp2	A	0	sp1	B	0
1203	LIMDS0	SS7ANSI	sp3	A	0			
1204	LIMDS0	SS7ANSI	sp3	A	1			
1206	LIMDS0	SS7ANSI	nsp3	A	1	nsp4	B	1
1207	LIMV35	SS7GX25	nsp1	A	0			
1208	LIMV35	SS7GX25	nsp1	A	1			
1216	ACMENET	STPLAN						
1308	LIMDS0	SS7ANSI	sp6	A	1	sp7	B	0
1314	LIMDS0	SS7ANSI	sp7	A	1	sp5	B	1
1317	ACMENET	STPLAN						

TSMs are shown by the entry TSM in the TYPE column and SCCP in the APPL column of the `rtrv-card` output. DSMs and E5-SM4G cards are shown by the entry DSM in the TYPE column and SCCP in the APPL column of the `rtrv-card` output. If the Enhanced GSM MAP Screening feature is being enabled and turned on, and the `rtrv-card` output shows TSM card types in the EAGLE 5 ISS, these cards must be replaced by DSMs or E5-SM4G cards. Contact the Customer Care Center before replacing any service modules. Refer to [Customer Care Center](#) on page 4 for the contact information.

If no service modules are shown in the `rtrv-card` output, perform the “Adding a Service Module” procedure in the *Database Administration Manual - Global Title Translation* and add the required service modules to the database.

If DSMs or E5-SM4G cards are in the EAGLE 5 ISS, go to step 3.

Note: If the `rtrv-ctrl-feat` output in step 1 shows any controlled features, skip steps 3 through 6, and go to step 7. If the `rtrv-ctrl-feat` output shows only the HC-MIMSLK Capacity feature with a quantity of 64, steps 3 through 6 must be performed.

3. Display the serial number in the database with the `rtrv-serial-num` command.

This is an example of the possible output.

```
rlghncxa03w 06-10-28 21:15:37 GMT EAGLE5 36.0.0
System serial number = nt00001231

System serial number is not locked.

rlghncxa03w 06-10-28 21:15:37 GMT EAGLE5 36.0.0
Command Completed
```

Note: If the serial number is correct and locked, skip steps 4, 5, and 6, and go to step 7. If the serial number is correct but not locked, skip steps 4 and 5, and go to step 6. If the serial number is not correct, but is locked, the GSMMAP Screening and Enhanced GSMMAP Screening features cannot be enabled and the remainder of this procedure cannot be performed. Contact the Customer Care Center to get an incorrect and locked serial number changed. Refer to [Customer Care Center](#) on page 4 for the contact information. The serial number can be found on a label affixed to the control shelf (shelf 1100).

4. Enter the correct serial number into the database using the `ent-serial-num` command with the `serial` parameter.

For this example, enter this command.


```
ent-serial-num:serial=<EAGLE 5 ISS's correct serial number>
```

When this command has successfully completed, the following message should appear.

```
rlghncxa03w 06-10-28 21:15:37 GMT EAGLE5 36.0.0  
ENT-SERIAL-NUM: MASP A - COMPLTD
```

5. Verify that the serial number entered into step 4 was entered correctly using the `rtrv-serial-num` command.

This is an example of the possible output.

```
rlghncxa03w 06-10-28 21:15:37 GMT EAGLE5 36.0.0  
System serial number = nt00001231  
  
System serial number is not locked.  
  
rlghncxa03w 06-10-28 21:15:37 GMT EAGLE5 36.0.0  
Command Completed
```

If the serial number was not entered correctly, repeat steps 4 and 5 and re-enter the correct serial number.

6. Lock the serial number in the database by entering the `ent-serial-num` command with the serial number shown in step 3, if the serial number shown in step 3 is correct, or with the serial number shown in step 5, if the serial number was changed in step 4, and with the `lock=yes` parameter.

For this example, enter this command.

```
ent-serial-num:serial=<EAGLE 5 ISS's serial number>:lock=yes
```

When this command has successfully completed, the following message should appear.

```
rlghncxa03w 06-10-28 21:15:37 GMT EAGLE5 36.0.0  
ENT-SERIAL-NUM: MASP A - COMPLTD
```

7. Enable the GSM MAP Screening feature with the `enable-ctrl-feat` command specifying the part number for the GSM MAP Screening feature and the feature access key.

Enter this command.

```
enable-ctrl-feat:partnum=893013201:fak=<GSM MAP Screening feature  
access key>
```

Note: A temporary feature access key cannot be specified to enable this feature.

Note: The values for the feature access key (the `fak` parameter) are provided by Tekelec. If you do not have the feature access key for the GSM MAP Screening feature, contact your Tekelec Sales Representative or Account Representative.

When the `enable-ctrl-feat` command has successfully completed, this message should appear.

```
rlghncxa03w 06-10-28 21:15:37 GMT EAGLE5 36.0.0  
ENABLE-CTRL-FEAT: MASP B - COMPLTD
```

8. Turn the GSM MAP Screening feature on with the `chg-ctrl-feat` command specifying the part number for the GSM MAP Screening feature and the `status=on` parameter.

Enter this command.

```
chg-ctrl-feat:partnum=893013201:status=on
```

Note: Once the GSM MAP Screening feature is turned on, it cannot be turned off.

When the `chg-ctrl-feat` command has successfully completed, this message should appear.

```
rlghncxa03w 06-10-28 21:15:37 GMT EAGLE5 36.0.0
CHG-CTRL-FEAT: MASP B - COMPLTD
```

9. Verify the changes by entering the `rtrv-ctrl-feat` command with the GSM MAP Screening feature part number.

Enter this command.

```
rtrv-ctrl-feat:partnum=893013201
```

The following is an example of the possible output.

```
rlghncxa03w 06-10-28 21:15:37 GMT EAGLE5 36.0.0
The following features have been permanently enabled:

Feature Name          Partnum    Status    Quantity
GSM Map Screening (GMS) 893013201  on       ----

The following features have been temporarily enabled:

Feature Name          Partnum    Status    Quantity    Trial Period Left
Zero entries found.

The following features have expired temporary keys:

Feature Name          Partnum
Zero entries found.
```

10. Enable the Enhanced GSM MAP Screening feature with the `enable-ctrl-feat` command specifying the part number for the Enhanced GSM MAP Screening feature and the feature access key.

Note: If you do not wish to enable and turn on the Enhanced GSM MAP Screening feature, skip steps 10, 11, and 12, and go to step 13.

Enter this command.`enable-ctrl-feat:partnum=893012401:fak=<Enhanced GSM MAP Screening feature access key>`

Note: A temporary feature access key cannot be specified to enable this feature.

Note: The values for the feature access key (the `fak` parameter) are provided by Tekelec. If you do not have the feature access key for the Enhanced GSM MAP Screening feature, contact your Tekelec Sales Representative or Account Representative.

When the `enable-ctrl-feat` command has successfully completed, this message should appear.

```
rlghncxa03w 06-10-28 21:15:37 GMT EAGLE5 36.0.0
ENABLE-CTRL-FEAT: MASP B - COMPLTD
```

11. Turn the Enhanced GSM MAP Screening feature on with the `chg-ctrl-feat` command specifying the part number for the Enhanced GSM MAP Screening feature and the `status=on` parameter.

Enter this command.

```
chg-ctrl-feat:partnum=893012401:status=on
```

Note: Once the Enhanced GSM MAP Screening feature is turned on, it cannot be turned off.

When the `chg-ctrl-feat` command has successfully completed, this message should appear.

```
rlghncxa03w 06-10-28 21:15:37 GMT EAGLE5 36.0.0
CHG-CTRL-FEAT: MASP B - COMPLTD
```

- Verify the changes by entering the `rtrv-ctrl-feat` command with the Enhanced GSM MAP Screening feature part number.

Enter this command.

```
rtrv-ctrl-feat:partnum=893012401
```

The following is an example of the possible output.

```
rlghncxa03w 06-10-28 21:15:37 GMT EAGLE5 36.0.0
The following features have been permanently enabled:

Feature Name          Partnum    Status    Quantity
Enhanced GMS (EGMS)  893012401  on       ----

The following features have been temporarily enabled:

Feature Name          Partnum    Status    Quantity    Trial Period Left
Zero entries found.

The following features have expired temporary keys:

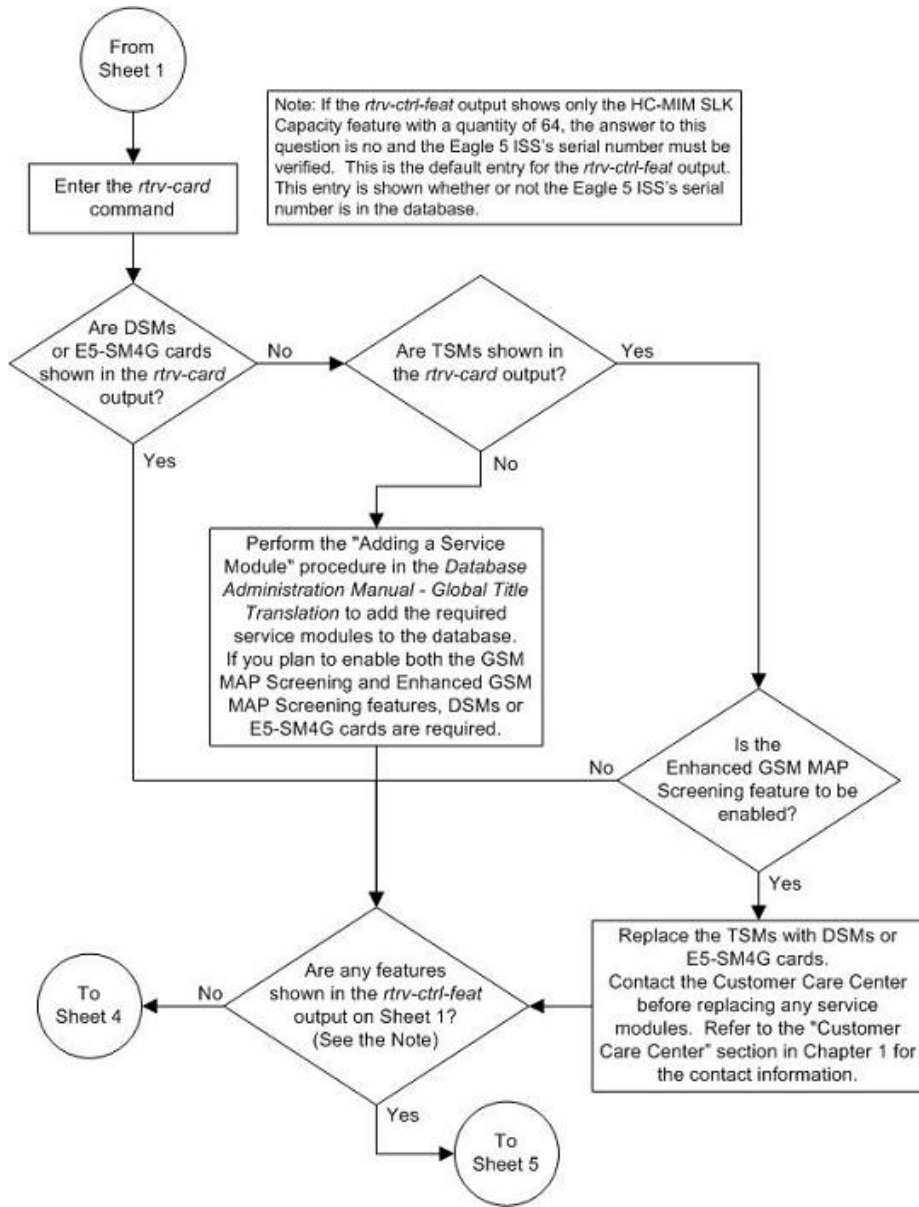
Feature Name          Partnum
Zero entries found.
```

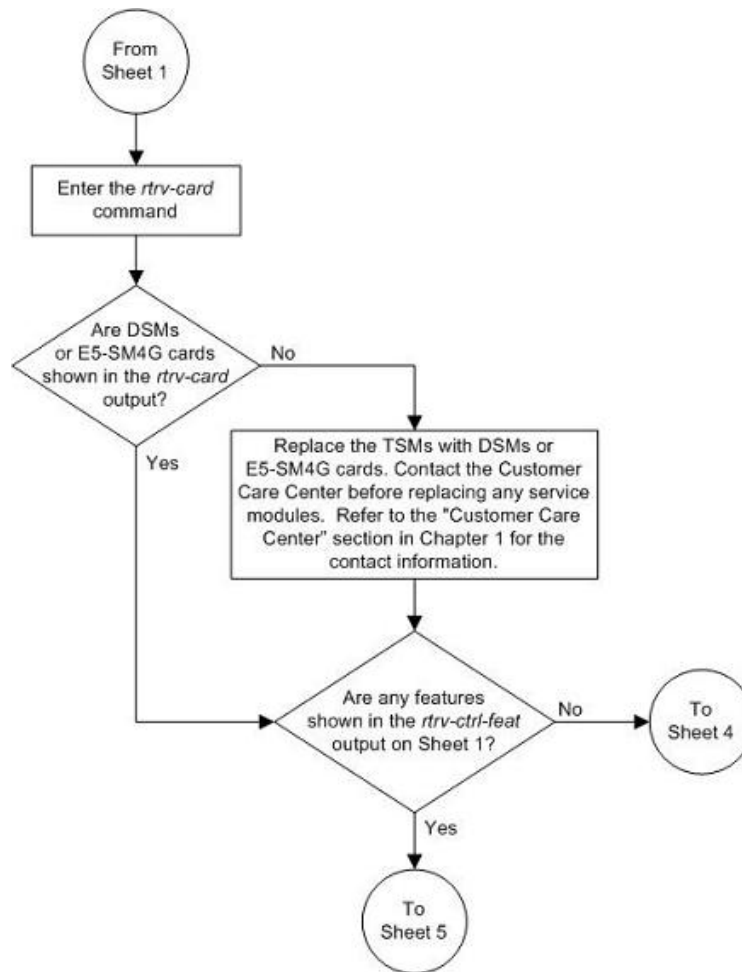
- Backup the new changes using the `chg-db:action=backup:dest=fixed` command.

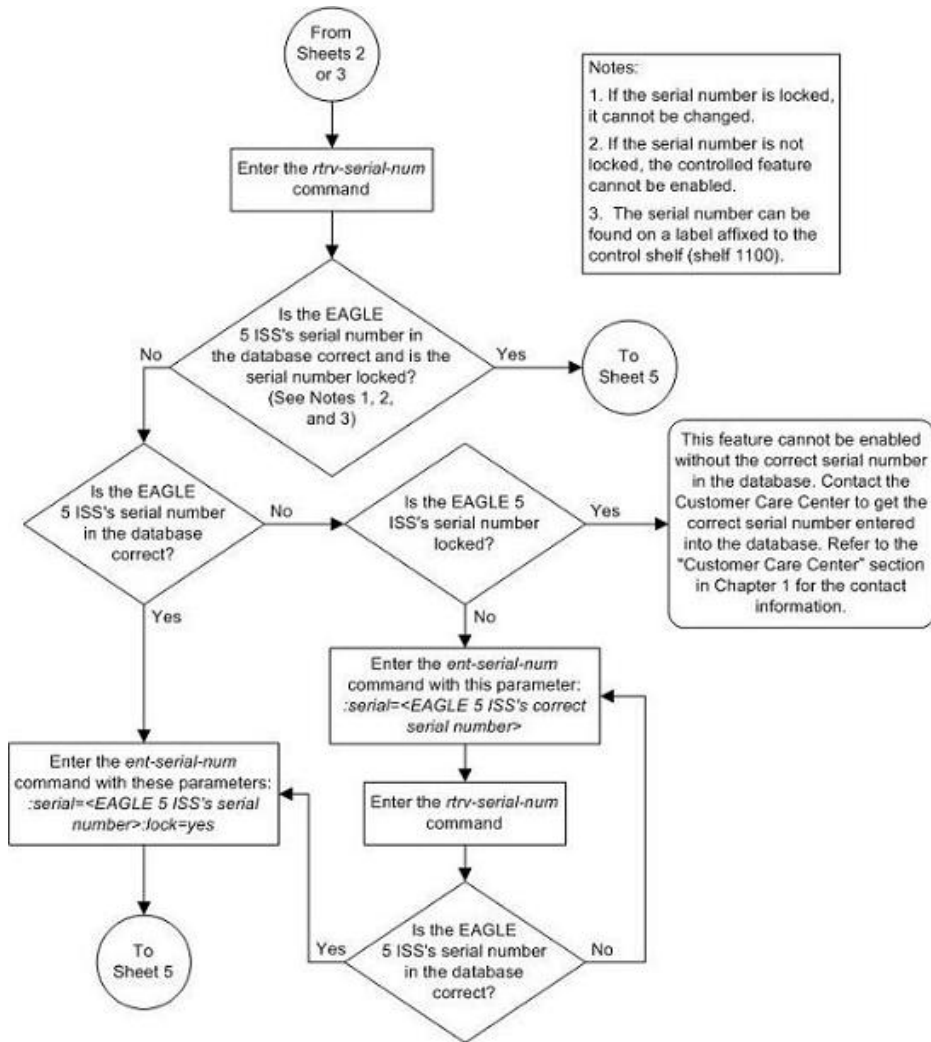
These messages should appear, the active Maintenance and Administration Subsystem Processor (MASP) appears first.

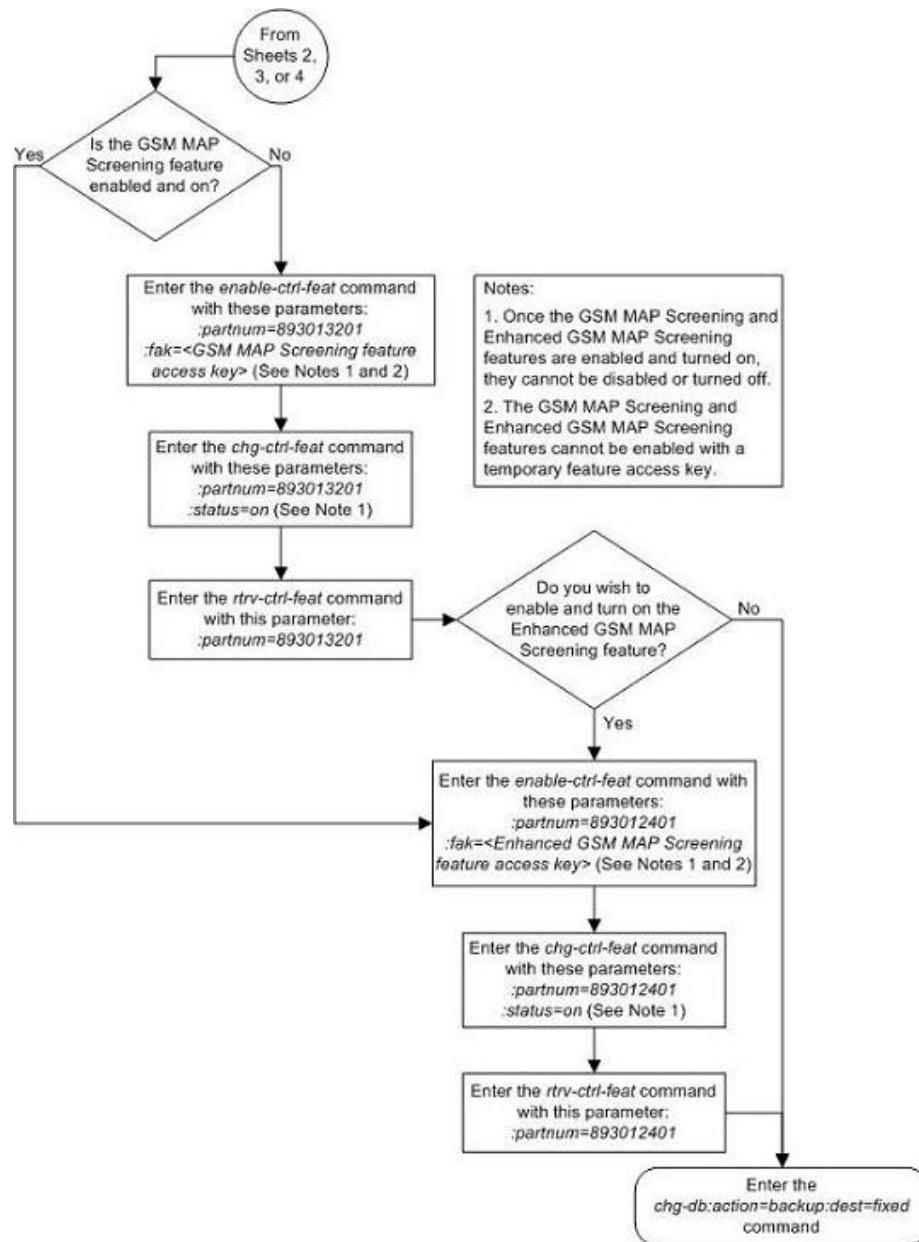
```
BACKUP (FIXED): MASP A - Backup starts on active MASP.
BACKUP (FIXED): MASP A - Backup on active MASP to fixed disk complete.
BACKUP (FIXED): MASP A - Backup starts on standby MASP.
BACKUP (FIXED): MASP A - Backup on standby MASP to fixed disk complete.
```

Figure 45: Activating the GSM MAP Screening Feature









Configuring the MTP MAP Screening Feature

The MTP MAP screening feature is enabled with the `enable-ctrl-feat` command. Once enabled, the feature can be turned on or off with the `chg-ctrl-feat` command. If the feature is already on, it can only be turned off. If the feature is off, it can only be turned on.

Before the MTP MAP Screening feature is enabled and turned on, the Enhanced GSM MAP Screening feature must be enabled and on. The Measurements Platform must also be enabled.

The status of the MTP MAP Screening and Enhanced GSM MAP Screening features can be verified with the `rtrv-ctrl-feat` command. The `rtrv-measopts` command shows whether the Measurements Platform is enabled or not.

The `enable-ctrl-feat` command enables the feature by inputting the feature's access key and the feature's part number with these parameters:

:fak – The feature access key supplied by Tekelec. The feature access key contains 13 alphanumeric characters and is not case sensitive.

:partnum – The Tekelec-issued part number of the MTP MAP Screening feature, 893013501

The MTP MAP Screening feature cannot be temporarily enabled (with a temporary feature access key).

The `chg-ctrl-feat` command uses these parameters:

:partnum – The Tekelec-issued part number of the MTP MAP Screening feature, 893013501.

:status=on – used to turn the MTP MAP Screening feature on.

:status=off – used to turn the MTP MAP Screening feature off.

Note: Turning the MTP MAP Screening feature on allows GSM MAP Screening to be performed on all SCCP messages, even if these messages do not require Global Title Translation and are MTP routed. The value of the GSMSCRN parameter of the linkset carrying these SCCP messages must be YES.

Note: Turning the MTP MAP Screening feature off allows GSM MAP Screening to be performed only on those SCCP messages, on linksets with the GSMSCRN=YES value, that have passed Global Title Translation and Gateway Screening.

1. Display the status of the controlled features by entering the `rtrv-ctrl-feat` command.

The following is an example of the possible output.

```
rlghncxa03w 06-10-28 21:15:37 GMT EAGLE5 36.0.0
The following features have been permanently enabled:

Feature Name           Partnum    Status    Quantity
Command Class Management 893005801  on       ----
LNP Short Message Service 893006601  on       ----
Intermed GTT Load Sharing 893006901  on       ----
XGTT Table Expansion    893006101  on       400000
XMAP Table Expansion     893007710  off      ----
Large System # Links     893005910  on       2000
Routesets                893006401  on       6000
HC-MIM SLK Capacity      893012707  on       64

The following features have been temporarily enabled:

Feature Name           Partnum    Status    Quantity    Trial Period Left
Zero entries found.

The following features have expired temporary keys:

Feature Name           Partnum
Zero entries found.
```

If the MTP MAP Screening feature (shown in the `rtrv-ctrl-feat` output as MTP Map Screening) is enabled and on, and you do not wish to turn the feature off, no further action is necessary. If you wish to turn this feature off, skip steps 2 through 4, and go to step 5.

If the MTP MAP Screening feature is enabled and off, skip steps 2 through 4 and go to step 5 to turn the feature on.

2. If the `rtrv-ctrl-feat` in step 1 shows that the Enhanced GSM MAP Screening feature is enabled and on, skip this step and go to step 3.

If the `rtrv-ctrl-feat` in step 1 shows that the Enhanced GSM MAP Screening feature is not enabled or off, perform the [Activating the GSM MAP Screening Feature](#) on page 293 to enable and turn on the Enhanced GSM MAP Screening feature.

3. Verify whether or not the Measurements Platform option is enabled (`PLATFORMENABLE = on`) using the `rtrv-measopts` command.

```
rlghncxa03w 06-10-01 16:02:05 GMT EAGLE5 36.0.0

PLATFORMENABLE = on
COLLECT15MIN   = off
CLLIBASEDNAME  = off
-----
SYSTOTSTP     = off
SYSTOTTT      = off
```

Note: The `rtrv-measopts` command output contains other fields that are not used by this procedure. If you wish to see all the fields displayed by the `rtrv-measopts` command, see the `rtrv-measopts` command description in the *Commands Manual*.

If the Measurements Platform is not enabled, perform the “Configuring the Measurements Platform Feature” procedure in the *Database Administration Manual - System Management* to enable the Measurements Platform.

4. Enable the MTP MAP Screening feature with the `enable-ctrl-feat` command specifying the part number for the MTP MAP Screening feature and the feature access key.

Enter this command.

```
enable-ctrl-feat:partnum=893013501:fak=<MTP MAP Screening feature
access key>
```

Note: A temporary feature access key cannot be specified to enable this feature.

Note: The values for the feature access key (the `fak` parameter) are provided by Tekelec. If you do not have the feature access key for the Enhanced GSM MAP Screening feature, contact your Tekelec Sales Representative or Account Representative.

When the `enable-ctrl-feat` command has successfully completed, this message should appear.

```
rlghncxa03w 06-10-28 21:15:37 GMT EAGLE5 36.0.0
ENABLE-CTRL-FEAT: MASP B - COMPLTD
```

5. Turn the MTP MAP Screening feature on or off with the `chg-ctrl-feat` command specifying the part number for the Enhanced GSM MAP Screening feature and either the `status=on` or `status=off` parameter.

To turn the MTP MAP Screening feature on, enter this command.

```
chg-ctrl-feat:partnum=893013501:status=on
```

To turn the MTP MAP Screening feature off, enter this command.

```
chg-ctrl-feat:partnum=893013501:status=off
```

When the `chg-ctrl-feat` command has successfully completed, this message should appear.

```
rlghncxa03w 06-10-28 21:15:37 GMT EAGLE5 36.0.0
CHG-CTRL-FEAT: MASP B - COMPLTD
```

- Verify the changes by entering the `rtrv-ctrl-feat` command with the MTP MAP Screening feature part number.

Enter this command.

```
rtrv-ctrl-feat:partnum=893013501
```

The following is an example of the possible output if the feature was turned on in step 5.

```
rlghncxa03w 06-10-28 21:15:37 GMT EAGLE5 36.0.0
The following features have been permanently enabled:

Feature Name          Partnum    Status    Quantity
MTP MAP Screening    893013501  on       ----

The following features have been temporarily enabled:

Feature Name          Partnum    Status    Quantity    Trial Period Left
Zero entries found.

The following features have expired temporary keys:

Feature Name          Partnum
Zero entries found.
```

The following is an example of the possible output if the feature was turned off in step 5.

```
rlghncxa03w 06-10-28 21:15:37 GMT EAGLE5 36.0.0
The following features have been permanently enabled:

Feature Name          Partnum    Status    Quantity
MTP MAP Screening    893013501  off       ----

The following features have been temporarily enabled:

Feature Name          Partnum    Status    Quantity    Trial Period Left
Zero entries found.

The following features have expired temporary keys:

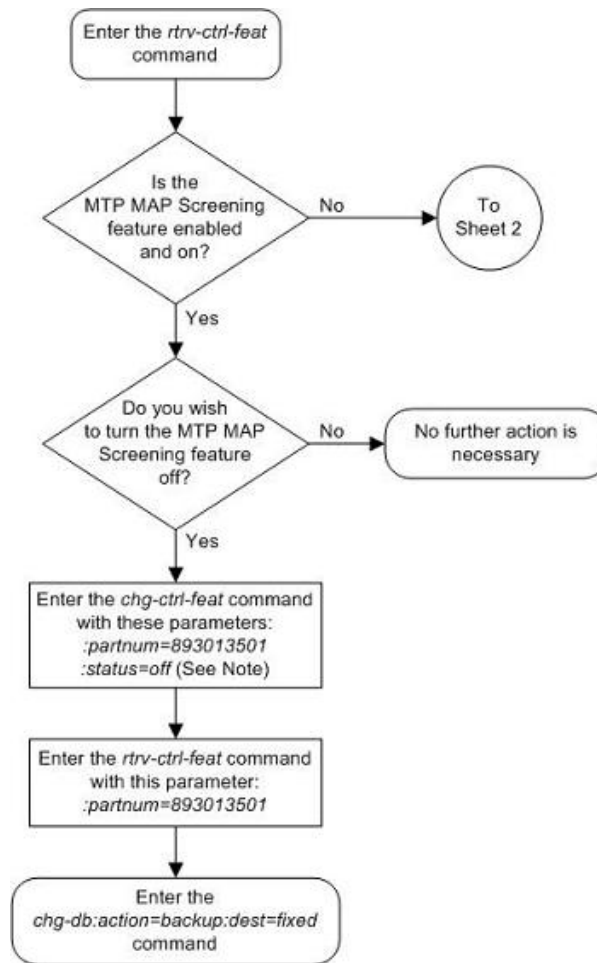
Feature Name          Partnum
Zero entries found.
```

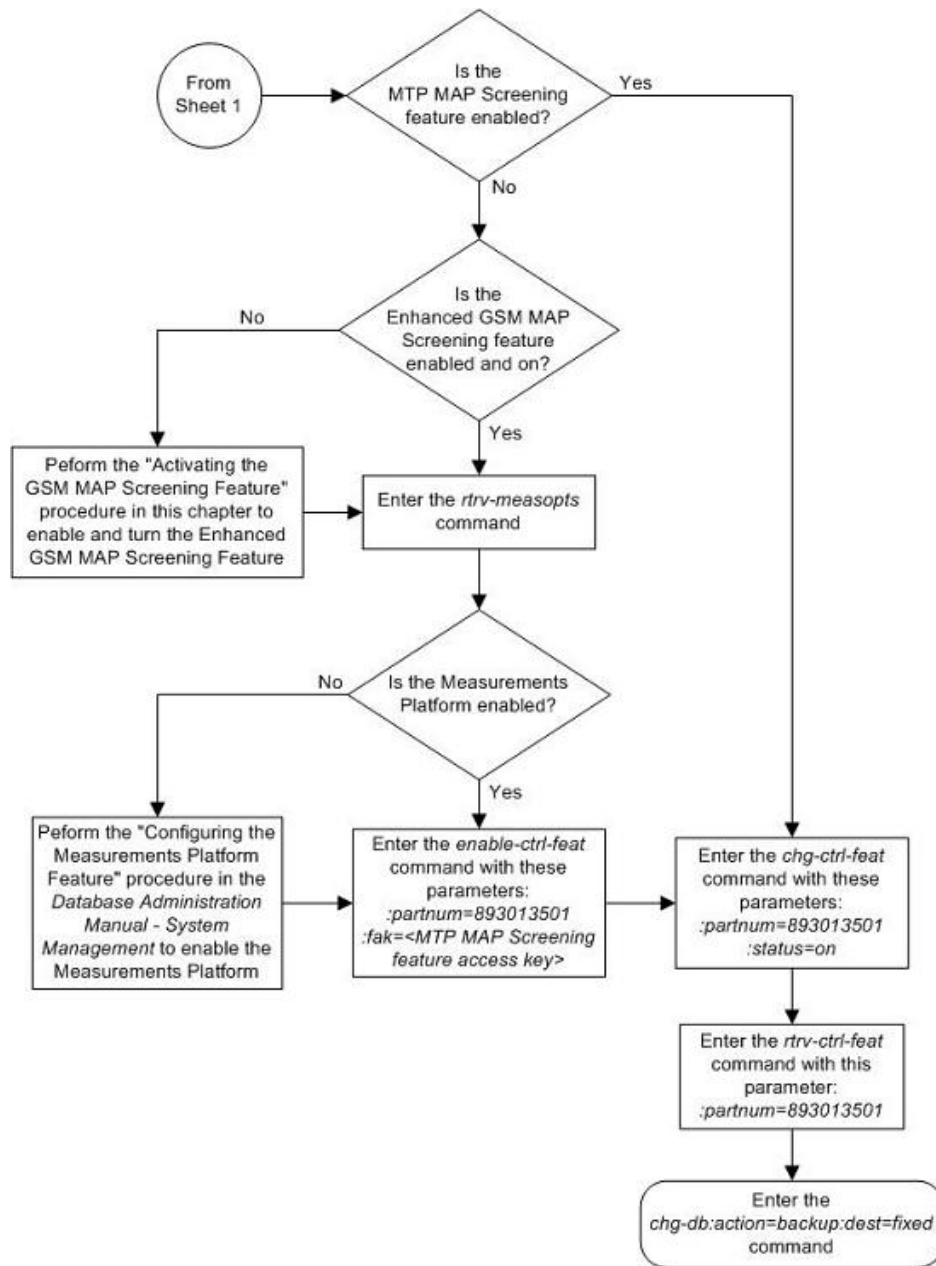
- Backup the new changes using the `chg-db:action=backup:dest=fixed` command.

These messages should appear, the active Maintenance and Administration Subsystem Processor (MASP) appears first.

```
BACKUP (FIXED): MASP A - Backup starts on active MASP.
BACKUP (FIXED): MASP A - Backup on active MASP to fixed disk complete.
BACKUP (FIXED): MASP A - Backup starts on standby MASP.
BACKUP (FIXED): MASP A - Backup on standby MASP to fixed disk complete.
```

Figure 46: Configuring the MTP MAP Screening Feature





Configuring a Linkset for the GSM MAP Screening Feature

This procedure is used to configure SS7 linksets for the GSM MAP Screening feature using the `gsmscrn` parameter of either the `ent-ls` or `chg-ls` command.

The `gsmscrn` parameter specifies whether or not GSM MAP screening is applied to messages arriving on the linkset. This parameter can be applied to all linksets, but this parameter can be specified for linksets with ANSI adjacent point codes only if the Enhanced GSM MAP Screening

feature is enabled and on. The values for this parameter are `on` (GSM MAP screening is applied to the linkset) or `off` (GSM MAP screening is not applied to the linkset). GSM MAP screening is used to screen GSM MAP messages to control which external entities can request information about a GSM subscriber and the specific information these entities can request before allowing the GSM MAP message to pass through to the HLR.

Before the `gsmscrn` parameter can be specified for a specific linkset, the GSM MAP screening feature must be enabled and on. The status of the GSM MAP Screening feature, and if applicable the Enhanced GSM MAP screening feature, is shown in the `rtrv-ctrl-feat` command output with the entries `GSM Map Screening (GMS)` (for the GSM MAP Screening feature) and `Enhanced GMS (EGMS)` (for the Enhanced GSM MAP Screening feature). Perform the [Activating the GSM MAP Screening Feature](#) on page 293 procedure to enable and turn on either of these features as required.

The value of the `gsmscrn` parameter is only displayed in the `rtrv-ls` command output when a specific linkset is being displayed with the `rtrv-ls:lsn=<linkset name>` command.

To configure a linkset for the GSM MAP Screening feature, the `ent-ls` or `chg-ls` commands uses these mandatory parameters in addition to the `gsmscrn` parameter.

`:lsn` – The name of the linkset. The linkset name can contain up to 10 characters, with the first character being a letter.

`:apc/apca/apci/apcn/apcn24` – Adjacent point code – the point code identifying the node that is next to the EAGLE 5 ISS. This parameter is only mandatory for the `ent-ls` command.

Note: See Chapter 2, Configuring Destination Tables in the *Database Administration Manual - SS7* for a definition of the point code types that are used on the EAGLE 5 ISS and for a definition of the different formats that can be used for ITU national point codes.

Note: The EAGLE 5 ISS can contain a 14-bit ITU-N point code (`apcn`) or a 24-bit ITU-N point code (`apcn24`), but not both at the same time.

`:lst` – The linkset type of the specified linkset This parameter is only mandatory for the `ent-ls` command.

The `ent-ls` and `chg-ls` commands contain other optional parameters that can be used to configure a linkset. These parameters are not shown here because they are not necessary for configuring a linkset for the GSM MAP Screening feature. These parameters are explained in more detail in the Adding an SS7 Linkset procedure or in the Changing an SS7 Linkset procedure in the *Database Administration Manual - SS7*, or in the `ent-ls` and `chg-ls` command descriptions in the *Commands Manual*.

The EAGLE 5 ISS can contain 1024 linksets, with a maximum of 255 of these linksets being gateway linksets. A gateway linkset is a linkset that contains routes to a different network.

This examples used in this procedure are based on the examples shown in [Table 23: GSM MAP Screening Linkset Configuration Table](#) on page 310.

Table 23: GSM MAP Screening Linkset Configuration Table

Linkset Names	Linkset APC	LST	GSMSCRN
New Linksets Being Added			

Linkset Names	Linkset APC	LST	GSMSCRN
lsn5	10685	a	on
lsi7	3-150-4	a	on
Existing Linkset Being Changed			
lsn4	N/A	N/A	on

The linkset to be added cannot be in the database. This can be verified in step 1 of this procedure.

Canceling the RTRV-LS and RTRV-DSTN Commands

Because the `rtrv-ls` and `rtrv-dstn` commands used in this procedure can output information for a long period of time, the `rtrv-ls` and `rtrv-dstn` commands can be canceled and the output to the terminal stopped. There are three ways that the `rtrv-ls` and `rtrv-dstn` commands can be canceled.

- Press the F9 function key on the keyboard at the terminal where the `rtrv-ls` or `rtrv-dstn` commands were entered.
- Enter the `canc-cmd` without the `trm` parameter at the terminal where the `rtrv-ls` or `rtrv-dstn` commands were entered.
- Enter the `canc-cmd:trm=<xx>`, where `<xx>` is the terminal where the `rtrv-ls` or `rtrv-dstn` commands were entered, from another terminal other than the terminal where the `rtrv-ls` or `rtrv-dstn` commands were entered. To enter the `canc-cmd:trm=<xx>` command, the terminal must allow Security Administration commands to be entered from it and the user must be allowed to enter Security Administration commands. The terminal's permissions can be verified with the `rtrv-secu-trm` command. The user's permissions can be verified with the `rtrv-user` or `rtrv-secu-user` commands.

For more information about the `canc-cmd` command, go to the *Commands Manual*.

1. Display the current linkset configuration using the `rtrv-ls` command.

This is an example of the possible output.

```
rlghncxa03w 06-10-10 11:43:04 GMT EAGLE5 36.0.0

LSN          APCA   (SS7)  SCRNL3T SLT          GWS GWS GWS
lsa1         240-020-000 scr1  1  1  yes a  1  off off off no  off
lsa2         240-030-000 scr2  1  2  no  c  3  on  on  on  yes off
lsa3         240-040-000 scr3  1  3  yes c  5  off off off yes  off
ls04         001-002-003 scr2  1  1  no  a  4  on  off on  yes  off

LSN          APCA   (X25)  SCRNL3T SLT          GWS GWS GWS
ls6          244-010-004 scr4  1  4  no  a  6  off off off ---  off
ls7          244-012-005 scr5  1  5  no  c  3  on  on  on  ---  off
ls8          244-012-006 scr6  1  6  no  c  8  off off off ---  off

LSN          APCI   (SS7)  SCRNL3T SLT          GWS GWS GWS
lsi1         1-111-1  scr1  1  1  yes a  1  off off off ---  ---
lsi2         1-111-2  scr2  1  2  no  c  3  on  on  on  ---  ---
```

```

lsi3          1-111-3          scr3  1  3  yes c  5  off off off --- ---
                                     L3T SLT                                     GWS GWS GWS
LSN          APCN   (SS7)  SCR1  SET SET BEI LST LNKS ACT MES DIS SLSCI NIS
lsn1        11111          scr1  1  1  yes a  1  on  off off ---  off
lsn2        11112          scr2  1  2  no  c  3  on  on  on  ---  off
lsn3        11113          scr3  1  3  yes c  5  on  off off ---  off
lsn5        10685          scr1  1  3  yes a  4  on  off off ---  off

Link set table is ( 13 of 1024) 1% full

```

2. Display the point code and capability point code of the EAGLE 5 ISS by using the `rtrv-sid` command.

Note: If the APC of an existing linkset is not being changed, skip steps 2, 3, and 4, and go to step 5.

This is an example of the possible output.

```

rlghncxa03w 06-10-10 11:43:04 GMT EAGLE5 36.0.0
PCA          PCI          PCN          CLLI          PCTYPE
001-001-001  3-150-4          13482          rlghncxa03w  OTHER
                s-3-150-4          s-13482
CPCA
002-002-002  002-002-003          002-002-004          002-002-005
002-002-006  002-002-007          002-002-008          002-002-009
004-002-001  004-003-003          144-212-003
CPCA (LNP)
005-005-002  005-005-004          005-005-005
CPCI
1-001-1          1-001-2          1-001-3          1-001-4
CPCN
02091          02092          02094          02097
02191          02192          11177

```

If you wish to use ITU-I or ITU-N spare point codes with GSM MAP Screening, and the `rtrv-sid` output does not show any ITU-I or ITU-N spare point codes, add ITU-I and ITU-N spare point codes, as necessary, to the self identification of the EAGLE 5 ISS by performing the "Changing the Self-Identification of the EAGLE 5 ISS" procedure in the *Database Administration Manual - SS7*.

3. Display the point codes in the destination point code table by using the `rtrv-dstn` command with the linkset's adjacent point code.

For this example, enter these commands.

```
rtrv-dstn:dpci=3-150-4
```

This is an example of the possible output.

```

rlghncxa03w 06-10-10 11:43:04 GMT EAGLE5 36.0.0
DPCI          CLLI          BEI ELEI ALIASA          ALIASN/N24          DOMAIN
3-150-4          lsi7clli          yes ---  -----  -----  SS7
                SPC          NCAI
                -----  ----

```

```
rtrv-dstn:dpcn=10685
```

This is an example of the possible output.

```

rlghncxa03w 06-10-10 11:43:04 GMT EAGLE5 36.0.0
DPCN          CLLI          BEI ELEI ALIASA          ALIASI          DOMAIN
10685          lsn5clli          yes ---  -----  -----  SS7

```



```

                SPC          NCAI
                -----
    
```

If the point code specified in the `rtrv-dstn` command in this step is not in the database, the following message is displayed.

```

rlghncxa03w 06-10-10 11:43:04 GMT EAGLE5 36.0.0
DPCA          CLLI          BEI ELEI ALIASI          ALIASN/N24          DOMAIN

No destinations meeting the requested criteria were found

Destination table is (28 of 2000) 1% full
    
```

If a linkset is being added to the database, or the adjacent point code of the linkset is being changed, and the adjacent point code is not shown in the `rtrv-dstn` command output, go to the “Adding a Destination Point Code” procedure in the *Database Administration Manual - SS7* and add the adjacent point code to the destination point code table.

Note: An ANSI point code can be used as the APC of a linkset for GSM MAP Screening only if the Enhanced GSM MAP Screening feature is enabled and on.

- The adjacent point code of the linkset cannot be the DPC of any exception route.

Note: If the adjacent point code was added in step 3, skip step 4 and go to step 5.

Verify that the adjacent point code of the new linkset is not the DPC of any exception route by entering the `rtrv-rtx` command with the `dpc/dpca/dpci/dpcn/dpcn24` parameter. The `dpc/dpca/dpci/dpcn/dpcn24` parameter value is the adjacent point code value that will be specified for the new linkset. For this example, enter this command.

```
rtrv-rtx:dpci=3-150-4
```

This is an example of the possible output.

```

rlghncxa03w 06-10-10 11:43:04 GMT EAGLE5 36.0.0
  DPCI          RTX-CRITERIA          LSN          RC          APC
  3-150-4          OPCI
                    4-050-1
                    lsi2          20          1-111-2
DESTINATION ENTRIES ALLOCATED:      2000
  FULL DPC(s):                          13
  EXCEPTION DPC(s):                      5
  NETWORK DPC(s):                        0
  CLUSTER DPC(s):                        1
  TOTAL DPC(s):                          19
  CAPACITY (% FULL):                     1%
ALIASES ALLOCATED:                    12000
  ALIASES USED:                          0
  CAPACITY (% FULL):                     0%
X-LIST ENTRIES ALLOCATED:              500
    
```

If the adjacent point code of the linkset is not the DPC of a route exception table entry, no entries are displayed in the `rtrv-rtx` output, but a summary of the point code quantities is displayed, as shown in the following output example.

```

rlghncxa03w 06-10-10 11:43:04 GMT EAGLE5 36.0.0
  DESTINATION ENTRIES ALLOCATED:      2000
  FULL DPC(s):                          15
  EXCEPTION DPC(s):                      5
  NETWORK DPC(s):                        0
  CLUSTER DPC(s):                        1
  TOTAL DPC(s):                          21
  CAPACITY (% FULL):                     1%
ALIASES ALLOCATED:                    12000
    
```

```

ALIASES USED:                0
CAPACITY (% FULL):          0%
X-LIST ENTRIES ALLOCATED:   500

```

If the point code specified in this step is shown in the DPCA/DPCI/DPCN/ DPCN24 columns in this step, the point code value cannot be used as an adjacent point code unless one of two actions are taken:

- Choose another adjacent point code value and repeat steps 2, 3, and 4.
 - Remove all the entries displayed in this step by performing the “Removing a Route Exception Entry” procedure in the *Database Administration Manual - SS7*.
5. Verify that the GSM MAP Screening feature is enabled and on by entering the `rtrv-ctrl-feat` command with the part number of the GSM MAP Screening feature.

Enter this command.

```
rtrv-ctrl-feat:partnum=893013201
```

The following is an example of the possible output.

```

rlghncxa03w 06-10-28 21:15:37 GMT EAGLE5 36.0.0
The following features have been permanently enabled:

Feature Name          Partnum    Status    Quantity
GSM Map Screening (GMS) 893013201  on       ----

The following features have been temporarily enabled:

Feature Name          Partnum    Status    Quantity    Trial Period Left
Zero entries found.

The following features have expired temporary keys:

Feature Name          Partnum
Zero entries found.

```

If the GSM MAP screening feature is not enabled or off, go to the [Activating the GSM MAP Screening Feature](#) on page 293 procedure to enable and turn on the GSM MAP screening feature.

6. Verify that the Enhanced GSM MAP Screening feature is enabled and on by entering the `rtrv-ctrl-feat` command with the part number of the Enhanced GSM MAP Screening feature.

Note: If ANSI point codes are not being used, skip step 6 and go to step 7.

Enter this command.

```
rtrv-ctrl-feat:partnum=893012401
```

The following is an example of the possible output.

```

rlghncxa03w 06-10-28 21:15:37 GMT EAGLE5 36.0.0
The following features have been permanently enabled:

Feature Name          Partnum    Status    Quantity
Enhanced GMS (EGMS) 893012401  on       ----

The following features have been temporarily enabled:

Feature Name          Partnum    Status    Quantity    Trial Period Left
Zero entries found.

The following features have expired temporary keys:

```

```
Feature Name          Partnum
Zero entries found.
```

If the Enhanced GSM MAP screening feature is not enabled or off, go to the [Activating the GSM MAP Screening Feature](#) on page 293 procedure to enable and turn on the Enhanced GSM MAP screening feature.

7. Display the current linkset configuration of the linkset to be changed using the `rtrv-ls` command with the linkset name.

Note: If no existing linksets are being changed, skip step 7 and go to step 8.

For this example, enter this command.

```
rtrv-ls:lsn=lsn4
```

This is an example of the possible output.

```
rlghncxa03w 06-10-17 11:43:04 GMT EAGLE5 36.0.0

LSN          APCN   (SS7)  SCRN  SET SET BEI  LST LNKS ACT MES DIS SLSCI NIS
lsn4         09786          scr3  1  2  no  a   4   on off off no   on

          CLLI          TFATCABMLQ MTPRSE ASL8  SLRSRB ITUTFR GSMSCRN
lsn4c11i          1          ---   ---   1       on    on

          IPGWAPC MATELSN      IPTPS  LSUSEALM  SLKUSEALM GTTMODE
no          ----- ---   ---   ---          CdPA

          LOC  LINK  SLC  TYPE      L2T          L1          PCR  PCR
          1205 b    0   LIMDS0  1    56000  ---  ---  BASIC ---  ---
          1213 b    1   LIMOCU  1    56000  ---  ---  BASIC ---  ---
          1211 a    2   LIMDS0  1    56000  ---  ---  BASIC ---  ---
          1207 b    3   LIMV35  1    64000  DCE  OFF  BASIC ---  ---

Link set table is ( 21 of 1024) 2% full
```

8. Add the new linkset to the database using the `ent-ls` command.

Note: If you are not adding a new linkset to the database, skip step 8 and go to step 9.

For this example, enter these commands.

```
ent-ls:lsn=lsn5:apcn=10685:lst=a:gmscrn=on
```

```
ent-ls:lsn=lsi7:apci=3-150-4:lst=a:gmscrn=on
```

Note: An ANSI point code can be used as the APC of a linkset for GSM MAP Screening only if the Enhanced GSM MAP Screening feature is enabled and on.

The `apci` parameter value can be either an ITU-I point code or an ITU-I spare point code.

The `apcn` parameter value can be either an ITU-N point code or an ITU-N spare point code.

When each of these commands have successfully completed, this message should appear.

```
rlghncxa03w 06-10-17 16:23:21 GMT EAGLE5 36.0.0
Link set table is ( 21 of 1024) 2% full
ENT-LS: MASP A - COMPLTD
```

9. Change the `gmscrn` parameter value in the existing linkset in the database using the `chg-ls` command.

Note: If you are not changing an existing linkset in the database, skip step 9 and go to step 10.

For this example, enter this command.

```
chg-ls:lsn=lsn4:gmscrn=on
```

Note: The `gmscrn` parameter can be specified for a linkset with an ANSI APC only if the Enhanced GSM MAP Screening feature is enabled and on.

When this commands has successfully completed, this message should appear.

```
rlghncxa03w 06-10-17 16:23:21 GMT EAGLE5 36.0.0
Link set table is ( 21 of 1024) 2% full
CHG-LS: MASP A - COMPLTD
```

10. Verify the changes using the `rtrv-ls` command specifying the linkset name specified in either steps 8 or 9 with the `lsn` parameter.

For this example, enter these commands.

```
rtrv-ls:lsn=lsn4
```

This is an example of the possible output.

```
rlghncxa03w 06-10-17 11:43:04 GMT EAGLE5 36.0.0
```

LSN	APCN	(SS7)	SCRN	SET	SET	BEI	LST	LNKS	ACT	MES	DIS	SLSCI	NIS
lsn4	09786		scr3	1	2	no	a	4	on	off	off	no	on

CLLI	TFATCABMLQ	MTPRSE	ASL8	SLRSRB	ITUTFR	GMSSCRN
lsn4clli	1	---	---	1	on	on

IPGWAPC	MATELSN	IPTPS	LSUSEALM	SLKUSEALM	GTTMODE
no	-----	---	---	---	CdPA

LOC	LINK	SLC	TYPE	L2T	BPS	L1	TSET	ECM	PCR	PCR
1205	b	0	LIMDS0	SET	56000	---	---	BASIC	---	---
1213	b	1	LIMOCU	1	56000	---	---	BASIC	---	---
1211	a	2	LIMDS0	1	56000	---	---	BASIC	---	---
1207	b	3	LIMV35	1	64000	DCE	OFF	BASIC	---	---

```
Link set table is ( 21 of 1024) 2% full
```

```
rtrv-ls:lsn=lsn5
```

This is an example of the possible output.

```
rlghncxa03w 06-10-17 11:43:04 GMT EAGLE5 36.0.0
```

LSN	APCN	(SS7)	SCRN	SET	SET	BEI	LST	LNKS	ACT	MES	DIS	SLSCI	NIS
lsn5	10685		none	1	2	no	a	0	off	off	off	no	off

CLLI	TFATCABMLQ	MTPRSE	ASL8	SLRSRB	ITUTFR	GMSSCRN
lsn5clli	1	---	---	1	on	on

IPGWAPC	MATELSN	IPTPS	LSUSEALM	SLKUSEALM	GTTMODE
no	-----	---	---	---	CdPA

```
Link set table is ( 21 of 1024) 2% full
```

```
rtrv-ls:lsn=lsi7
```

This is an example of the possible output.

```
rlghncxa03w 06-10-17 11:43:04 GMT EAGLE5 36.0.0
LSN          APCI  (SS7)  SCRN  SET SET BEI LST LNKS ACT MES DIS SLSCI NIS
lsi7         3-150-4      none  1   2  no  a   0   off off off no   off

          CLLI          TFATCABMLQ MTPRSE ASL8 SLRSB ITUTFR GSMSCRN
lsn7clli     1          ---      ---  1      off   on

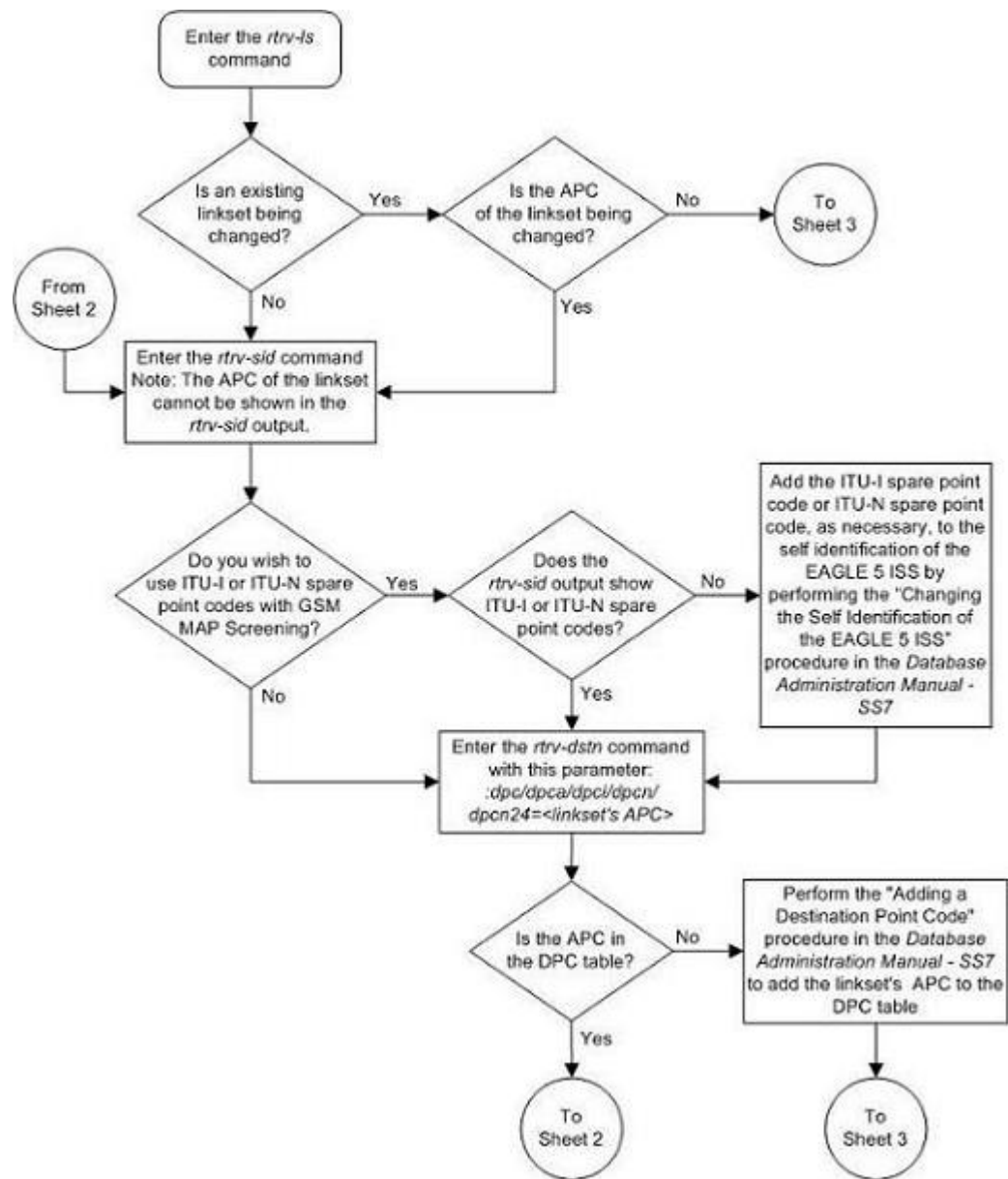
          IPGWAPC MATELSN      IPTPS LSUSEALM SLKUSEALM GTTMODE
no          ----- ---      ---      ---      CdPA

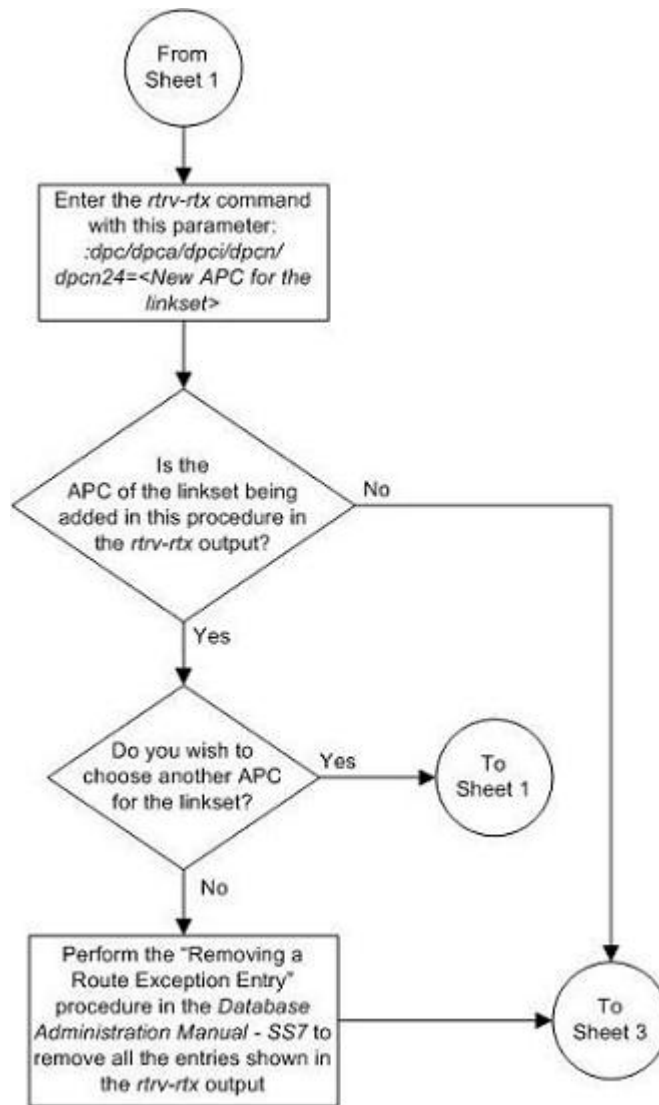
Link set table is ( 21 of 1024)  2% full
```

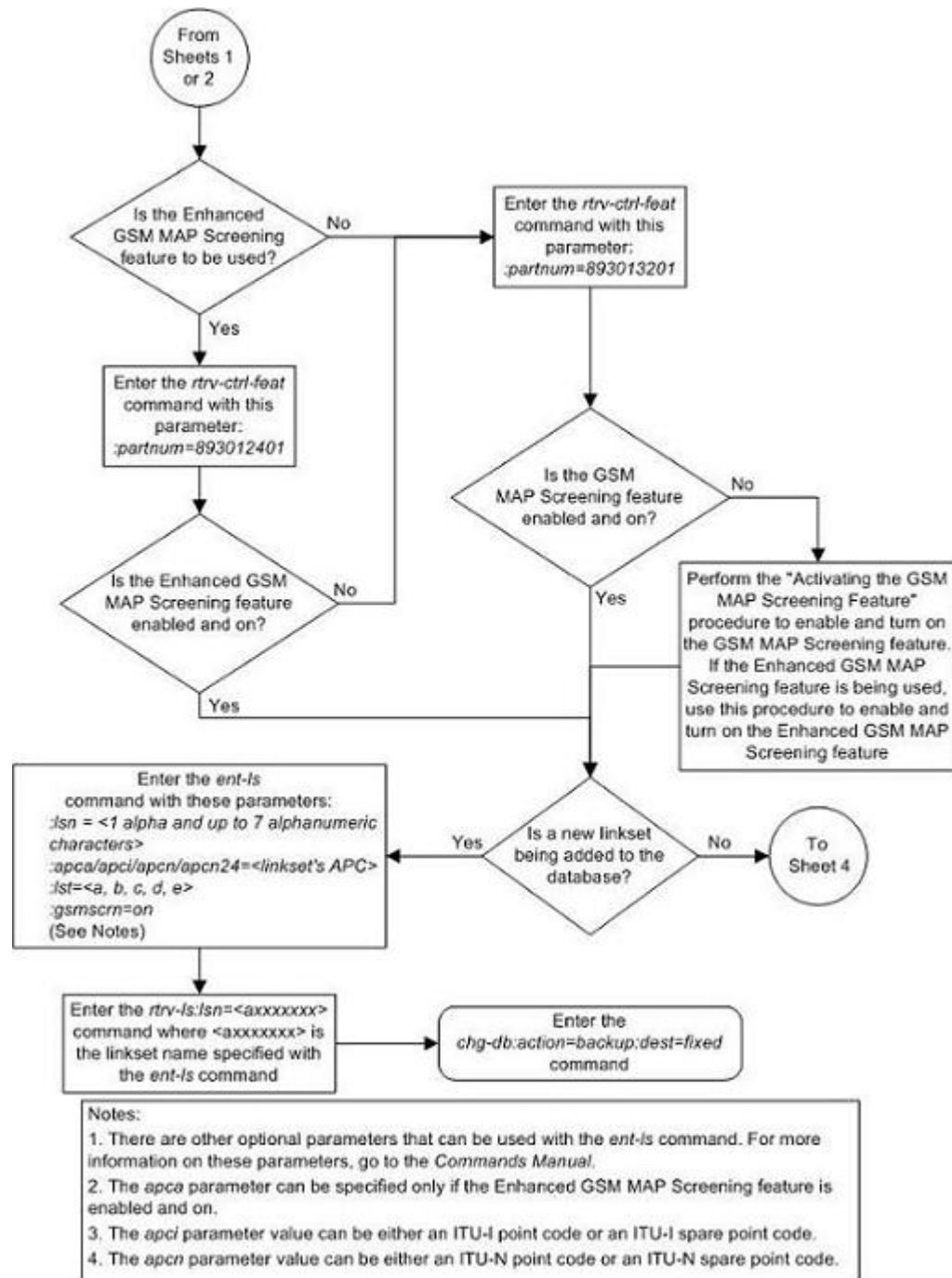
11. Back up the new changes using the chg-db:action=backup:dest=fixed command.

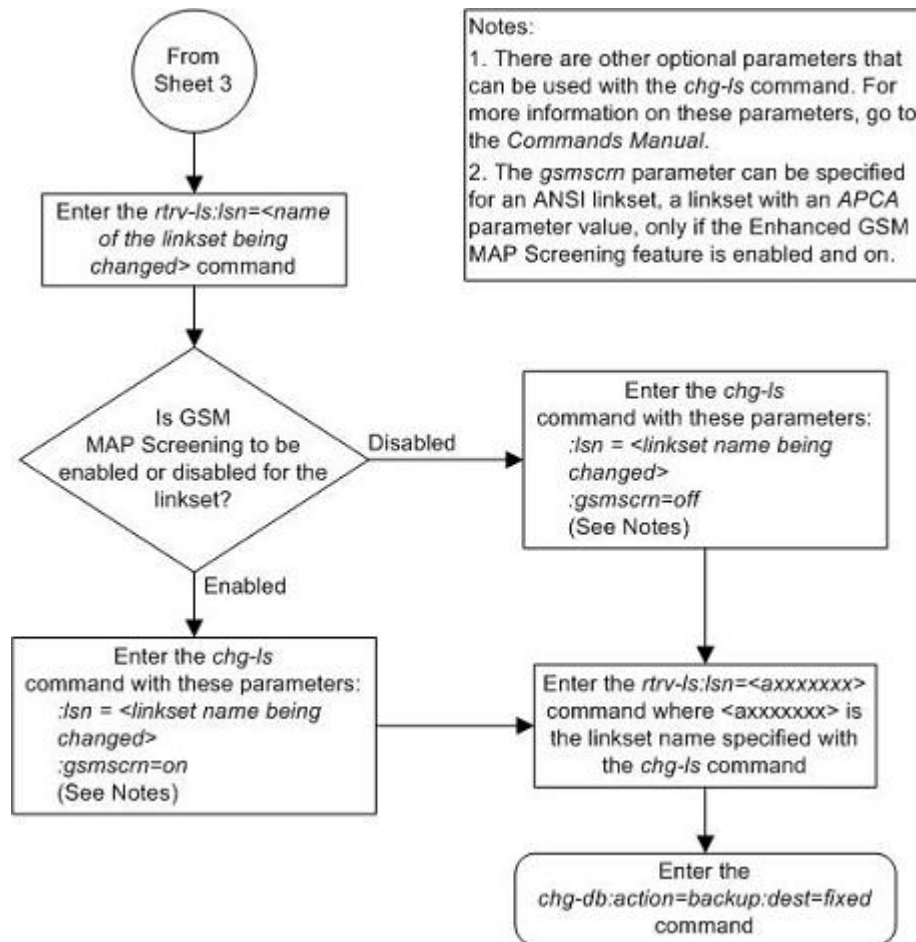
```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk complete.
BACKUP (FIXED) : MASP A - Backup starts on standby MASP.
BACKUP (FIXED) : MASP A - Backup on standby MASP to fixed disk complete.
```

Figure 47: Configuring a Linkset for the GSM MAP Screening Feature









Changing the System-Wide GSM MAP Screening Options

The GSM MAP screening options can be changed with the *chg-stpopts* command after the GSM MAP screening feature has been activated. The *chg-stpopts* command contains two options for GSM MAP screening.

- *GSMDFLT* – GSM MAP screening default action – Allows the user to specify the default screening action (PASS or DISCARD) that occurs when a MAP operations code contained in the MSU is not found in the GSM MAP operations code table.
- *gsmdecerr* – GSM MAP screening decode error action – Allows the user to specify the default screening action (PASS or DISCARD) that occurs when an error is detected in the TCAP layer of the MSU being screened. Such errors included an invalid value for a parameter, length error, missing data, and so on.

The GSM MAP Screening feature must be enabled and on before performing this procedure. Use the *rtrv-ctrl-feat* command to verify the status of the GSM MAP Screening feature. If the

GSM MAP Screening feature is not enabled and off, go to the [Activating the GSM MAP Screening Feature](#) on page 293 procedure to enable and turn on the GSM MAP screening feature.

When the GSM MAP screening feature is activated, the values for the `gsmdflt` and `gsmdecerr` parameters are set to `pass`. The current values for these options can be verified with the `rtrv-stpopts` command.

1. Verify that the GSM MAP Screening feature is enabled and on by entering the `rtrv-ctrl-feat` command with the part number of the GSM MAP Screening feature.

Enter this command.

```
rtrv-ctrl-feat:partnum=893013201
```

The following is an example of the possible output.

```
rlghncxa03w 06-10-28 21:15:37 GMT EAGLE5 36.0.0
The following features have been permanently enabled:
Feature Name          Partnum   Status   Quantity
GSM Map Screening (GMS) 893013201 on       ----

The following features have been temporarily enabled:
Feature Name          Partnum   Status   Quantity   Trial Period Left
Zero entries found.

The following features have expired temporary keys:
Feature Name          Partnum
Zero entries found.
```

If the GSMMAP screening feature is not enabled or off, go to the [Activating the GSM MAP Screening Feature](#) on page 293 procedure to enable and turn on the GSMMAP screening feature.

2. Display the existing values for the `gsmdflt` and `gsmdecerr` parameters by entering the `rtrv-stpopts` command.

The value for the `gsmdflt` parameter is shown in the `GSMSDFLT` field. The value for the `gsmdecerr` parameter is shown in the `GSMDECERR` field. This is an example of the possible output.

```
rlghncxa03w 06-10-17 16:02:05 GMT EAGLE5 36.0.0
STP OPTIONS
-----
GSMSDFLT          PASS
GSMDECERR        PASS
```

Note:

The `rtrv-stpopts` command output contains other fields that are not used by this procedure. If you wish to see all the fields displayed by the `rtrv-stpopts` command, see the `rtrv-stpopts` command description in the *Commands Manual*.

3. Change either the GSM MAP screening default action (`gsmdflt`) and GSM MAP screening decode error action (`gsmdecerr`) options using the `chg-stpopts` command.

If you wish to change both options, enter the `chg-stpopts` command with the `gsmdflt` and `gsmdecerr` parameters as shown in this example.

```
chg-stpopts:gsmdflt=discard:gsmdecerr=discard
```

If you wish to change only one option, enter the `chg-stpopts` command with either the `gsmdflt` and `gsmdecerr` parameters as shown in these examples.

```
chg-stpopts:gsmdflt=discard
```

```
chg-stpopts:gsmdecerr=discard
```

For this example, the GSM MAP screening error code action is being changed.

When this command has successfully completed, this message should appear.

```
rlghncxa03w 06-10-07 00:22:57 GMT EAGLE5 36.0.0  
CHG-STPOPTS: MASP A - COMPLTD
```

4. Verify the changes using the `rtrv-stpopts` command.

This is an example of the possible output.

```
rlghncxa03w 06-10-17 16:02:05 GMT EAGLE5 36.0.0  
STP OPTIONS  
-----  
GSMDFLT          PASS  
GSMDECERR        DISCARD
```

Note:

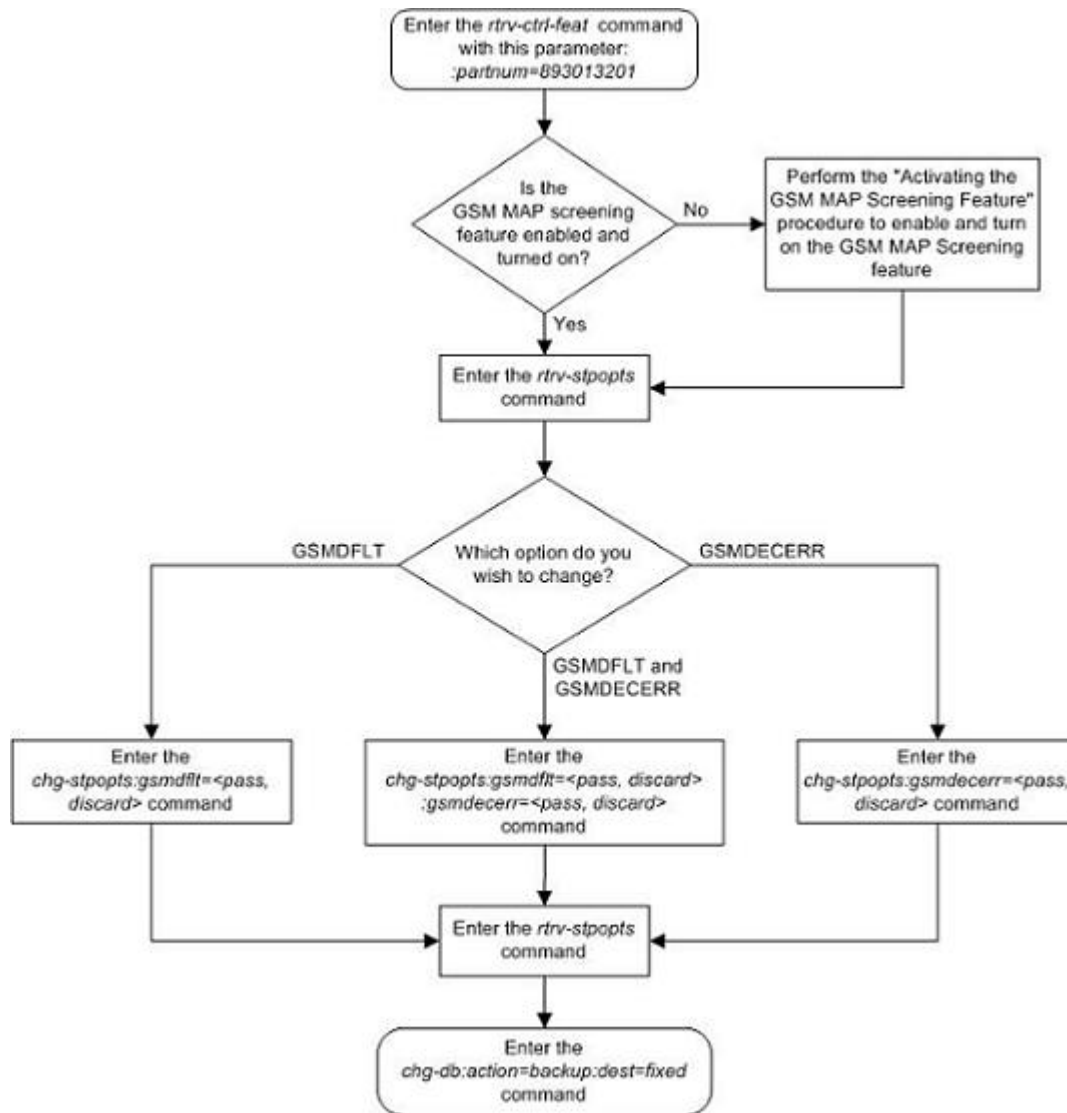
The `rtrv-stpopts` command output contains other fields that are not used by this procedure. If you wish to see all the fields displayed by the `rtrv-stpopts` command, see the `rtrv-stpopts` command description in the *Commands Manual*.

5. Backup the new changes using the `chg-db:action=backup:dest=fixed` command.

These messages should appear, the active Maintenance and Administration Subsystem Processor (MASP) appears first.

```
BACKUP (FIXED): MASP A - Backup starts on active MASP.  
BACKUP (FIXED): MASP A - Backup on active MASP to fixed disk complete.  
BACKUP (FIXED): MASP A - Backup starts on standby MASP.  
BACKUP (FIXED): MASP A - Backup on standby MASP to fixed disk complete.
```

Figure 48: Changing the System-Wide GSM MAP Screening Options



Adding a GSM Subsystem Number Screening Entry

Use this procedure to provision the origination and destination SSNs (subsystem numbers) to be screened with the GSM MAP screening feature using the `ent-gsmssn-scrn` command.

The `ent-gsmssn-scrn` command uses these parameters.

:*ssn* – The subsystem number contained in either the calling party address (CGPA) or the called party address (CDPA) contained in the MAP message.

:*type* – The type of SSN, either an origination SSN (*orig*) or a destination SSN (*dest*). The origination SSN is found in the calling party address of the message. The destination SSN is found in the called party address of the message.

The GSM MAP Screening feature must be enabled and on before performing this procedure. Use the `rtrv-ctrl-feat` command to verify the status of the GSM MAP Screening feature. If the GSM MAP Screening feature is not enabled and off, go to the [Activating the GSM MAP Screening Feature](#) on page 293 to enable and turn on the GSM MAP screening feature.

You cannot specify an `ssn` and `type` parameter combination that already exists in the database.

This examples used in this procedure are based on the examples shown in [Table 24: Example GSM MAP Screening SSN Configuration Table](#) on page 325.

Table 24: Example GSM MAP Screening SSN Configuration Table

SSN	TYPE
250	orig
251	dest

1. Verify that the GSM MAP Screening feature is enabled and on by entering the `rtrv-ctrl-feat` command with the part number of the GSM MAP Screening feature.

Enter this command.

```
rtrv-ctrl-feat:partnum=893013201
```

The following is an example of the possible output.

```
rlghncxa03w 06-10-28 21:15:37 GMT EAGLE5 36.0.0
The following features have been permanently enabled:

Feature Name          Partnum    Status    Quantity
GSM Map Screening (GMS) 893013201 on        ----

The following features have been temporarily enabled:

Feature Name          Partnum    Status    Quantity    Trial Period Left
Zero entries found.

The following features have expired temporary keys:

Feature Name          Partnum
Zero entries found.
```

If the GSMMAP screening feature is not enabled or off, go to the [Activating the GSM MAP Screening Feature](#) on page 293 to enable and turn on the GSMMAP screening feature.

2. Display the GSM MAP Screening subsystem numbers in the database using the `rtrv-gsmssn-scrn` command.

This is an example of the possible output.

```
rlghncxa03w 06-10-07 00:28:31 GMT EAGLE5 36.0.0
SSN  ORIG  DEST
  2   Yes  No
 10   Yes  Yes
GSM Map Screening table is (2 of 512) 1% full
RTRV-GSMSSN-SCRN: MASP A - COMPLTD
```

3. Add the new subsystem numbers to be screened to the database with the `ent-gsmssn-scrn` command.

For this example, enter these commands:

```
ent-gsmssn-scrn:ssn=250:type=orig
```

```
ent-gsmssn-scrn:ssn=251:type=dest
```

When each of these commands has successfully completed, this message appears.

```
rlghncxa03w 06-10-07 00:29:31 GMT EAGLE5 36.0.0
ENT-GSMSSN-SCRN: MASP A - COMPLTD
```

4. Verify the changes using the `rtrv-gsmssn-scrn` command.

This is an example of the possible output.

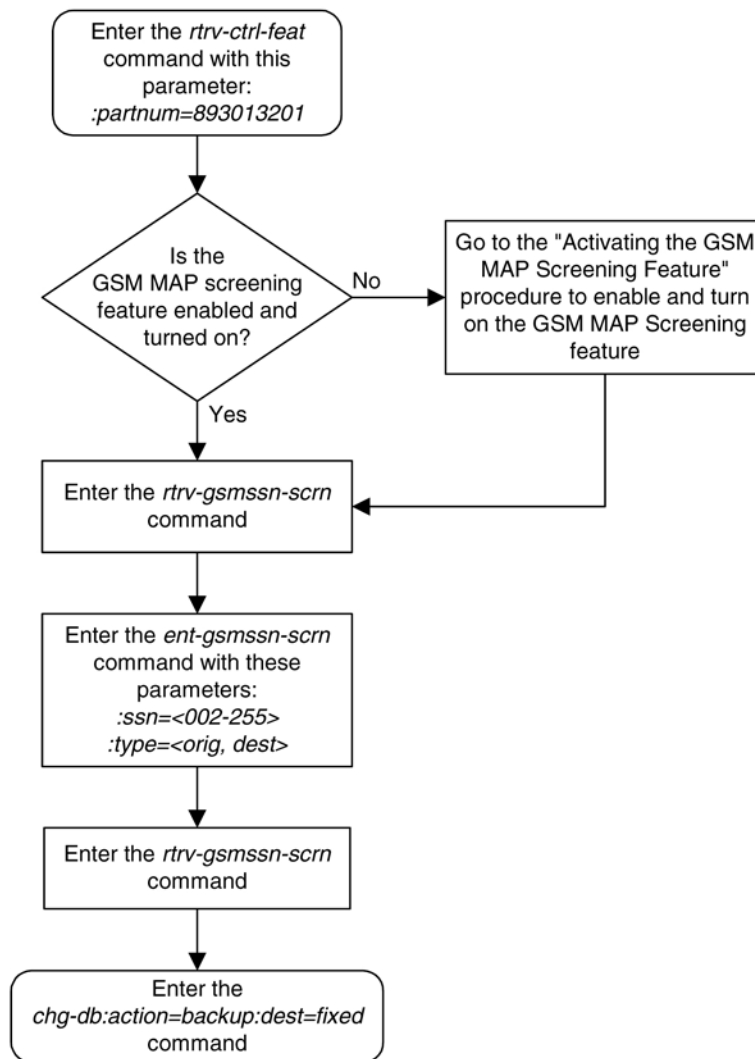
```
rlghncxa03w 06-10-07 00:28:31 GMT EAGLE5 36.0.0
SSN  ORIG  DEST
  2   Yes   No
 10   Yes   Yes
250   Yes   No
251   No    Yes
GSM Map Screening table is (4 of 512) 1% full
RTRV-GSMSSN-SCRN: MASP A - COMPLTD
```

5. Backup the new changes using the `chg-db:action=backup:dest=fixed` command.

These messages should appear, the active Maintenance and Administration Subsystem Processor (MASP) appears first.

```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk complete.
BACKUP (FIXED) : MASP A - Backup starts on standby MASP.
BACKUP (FIXED) : MASP A - Backup on standby MASP to fixed disk complete.
```

Figure 49: Adding a GSM Subsystem Number Screening Entry



Removing a GSM Subsystem Number Screening Entry

Use this procedure to remove an SSN (subsystem number) from the GSM MAP SSN screening table using the `dlt-gsmssn-scrn` command.

The `dlt-gsmssn-scrn` command uses these parameters.

`:ssn` – The subsystem number contained in either the calling party address (CGPA) or the called party address (CDPA) contained in the MAP message.

`:type` – The type of SSN, either an origination SSN (`orig`) or a destination SSN (`dest`). The origination SSN is found in the calling party address of the message. The destination SSN is found in the called party address of the message.

The `ssn` and `type` parameter combination specified in the `dlt-gsmssn-scrn` command must be in the database.

1. Display the GSM MAP Screening subsystem numbers in the database using the `rtrv-gsmssn-scrn` command.

This is an example of the possible output.

```
rlghncxa03w 06-10-07 00:28:31 GMT EAGLE5 36.0.0
SSN  ORIG  DEST
  2   Yes   No
 10   Yes   Yes
 250  Yes   No
 251  No    Yes
GSM Map Screening table is (4 of 512) 1% full
RTRV-GSMSSN-SCRN: MASP A - COMPLTD
```

2. Remove the subsystem number from the database with the `dlt-gsmssn-scrn` command. For this example, enter this command.

```
dlt-gsmssn-scrn:ssn=010:type=orig
```

```
dlt-gsmssn-scrn:ssn=251:type=dest
```

When each of these commands has successfully completed, this message appears.

```
rlghncxa03w 06-10-07 00:29:31 GMT EAGLE5 36.0.0
DLT-GSMSSN-SCRN: MASP A - COMPLTD
```

3. Verify the changes using the `rtrv-gsmssn-scrn` command.

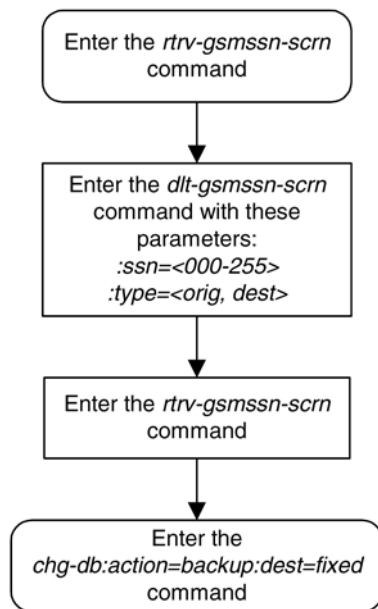
This is an example of the possible output.

```
rlghncxa03w 06-10-07 00:28:31 GMT EAGLE5 36.0.0
SSN  ORIG  DEST
  2   Yes   No
 10   No    Yes
 250  Yes   No
GSM Map Screening table is (3 of 512) 1% full
RTRV-GSMSSN-SCRN: MASP A - COMPLTD
```

4. Backup the new changes using the `chg-db:action=backup:dest=fixed` command. These messages should appear, the active Maintenance and Administration Subsystem Processor (MASP) appears first.

```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk complete.
BACKUP (FIXED) : MASP A - Backup starts on standby MASP.
BACKUP (FIXED) : MASP A - Backup on standby MASP to fixed disk complete.
```

Figure 50: Removing a GSM Subsystem Number Screening Entry



Adding a GSM MAP Screening Operation Code

Use this procedure to provision the concerned GSM MAP screening operation codes and the default screening action for the operation code in the database using the `ent-gsms-opcode` command. This procedure allows the user to provision a list of all operation codes that the EAGLE 5 ISS uses in performing GSM screening.

The `ent-gsms-opcode` command uses these parameters.

`:opcode` – The MAP operation code. This parameter refers to the actual decimal value of the MAP operation codes from the TCAP layer of GSM MAP messages.

`:opname` – The name of operation code. This parameter lets the user give a meaningful name to the MAP operation code (`opcode`) entered. This name is then used by subsequent commands such as `dlt-/chg-gsms-opcode` and `ent-/chg-/dlt-/rtrv-gsmmap-scrn`.

`:dfltact` – The default screening action. This parameter lets the user define a default screening action for the MAP operation code (`opcode`) entered. The default screening action is used when a matching CGPA (calling party) address is not found in the GSM MAP screening table or when a CGPA address is found but does not have the correct `npv` and `naiv` parameters as defined by the `ent-gsmmap-scrn` command. One of these actions can be assigned.

- `pass` – Route the message as normal to the destination.
- `discard` – The MSU is to be discarded.
- `atierr` – An ATI (Any Time Interrogation) reject message is generated. This option is only valid for ATI MAP operation codes.
- `route` – Route the message as normal to the original destination node.

- `forward` – Route the original message to the forward node. The original message is not sent to the original node. If, however, the forwarded node is not available for routing then the MSU is routed to the original node.
- `duplicate` – Route the message as normal to the original destination and route a copy of the original message to the duplicate node.
- `dupdisc` – Duplicate and discard – Route the original message to the duplicate node. The original message is not sent to the original node.

`:pc/pca/pci/pcn/pcn24` – The ANSI point code (`pc/pca`), ITU-I point code or ITU-I spare point code (`pci`), 14-bit ITU-N point code or 14-bit ITU-N spare point code (`pcn`), or 24-bit ITU-N point code (`pcn24`) of the node that the MSU is routed to by the `forward`, `duplicate`, or `dupdisc` screening actions. The EAGLE 5 ISS can contain 14-bit ITU-N point codes or 24-bit ITU-N point codes, but not both. To specify the `pc/pca` parameters, the Enhanced GSM MAP Screening feature must be enabled and on.

`:ssn` – The subsystem number of the node that the MSU is routed to by the `forward`, `duplicate`, or `dupdisc` screening actions. The values for this parameter are 2 to 255, or the value `none`. The default value for this parameter is `none`.

`:force` – The mated application override. Is the GSM MAP screening operation code to be entered without a mated application in the database (`yes` or `no`)?

`:mapset` – The MAP set ID, shown in the `rtrv-map` command. This parameter can be specified only if the Flexible GTT Load Sharing feature is enabled. The status of the Flexible GTT Load Sharing feature is shown in the `rtrv-ctrl-feat` output. To enable the Flexible GTT Load Sharing feature, perform the “Activating the Flexible GTT Load Sharing Feature” procedure in the *Database Administration Manual - Global Title Translation*.

If the Flexible GTT Load Sharing feature is not enabled:

- The `mapset` parameter cannot be used.
- The `pc/pca/pci/pcn/pcn24` and `ssn` values must be shown in the `rtrv-map` output, or else the `force=yes` parameter must be specified.

If the Flexible GTT Load Sharing feature is enabled:

- The `mapset` parameter can be specified only for GSM OPCODE entries that contain point code and subsystem entries. The `dfltact` parameter value for these GSM OPCODE entries can be either `forward`, `duplicate`, or `dupdisc`.
- If the `dfltact` parameter value for the GSM OPCODE entry will be `forward`, `duplicate`, or `dupdisc`, and the `pc/pca/pci/pcn/pcn24` and `ssn` parameters will be specified for the GSM OPCODE entry, the `mapset` parameter must be specified.
- The `force=yes` parameter can be used only if the MAP set assigned to the GSM OPCODE entry is the default MAP set.
- If the MAP set assigned to the GSM OPCODE entry is a MAP set other than the default MAP set, the `force=yes` parameter cannot be used. The point code and subsystem contained in the GSM OPCODE entry must be in the MAP set assigned to the GSM OPCODE entry.
- If the default MAP set is assigned to the GSM OPCODE entry and the `force=yes` parameter is not specified, the point code and subsystem contained in the GSM OPCODE entry must be in the default MAP set.

:ri - The routing indicator parameter. This parameter specifies whether a subsequent global title translation is required. This parameter has two values.

- gt - subsequent global title translation is required.
- ssn - subsequent global title translation is not required. This is the default value for the ri parameter.

:tt - the translation type that will be assigned to the GSM OPCODE entry. The values for this parameter are 0 to 255, or the value none which specifies that no translation type will be assigned to the GSM OPCODE entry.

The GSM MAP Screening feature must be enabled and on before performing this procedure. Use the `rtrv-ctrl-feat` command to verify the status of the GSM MAP Screening feature. If the GSM MAP Screening feature is not enabled and off, go to the [Activating the GSM MAP Screening Feature](#) on page 293 to enable and turn on the GSM MAP screening feature.

The `opcode` parameter value must be a number between 0 and 255 or an asterisk (*). The `opcode=*` parameter can be specified only if the Enhanced GSM MAP Screening feature is enabled and on. Use the `rtrv-ctrl-feat` command to verify the status of the Enhanced GSM MAP Screening feature. If the Enhanced GSM MAP Screening feature is not enabled or off, go to the [Activating the GSM MAP Screening Feature](#) on page 293 to enable and turn on the Enhanced GSM MAP screening feature.

The `opname` parameter value must be no more than 8 alphanumeric characters.

The word none cannot be used as a value for the `opname` parameter.

The `dfltact=atierr` parameter cannot be specified unless the value of the operation code (`opcode`) referenced by the `opname` parameter value is 71. The `atierr` option is only valid for ATI MAP operation codes; `opcode=71` signifies an ATI MAP operation code.

The value specified for the `opcode` parameter cannot already exist in the GSM MAP operation code table.

The value specified for the `opname` parameter cannot already be used in the GSM MAP operation code table.

The `pc/pca/pci/pcn/pcn24` and `ssn` values must be shown in the `rtrv-map` output, or else the `force=yes` parameter must be specified. If the `pc/pca/pci/pcn/pcn24` and `ssn` values are not shown in the `rtrv-map` output, and a new mated application is to be added, perform one of the "Provisioning a Mated Application" procedures in the *Database Administration Manual - Global Title Translation* and add the required mated application with the `pc/pca/pci/pcn/pcn24` and `ssn` values:

The `force=yes` parameter can be specified only with the `pc/pca/pci/pcn/pcn24` and `ssn` parameters.

The `dfltact=forward`, `dfltact=duplicate`, or `dfltact=dupdisc` parameters can be specified only with the `pc/pca/pci/pcn/pcn24` and `ssn` parameters. If the `pc/pca/pci/pcn/pcn24` and `ssn` parameters are specified, the `dfltact=forward`, `dfltact=duplicate`, or `dfltact=dupdisc` parameters must be specified.

The `pc/pca/pci/pcn/pcn24` and `ssn` parameters must be specified together.

The `pc/pca/pci/pcn/pcn24` parameter values must be the DPC of a route and a proxy point code cannot be assigned to the point code. The `pc/pca` parameter value must be a full point code. The `pc/pca` parameter value can be a member of a cluster point code when that cluster point code is the DPC of a route. This can be verified with the `rtrv-rte` command. If the

pc/pca/pci/pcn/pcn24 value is not shown in the `rtrv-rte` as the DPC of a route, go to the “Adding a Route Containing an SS7 DPC” procedure in the *Database Administration Manual - SS7* and add a new route containing the pc/pca/pci/pcn/pcn24 value. To verify whether or not a proxy point code is assigned to the pc/pca/pci/pcn/pcn24 value, enter the `rtrv-dstn` command with the point code value. If a proxy point code is assigned to the point code, choose another point code.

This examples used in this procedure are based on the examples shown in [Table 25: Example GSM MAP Screening Operation Code Configuration Table](#) on page 332.

Table 25: Example GSM MAP Screening Operation Code Configuration Table

OPCODE	OPNAME	DFLTACT	PC/PCA/PCI/ PCN/PCN24	SSN	MAPSET
100	pass100	pass	N/A	N/A	N/A
150	discard1	discard	N/A	N/A	N/A
71	ati	atierr	N/A	N/A	N/A
25	route25	route	N/A	N/A	N/A
139	fwd139	forward	3-159-7	128	dflt
187	dup187	duplicate	11519	79	10
93	dd93	dupdisc	5-25-3	200	20
36	for1	forward	002-002-002	10	25
*	star	pass	N/A	N/A	N/A

1. Verify that the GSM MAP Screening feature is enabled and on by entering the `rtrv-ctrl-feat` command with the part number of the GSM MAP Screening feature.

Enter this command.

```
rtrv-ctrl-feat:partnum=893013201
```

The following is an example of the possible output.

```
rlghncxa03w 06-10-28 21:15:37 GMT EAGLE5 36.0.0
The following features have been permanently enabled:

Feature Name          Partnum    Status    Quantity
GSM Map Screening (GMS) 893013201 on        ----

The following features have been temporarily enabled:

Feature Name          Partnum    Status    Quantity    Trial Period Left
```

Zero entries found.

The following features have expired temporary keys:

Feature Name	Partnum
Zero entries found.	

If the GSMMAP screening feature is not enabled or off, go to the [Activating the GSM MAP Screening Feature](#) on page 293 to enable and turn on the GSMMAP screening feature.

Note: If the opcode=* or the pc/pca parameters are not being used in this procedure, skip step 2, and go to step 3.

- Verify that the Enhanced GSM MAP Screening feature is enabled and on by entering the `rtrv-ctrl-feat` command with the part number of the Enhanced GSM MAP Screening feature.

Enter this command.

```
rtrv-ctrl-feat:partnum=893012401
```

The following is an example of the possible output.

```
rlghncxa03w 06-10-28 21:15:37 GMT EAGLE5 36.0.0
The following features have been permanently enabled:
Feature Name          Partnum   Status   Quantity
Enhanced GSM (EGMS)  893012401 on       ----

The following features have been temporarily enabled:
Feature Name          Partnum   Status   Quantity   Trial Period Left
Zero entries found.

The following features have expired temporary keys:
Feature Name          Partnum
Zero entries found.
```

If the Enhanced GSMMAP screening feature is not enabled or off, go to the [Activating the GSM MAP Screening Feature](#) on page 293 to enable and turn on the Enhanced GSMMAP screening feature.

- Display the GSM MAP screening operation codes in the database using the `rtrv-gsms-opcode` command.

This is an example of the possible output.

```
rlghncxa03w 08-09-10 11:43:04 GMT EAGLE5 39.2.0
OPCODE  OPNAME    DFLTACT  PCA          SSN  RI  TT
OPCODE  OPNAME    DFLTACT  PCI          SSN  RI  TT
OPCODE  OPNAME    DFLTACT  PCN          SSN  RI  TT
OPCODE  OPNAME    DFLTACT  PCN24       SSN  RI  TT
OPCODE  OPNAME    DFLTACT
22      sri       disc
50      pass50    pass
```

GSMMS OPCODE Table (2 of 257) is 1% full

If the Flexible GTTLoad Sharing feature is enabled, the MAPSET field is shown in the `rtrv-gsms-opcode` output. This is an example of the possible output

```
rlghncxa03w 08-09-10 11:43:04 GMT EAGLE5 39.2.0
OPCODE  OPNAME      DFLTACT   PCA          SSN  MAPSET RI  TT
OPCODE  OPNAME      DFLTACT   PCI          SSN  MAPSET RI  TT
OPCODE  OPNAME      DFLTACT   PCN          SSN  MAPSET RI  TT
OPCODE  OPNAME      DFLTACT   PCN24        SSN  MAPSET RI  TT

OPCODE  OPNAME      DFLTACT
22      sri         disc
50      pass50      pass
```

GSMMS OPCODE Table (2 of 257) is 1% full

4. Perform one of these actions.

- If the `dfltact` parameter value will be either `pass`, `discard`, `route`, or `atierr`, skip steps 4 through 8, and continue the procedure with step 9.
- If the `dfltact` parameter value will be either `forward`, `duplicate`, or `dupdisc`, perform one of these actions.
 - To use a point code and a MAP set from the mated application table, and MAP sets are not shown in the `rtrv-gsms-opcode` output in step 3, the Flexible GTT Load Sharing Feature must be enabled. Perform the “Activating the Flexible GTT Load Sharing Feature” procedure in the *Database Administration Manual - Global Title Translation* and enable the Flexible GTT Load Sharing feature. After enabling the Flexible GTT Load Sharing feature, skip steps 5 and 6 and continue the procedure with step 7.
 - To use a point code and a MAP set from the mated application table, and MAP sets are shown in the `rtrv-gsms-opcode` output in step 3, skip steps 5 and 6 and continue the procedure with step 7.
 - To use a point code in the mated application table, but without using a MAP set, and MAP sets are not shown in the `rtrv-gsms-opcode` output in step 3, skip steps 5 and 6 and continue the procedure with step 7.
 - To use a point code that is not in the mated application table, the `force=yes` parameter must be specified with the `ent-gsms-opcode` command. A proxy point code cannot be assigned to this point code. If the Flexible GTT Load Sharing feature is enabled, the `force=yes` parameter can be used only if the default MAP set is assigned to the GSM OPCODE entry. Continue the procedure with step 5.

5. Display the destination point codes in the database by entering the `rtrv-dstn` command. This is an example of the possible output.

```
rlghncxa03w 06-10-10 11:43:04 GMT EAGLE5 37.5.0
DPCA          CLLI          BEI  ELEI  ALIASI          ALIASN          DOMAIN
001-207-000  -----no  ---  -----          -----          SS7
001-001-001  -----no  ---  -----          -----          SS7
001-001-002  -----no  ---  -----          -----          SS7
001-005-000  -----no  ---  -----          -----          SS7
001-007-000  -----no  ---  -----          -----          SS7
```

```

008-012-003 ----- no --- ----- SS7
003-002-004 ----- no --- ----- SS7
009-002-003 ----- no --- ----- SS7
010-020-005 ----- no --- ----- SS7

DPCI          CLLI          BEI ELEI  ALIASI          ALIASN          DOMAIN
1-207-0      ----- no --- ----- SS7
0-015-0      ----- no --- ----- SS7
0-017-0      ----- no --- ----- SS7
1-011-1      ----- no --- ----- SS7
1-011-2      ----- no --- ----- SS7

DPCN          CLLI          BEI ELEI  ALIASA          ALIASI          DOMAIN

DPCN24        CLLI          BEI ELEI  ALIASA          ALIASI          DOMAIN

Destination table is (14 of 2000) 1% full
Alias table is (0 of 12000) 0% full
PPC table is (1 of 20) 5% full

```

If the required point code is not shown in the `rtrv-dstn` output, perform the "Adding a Destination Point Code" procedure in the *Database Administration Manual - SS7* to add the required point code. A proxy point code cannot be assigned to the point code.

After the new point code has been added, skip steps 6 through 8 and perform the "Adding a Route Containing an SS7 DPC" procedure in the *Database Administration Manual - SS7* and add the required route to the database. After the route has been added, continue the procedure with step 9.

6. Display the point code that will be assigned to the mated application by using the `rtrv-dstn` command and specifying the point code. For this example, enter this command.

```
rtrv-dstn:dpca=010-020-005
```

This is an example of the possible output.

```

rlghncxa03w 06-10-10 11:43:04 GMT EAGLE5 37.5.0

DPCA          CLLI          BEI ELEI  ALIASI          ALIASN          DOMAIN
010-020-005  ----- no --- ----- SS7

PPC           NCAI          PRX
009-002-003  ----         no

Destination table is (14 of 2000) 1% full
Alias table is (0 of 12000) 0% full
PPC table is (1 of 20) 5% full

```

If the adjacent point code is not shown in the `rtrv-dstn` command output, the following output is displayed.

```

DPCA          CLLI          BEI ELEI  ALIASI          ALIASN/N24      DOMAIN

No destinations meeting the requested criteria were found

Destination table is (14 of 2000) 1% full
Alias table is (0 of 12000) 0% full
PPC table is (1 of 20) 5% full

```

A proxy point code (a point code value is shown in the PPC column) cannot be assigned to the point code. If a proxy point code is shown in this step, choose another point code from the `rtrv-dstn` output in the previous step and repeat this step.

If the point code is not shown in the `rtrv-dstn` output, perform the "Adding a Destination Point Code" procedure in the Database *Administration Manual - SS7* and add the adjacent point code to the destination point code table.

After the new point code has been added, skip steps 7 and 8 and perform the "Adding a Route Containing an SS7 DPC" procedure in the Database *Administration Manual - SS7* and add the required route to the database. After the route has been added, continue the procedure with step 9.

- The point code and subsystem number being assigned to the GSM OPCODE must be in the mated application table.

Enter the `rtrv-map` command with the `pc/pca/pci/pcn/pcn24` and `ssn` values that will be specified with the `ent-gsms-opcode` command in step 9.

If the Flexible GTT Load Sharing feature is not enabled, for this example, enter these commands.

```
rtrv-map:pci=3-159-7:ssn=128
```

This is an example of the possible output.

```
rlghncxa03w 06-10-25 09:42:31 GMT EAGLE5 36.0.0
MAP TABLE IS 2 % FULL (20 of 1024)
PCI          Mate PCI      SSN RC MULT SRM MRC GRP NAME SSO
3-159-7      3-159-7      128 10 SOL --- --- GRP01  OFF
```

```
rtrv-map:pcn=11519:ssn=79
```

This is an example of the possible output.

```
rlghncxa03w 06-10-25 09:42:31 GMT EAGLE5 36.0.0
MAP TABLE IS 2 % FULL (20 of 1024)
PCN          Mate PCN      SSN RC MULT SRM MRC GRP NAME SSO
11519       11519       79 10 SOL --- --- GRP01  ON
```

```
rtrv-map:pci=5-25-3:ssn=200
```

This is an example of the possible output.

```
rlghncxa03w 06-10-25 09:42:31 GMT EAGLE5 36.0.0
MAP TABLE IS 2 % FULL (20 of 1024)
PCI          Mate PCI      SSN RC MULT SRM MRC GRP NAME SSO
5-25-3      5-25-3      200 10 SOL --- --- GRP01  ON
```

```
rtrv-map:pca=002-002-002:ssn=10
```

This is an example of the possible output.

```
rlghncxa03w 06-10-25 09:42:31 GMT EAGLE5 36.0.0
E2452 Cmd Rej: Remote point code does not exist in MAP table
```

If the Flexible GTT Load Sharing feature is enabled:

- The `mapset` parameter must be specified with the `ent-gsms-opcode` command in step 9.

- The point code and subsystem contained in the GSM OPCODE entry must be in the MAP set assigned to the GSM OPCODE entry.

For this example, enter these commands.

```
rtrv-map:pci=3-159-7:ssn=128
```

This is an example of the possible output.

```
rlghncxa03w 06-10-25 09:42:31 GMT EAGLE5 36.0.0
MAP TABLE IS 2 % FULL (20 of 1024)
PCI           Mate PCI      SSN RC MULT SRM MRC GRP NAME SSO
MAPSET ID=DFLT
3-159-7              128 10 SOL --- --- GRP01 OFF
```

```
rtrv-map:pcn=11519:ssn=79
```

This is an example of the possible output.

```
rlghncxa03w 06-10-25 09:42:31 GMT EAGLE5 36.0.0
MAP TABLE IS 2 % FULL (20 of 1024)
PCN           Mate PCN      SSN RC MULT SRM MRC GRP NAME SSO
MAPSET ID=10
11519          79 10 SOL --- --- GRP01 ON
```

```
rtrv-map:pci=5-25-3:ssn=200
```

This is an example of the possible output.

```
rlghncxa03w 06-10-25 09:42:31 GMT EAGLE5 36.0.0
MAP TABLE IS 2 % FULL (20 of 1024)
PCI           Mate PCI      SSN RC MULT SRM MRC GRP NAME SSO
MAPSET ID=20
5-25-3          200 10 SOL --- --- GRP01 ON
```

```
rtrv-map:pca=002-002-002:ssn=10
```

This is an example of the possible output.

```
rlghncxa03w 06-10-25 09:42:31 GMT EAGLE5 36.0.0
E2452 Cmd Rej: Remote point code does not exist in MAP table
```

If the point code and subsystem number is not shown in the `rtrv-map` output, perform one of the "Provisioning a Mated Application" procedures in the *Database Administration Manual - Global Title Translation* and add the required point code and subsystem number to the mated application table.

8. The point code specified with the `ent-gsms-opcode` command must be the DPC of a route. If the point code specified with the `ent-gsms-opcode` command is an ANSI point code, the point code can be a member of a cluster point code when that cluster point code is the DPC of a route.

Enter the `rtrv-rte` command with the `dpc` parameter specifying the point code to be used with the `ent-gsms-opcode` command to verify whether or not the point code is the DPC of a route. For this example, enter these commands.

```
rtrv-rte:dpci=3-159-7
```

This is an example of the possible output.

```
rlghncxa03w 06-10-07 11:43:04 GMT EAGLE5 36.0.0
DPCI      ALIASN/N24      ALIASA      LSN      RC      APC
3-159-7   12111             240-111-111 ls100001  10     1-234-5
          12111             240-111-111 ls100002  10     1-234-6
          12111             240-111-111 ls100003  20     1-234-7
          12111             240-111-111 ls100004  30     1-234-1
          12111             240-111-111 ls100005  40     1-234-2
          12111             240-111-111 ls100006  50     1-234-3
          RTX:No      CLLI=idpl
```

```
rtrv-rte:dpcn=11519
```

This is an example of the possible output.

```
rlghncxa03w 06-10-07 11:43:04 GMT EAGLE5 36.0.0
DPCN      ALIASA      ALIASI      LSN      RC      APC
11519     011-222-111 0-001-1     ls200001  10     11111
          011-222-111 0-001-1     ls200002  10     11112
          011-222-111 0-001-1     ls200003  20     11113
          011-222-111 0-001-1     ls200004  30     11114
          011-222-111 0-001-1     ls200005  40     11115
          011-222-111 0-001-1     ls200006  50     11116
          RTX:No      CLLI=ndpl
```

```
rtrv-rte:dpci=5-25-3
```

This is an example of the possible output.

```
rlghncxa03w 06-10-07 11:43:04 GMT EAGLE5 36.0.0
DPCI      ALIASN/N24      ALIASA      LSN      RC      APC
5-25-3    07659           240-039-150 ls100001  10     5-25-3
          07659           240-039-150 ls100002  10     3-250-6
          07659           240-039-150 ls100003  20     7-34-7
          07659           240-039-150 ls100004  30     6-98-1
          07659           240-039-150 ls100005  40     3-142-2
          07659           240-039-150 ls100006  50     1-178-3
          RTX:No      CLLI=idpl
```

```
rtrv-rte:dPCA=002-002-002
```

```
rlghncxa03w 06-10-25 09:42:31 GMT EAGLE5 36.0.0
DPCA      ALIASI      ALIASN/N24      LSN      RC      APCA
002-002-002 -----
          -----
          -----
          lsn1      10     002-002-002
          RTX:No      CLLI=-----
```

If the point code is not shown in the `rtrv-rte` output, or, if the point code is an ANSI point code, the point code is not a member of a cluster point code when that cluster point code is the DPC of a route, go to the "Adding a Route Containing an SS7 DPC" procedure in the *Database Administration Manual - SS7* and add the required route to the database.

9. Add the new GSM MAP screening operation codes to the database with the `ent-gsms-opcode` command.

For this example, enter these commands:

```
ent-gsms-opcode:opcode=100:opname=pass100:dfltact=pass
```

```
ent-gsms-opcode:opcode=150:opname=discard1:dfltact=discard
```

```
ent-gsms-opcode:opcode=71:opname=ati:dfltact=atierr
ent-gsms-opcode:opcode=25:opname=route25:dfltact=route
ent-gsms-opcode:opcode=139:opname=fwd139:dfltact=forward
:pci=3-159-7:ssn=128:mapset=dflt
ent-gsms-opcode:opcode=187:opname=dup187:dfltact=duplicate
:pcn=11519:ssn=79:mapset=10
ent-gsms-opcode:opcode=93:opname=dd93:dfltact=dupdisc
:pci=5-25-3:ssn=200:mapset=20
ent-gsms-opcode:opcode=36:opname=for1:dfltact=forward
:pca=002-002-002:ssn=10:mapset=25
ent-gsms-opcode:opcode=*:opname=star1:dfltact=pass
```

When each of these commands has successfully completed, this message appears.

```
rlghncxa03w 06-10-10 11:43:04 GMT EAGLE5 36.0.0
ENT-GSMS-OPCODE: MASP A - COMPLTD
```

Note: See [Figure 51: Adding a GSM MAP Screening Operation Code](#) on page 341 (Sheet 7) for the rules that apply to the ent-gsms-opcode command.

10. Verify the changes using the rtrv-gsms-opcode command and specifying the opcode parameter value used in step 9.

For this example, enter these commands.

```
rtrv-gsms-opcode:opcode=025
```

This is an example of the possible output.

```
rlghncxa03w 06-10-10 11:43:04 GMT EAGLE5 36.0.0
OPCODE  OPNAME    DFLTACT
 25      route25    route
```

GSMMS OPCODE Table (11 of 257) is 4% full

```
rtrv-gsms-opcode:opcode=071
```

This is an example of the possible output.

```
rlghncxa03w 06-10-10 11:43:04 GMT EAGLE5 36.0.0
OPCODE  OPNAME    DFLTACT
 71      ati       atierr
```

GSMMS OPCODE Table (11 of 257) is 4% full

```
rtrv-gsms-opcode:opcode=093
```

This is an example of the possible output.

```
rlghncxa03w 08-09-10 11:43:04 GMT EAGLE5 39.2.0
OPCODE  OPNAME    DFLTACT  PCI      SSN    MAPSET  RI  TT
 93      dd93      dupdc    5-25-3   200    20      ssn -
```

GSMMS OPCODE Table (11 of 257) is 4% full

```
rtrv-gsms-opcode:opcode=100
```

This is an example of the possible output.

```
rlghncxa03w 06-10-10 11:43:04 GMT EAGLE5 36.0.0
OPCODE  OPNAME      DFLTACT
 100    pass100    pass
```

GSMSMS OPCODE Table (11 of 257) is 4% full

```
rtrv-gsms-opcode:opcode=139
```

This is an example of the possible output.

```
rlghncxa03w 08-09-10 11:43:04 GMT EAGLE5 39.2.0
OPCODE  OPNAME      DFLTACT  PCI      SSN  MAPSET RI  TT
 139    fwd139    fwd      3-159-7  128  DFLT  ssn  -
```

GSMSMS OPCODE Table (11 of 257) is 4% full

```
rtrv-gsms-opcode:opcode=150
```

This is an example of the possible output.

```
rlghncxa03w 06-10-10 11:43:04 GMT EAGLE5 36.0.0
OPCODE  OPNAME      DFLTACT
 150    discard1  disc
```

GSMSMS OPCODE Table (11 of 257) is 4% full

```
rtrv-gsms-opcode:opcode=187
```

This is an example of the possible output.

```
rlghncxa03w 08-09-10 11:43:04 GMT EAGLE5 39.2.0
OPCODE  OPNAME      DFLTACT  PCN      SSN  MAPSET RI  TT
 187    dup187    dupl     11519    79   10    ssn  -
```

GSMSMS OPCODE Table (11 of 257) is 4% full

```
rtrv-gsms-opcode:opcode=36
```

This is an example of the possible output.

```
rlghncxa03w 08-09-10 11:43:04 GMT EAGLE5 39.2.0
OPCODE  OPNAME      DFLTACT  PCA      SSN  MAPSET RI  TT
 36     for1      fwd      002-002-002  10  25    ssn  -
```

GSMSMS OPCODE Table (11 of 257) is 4% full

```
rtrv-gsms-opcode:opcode=*
```

This is an example of the possible output.

```
rlghncxa03w 06-10-10 11:43:04 GMT EAGLE5 36.0.0
OPCODE  OPNAME      DFLTACT
 *      star      pass
```

GSMSMS OPCODE Table (11 of 257) is 4% full

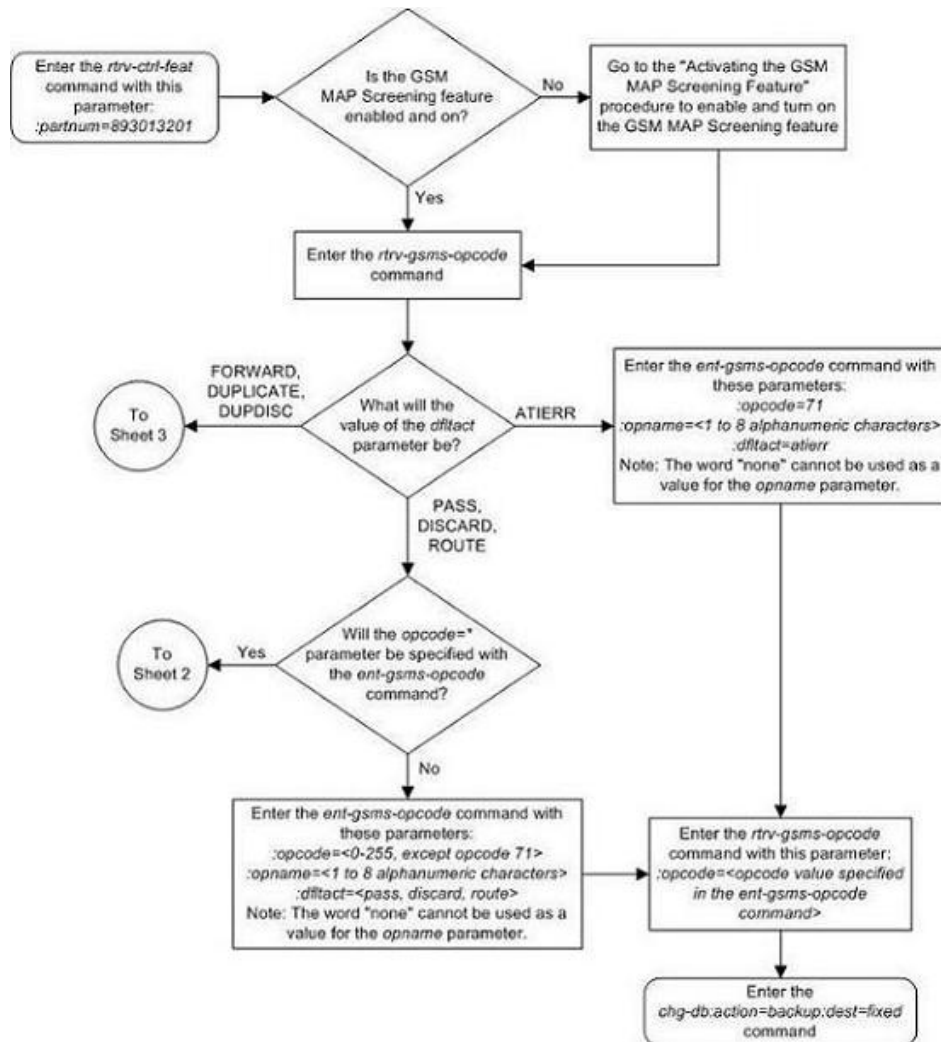
11. Backup the new changes using the `chg-db:action=backup:dest=fixed` command.

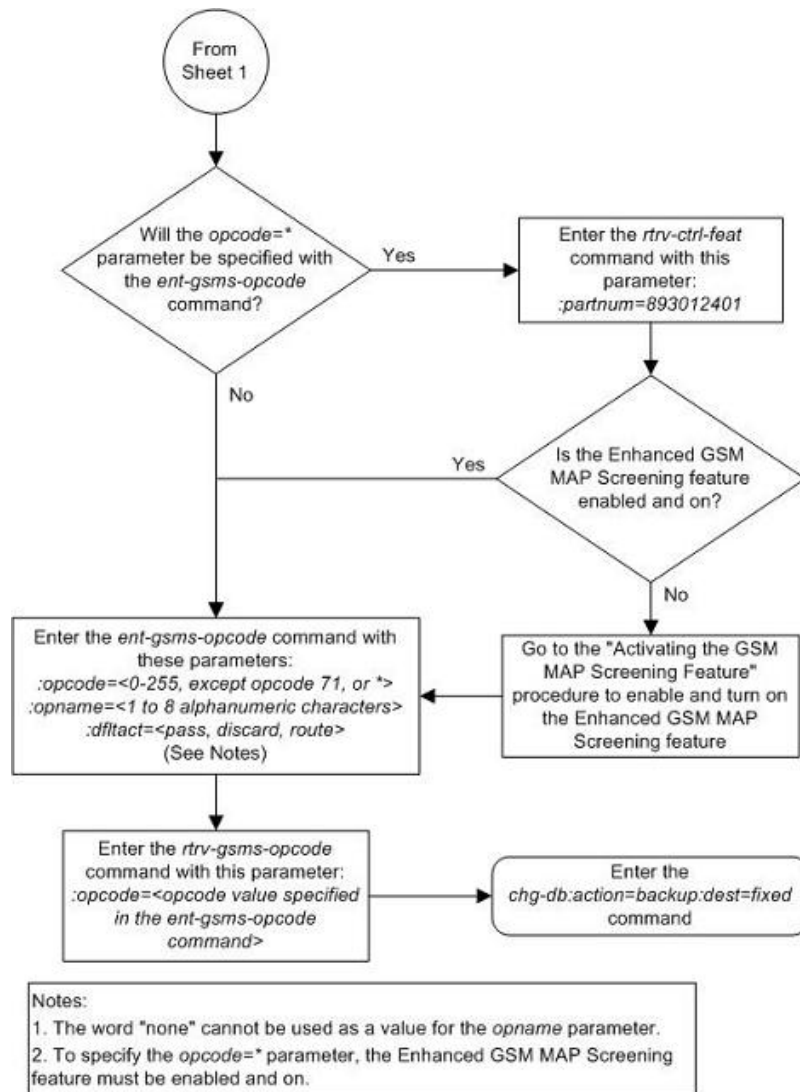
These messages should appear, the active Maintenance and Administration Subsystem Processor (MASP) appears first.

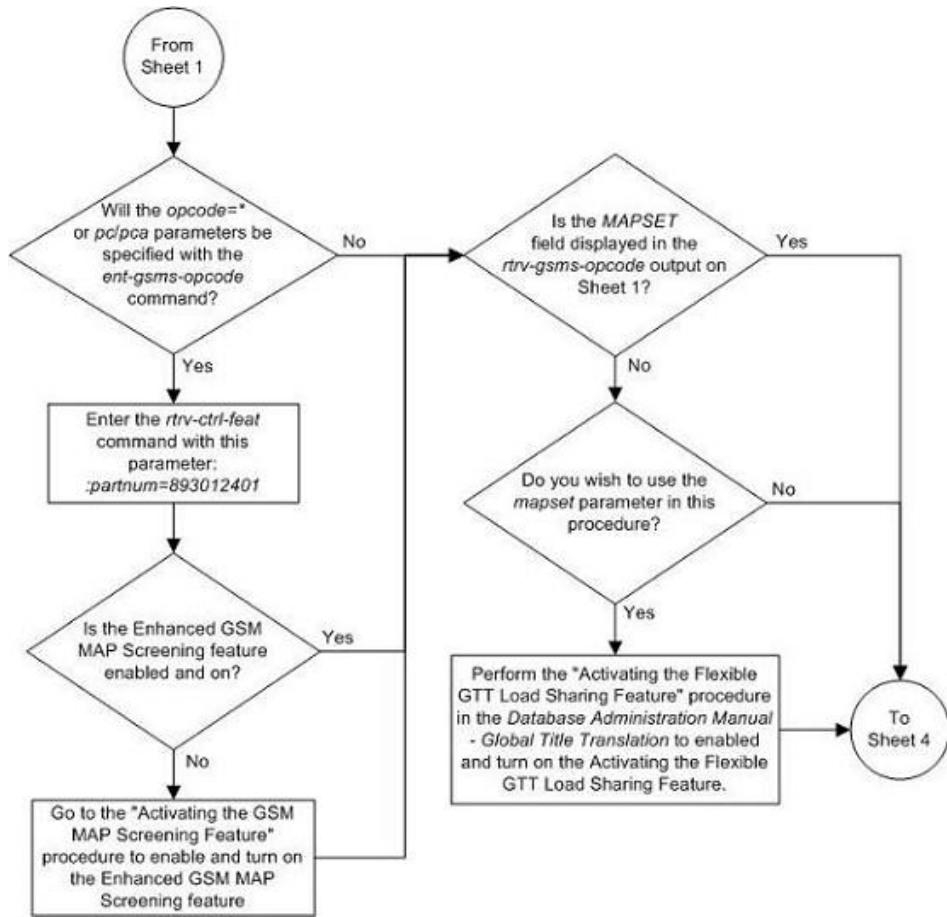
```

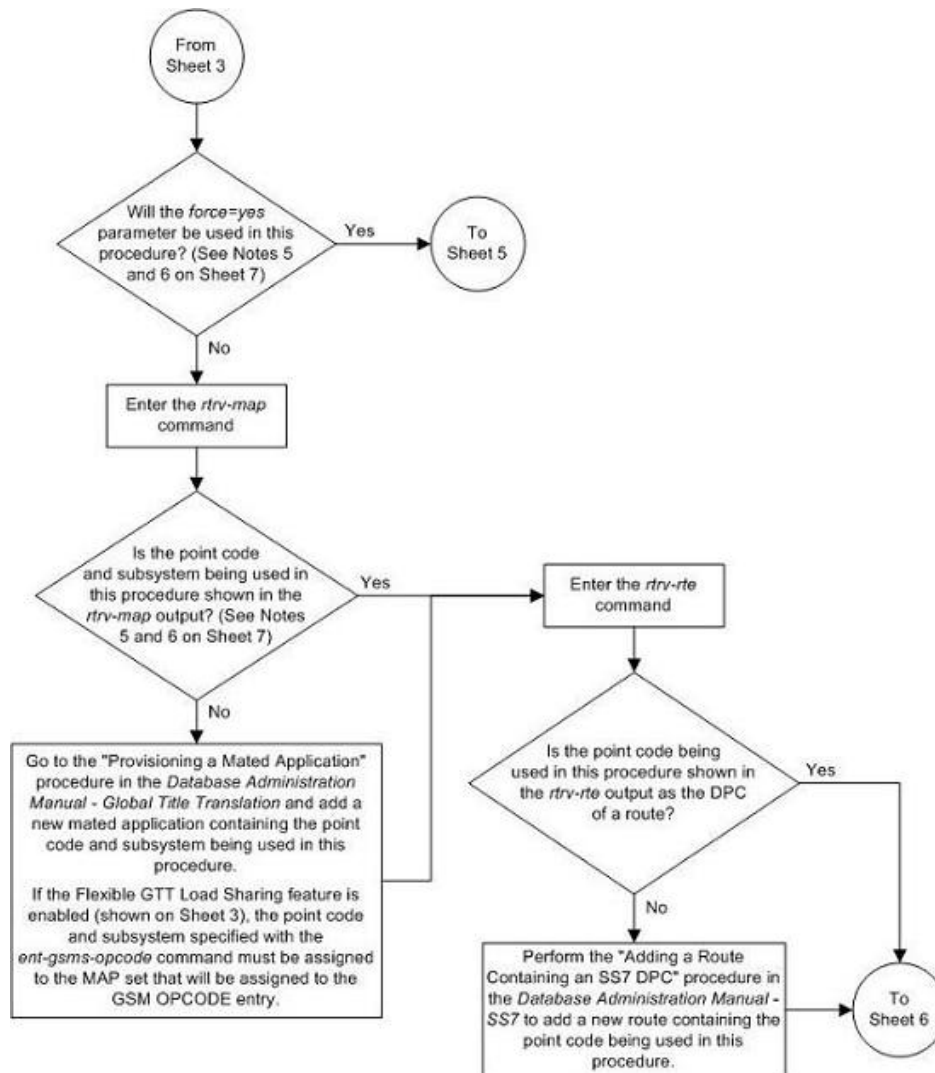
BACKUP (FIXED) : MASP A - Backup starts on active MASP.
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk complete.
BACKUP (FIXED) : MASP A - Backup starts on standby MASP.
BACKUP (FIXED) : MASP A - Backup on standby MASP to fixed disk complete.
    
```

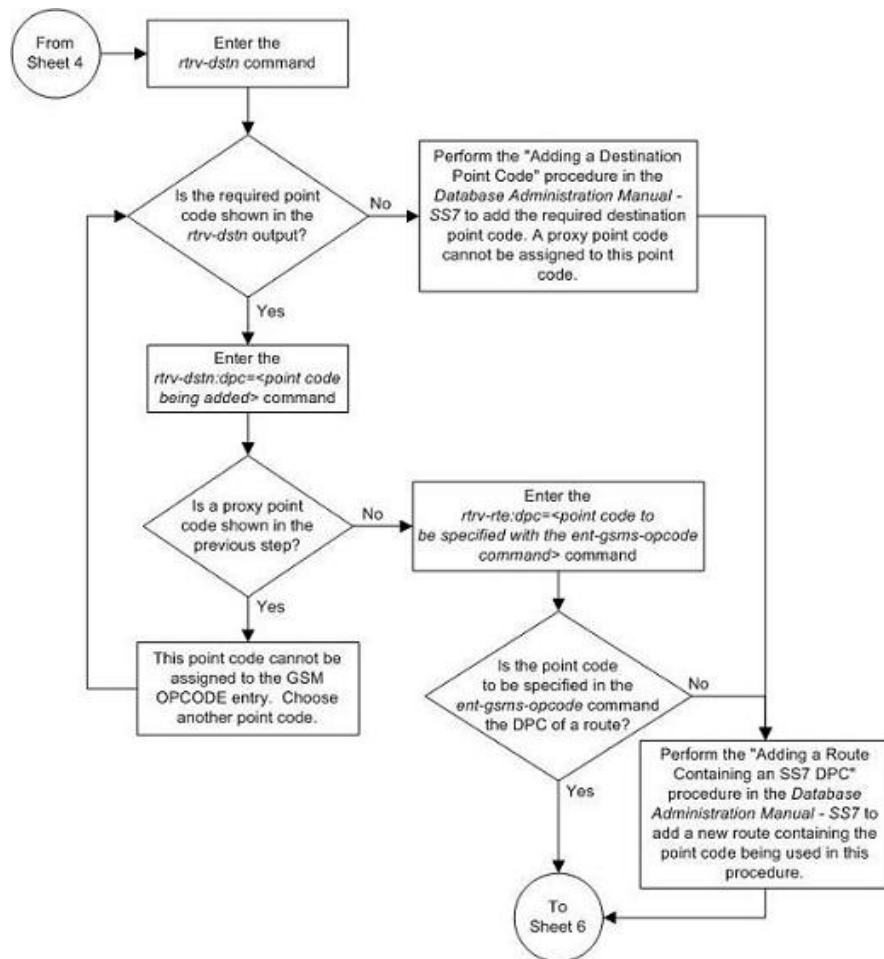
Figure 51: Adding a GSM MAP Screening Operation Code

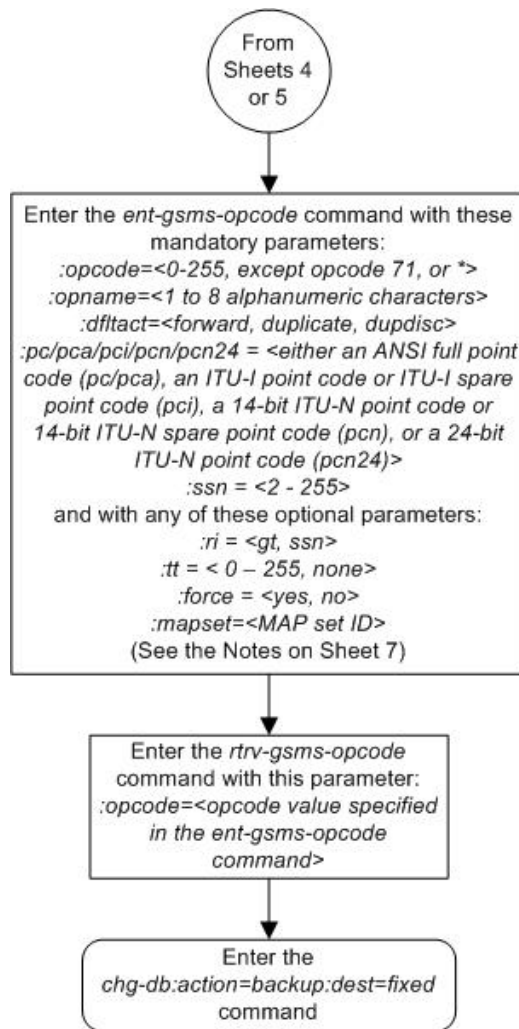












Notes:

1. The word "none" cannot be used as a value for the *opname* parameter.
2. The *pc/pca/pcil/pcn/pcn24* value must be shown in the *rtrv-rte* output on Sheets 4 or 5 as the DPC of a route. The *pc/pca* value must be a full point code value. The *pc/pca* value can be a member of a cluster point code when that cluster point code is the DPC of a route. A proxy point code cannot be assigned to the point code.
3. The EAGLE 5 ISS can contain 14-bit ITU-N point codes or 24-bit ITU-N point codes, but not both.
4. To specify the *opcode=* or pc/pca* parameters, the Enhanced GSM MAP Screening feature must be enabled and on.
5. If the Flexible GTT Load Sharing feature is not enabled, shown on Sheet 3:
The *mapset* parameter cannot be used.
The *pc/pca/pcil/pcn/pcn24* and *ssn* values must be shown in the *rtrv-map* output on Sheet 4, otherwise, the *force=yes* parameter must be specified.
6. If the Flexible GTT Load Sharing feature is enabled, shown on Sheet 3:
The *mapset* parameter must be used.
The *force=yes* parameter can be used only if the MAP set assigned to the GSM OPCODE entry is the default MAP set.
If the MAP set assigned to the GSM OPCODE entry is a MAP set other than the default MAP set, the *force=yes* parameter cannot be used. The point code and subsystem contained in the GSM OPCODE entry must be in the MAP set assigned to the GSM OPCODE entry.
If the default MAP set is assigned to the GSM OPCODE entry and the *force=yes* parameter is not specified, the point code and subsystem contained in the GSM OPCODE entry must be in the default MAP set.
7. If the *ri* or *tt* parameters are not specified, the default values for these parameters are assigned to the GSM OPCODE entry. The default values for these parameters are:
ri – *ssn*
tt – no value is specified. A dash is shown in the *TT* column of the *rtrv-gsms-opcode* output.
8. If the *ri=ssn* parameter is specified, a numerical value must be specified for the *ssn* parameter.

Removing a GSM MAP Screening Operation Code

Use this procedure to remove GSM MAP screening operation codes and the default screening action for that operation code using the `dlt-gsms-opcode` command.

The `dlt-gsms-opcode` command uses only one parameter, *opname*. The value for the *opname* parameter is the user-defined name for the operation code shown in the `rtrv-gsms-opcode` command output.

The *opname* value being removed cannot be referenced by any GSM MAP screening entries (shown in the `rtrv-gsmmap-scrn` command output). Use the [Removing a GSM MAP Screening Entry](#) on page 398 procedure to remove any GSM MAP screening entries that reference the *opname* name value being removed from the database.

1. Display the GSM MAP screening opcodes in the database using the `rtrv-gsms-opcode` command.

This is an example of the possible output.

```
rlghncxa03w 08-09-10 11:43:04 GMT EAGLE5 39.2.0
OPCODE  OPNAME    DFLTACT  PCA          SSN  RI  TT
 36     for1      fwd      002-002-002  10   gt  40

OPCODE  OPNAME    DFLTACT  PCI          SSN  RI  TT
 93     dd93     dupdc    5-25-3      200  ssn 10
139     fwd139   fwd      3-159-7     128  ssn -

OPCODE  OPNAME    DFLTACT  PCN          SSN  RI  TT
187     dup187   dupl     11519       79   gt  50

OPCODE  OPNAME    DFLTACT  PCN24        SSN  RI  TT

OPCODE  OPNAME    DFLTACT
 22     sri      disc
 25     route25 route
 50     pass50   pass
 71     ati      atierr
100     pass100 pass
150     discard1 disc
*      star    pass
```

GSMMS OPCODE Table (11 of 257) is 4% full

2. Display the GSM MAP screening entries that reference the opname value being removed from the database using the `rtrv-gsmmap-scrn` command specifying the `opname` parameter with the `opname` value being removed from the database. For this example, enter this command.

```
rtrv-gsmmap-scrn:opname=sri
```

This is an example of the possible output if the `rtrv-gsmmap-scrn` output contains no entries that reference the `opname` value being removed.

```
rlghncxa03w 08-09-20 09:07:58 GMT EAGLE5 39.2.0
Single CgPA Entries for OPNAME: sri
-----
SADDR          NP NAI FORBD ACT      PCA          SSN CGSR RI  TT
SADDR          NP NAI FORBD ACT      PCI          SSN CGSR RI  TT
SADDR          NP NAI FORBD ACT      PCN          SSN CGSR RI  TT
SADDR          NP NAI FORBD ACT      PCN24        SSN CGSR RI  TT
SADDR          NP NAI FORBD ACT  CGSR

Range CgPA Entries for OPNAME: sri
-----
SADDR          EADDR          NP NAI FORBD ACT      PCA          SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT      PCI          SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT      PCN          SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT      PCN24        SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT  CGSR
```

```
GSM Map Screening table is (1500 of 4000) 38% full
```

This is an example of the possible output if the `rtrv-gsmmap-scrn` output contains entries that reference the `opname` value being removed.

```
rtrv-gsmmap-scrn:opname=sri
```

```
rlghncxa03w 08-09-20 09:07:58 GMT EAGLE5 39.2.0
```

```
Single CgPA Entries for OPNAME: sri
```

```
-----
SADDR          NP NAI FORBD ACT      PCA          SSN CGSR RI  TT
SADDR          NP NAI FORBD ACT      PCI          SSN CGSR RI  TT
SADDR          NP NAI FORBD ACT      PCN          SSN CGSR RI  TT
SADDR          NP NAI FORBD ACT      PCN24        SSN CGSR RI  TT
SADDR          NP NAI FORBD ACT  CGSR
919462000000005 1 0  none pass  sri1
```

```
Range CgPA Entries for OPNAME: sri
```

```
-----
SADDR          EADDR          NP NAI FORBD ACT      PCA          SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT      PCI          SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT      PCN          SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT      PCN24        SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT  CGSR
919461888888888 919461900000000 4 1  all pass  sri2
919462000000000 919463000000000 * *  all disc  sri3
```

```
GSM Map Screening table is (1500 of 4000) 38% full
```

If the GSM MAP screening entry in this step contains any CGPA entries, go to the [Removing a GSM MAP Screening Entry](#) on page 398 procedure to remove the CGPA entries shown in this step.

3. Remove the GSM MAP `opname` value from the database using the `dlt-gsms-opcode` command.

For this example, enter this command.

```
dlt-gsms-opcode:opname=sri
```

When this command has successfully completed, this message appears.

```
rlghncxa03w 06-10-07 00:29:31 GMT EAGLE5 36.0.0
DLT-GSMS-OPCODE: MASP A - COMPLTD
```

4. Verify the changes using the `rtrv-gsms-opcode` command with the `opname` parameter value specified in step 3. For this example, enter this command.

```
rtrv-gsms-opcode:opname=sri
```

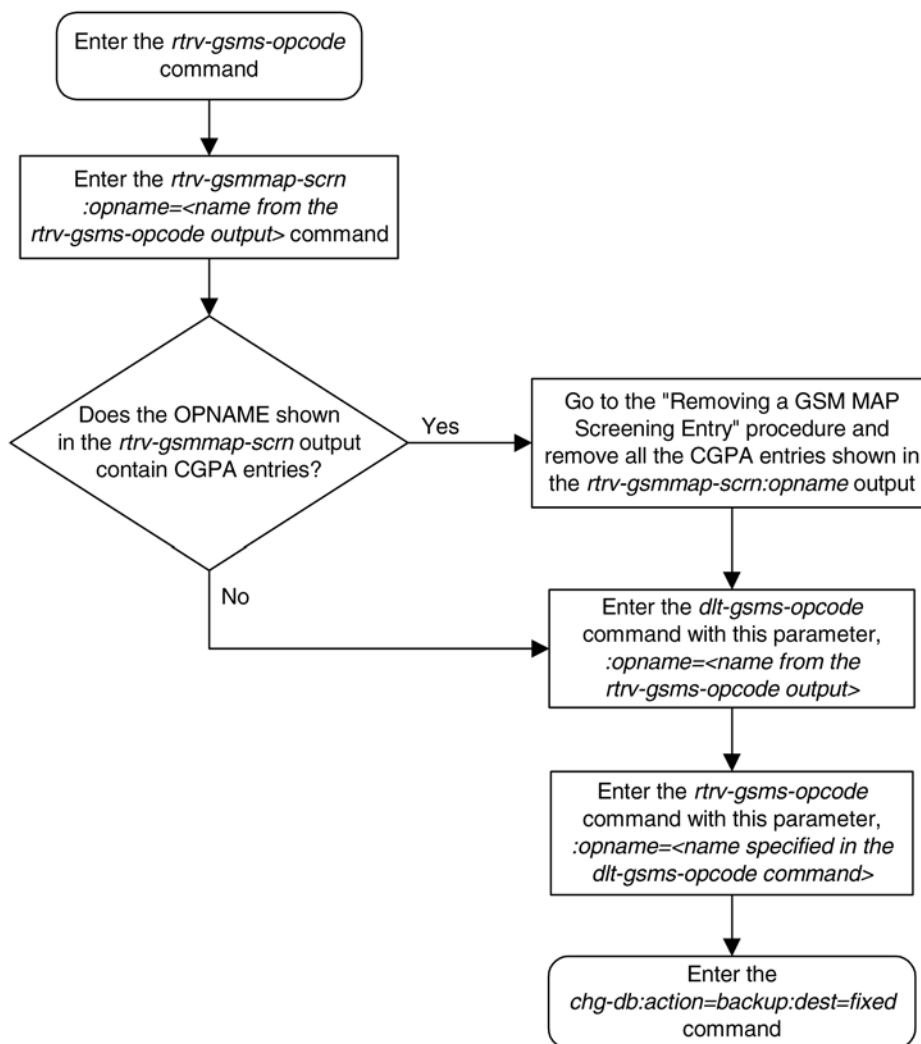
This is an example of the possible output.

```
rlghncxa03w 06-10-10 11:43:04 GMT EAGLE5 36.0.0
E3892 Cmd Rej: OPNAME does not exist in the database
```

- Backup the new changes using the `chg-db:action=backup:dest=fixed` command. These messages should appear, the active Maintenance and Administration Subsystem Processor (MASP) appears first.

```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk complete.
BACKUP (FIXED) : MASP A - Backup starts on standby MASP.
BACKUP (FIXED) : MASP A - Backup on standby MASP to fixed disk complete.
```

Figure 52: Removing a GSM MAP Screening Operation Code



Changing a GSM MAP Screening Operation Code

Use this procedure to change the attributes of the GSM MAP screening operation codes using the `chg-gsms-opcode` command. The procedure allows you to change the default screening action and the operation-code name for a specific operation code. The `chg-gsms-opcode` command uses these parameters.

`:opname` – The user-defined name for the operation code shown in the `rtrv-gsms-opcode` command output.

`:nopname` – The new user-defined name for the operation code.

`:ndfltact` – The new default screening action.

- `pass` – Route the message as normal to the destination.
- `discard` – The MSU is to be discarded.
- `atierr` – An ATI (Any Time Interrogation) reject message is generated. This option is only valid for ATI MAP operation codes.
- `route` – Route the message as normal to the original destination node.
- `forward` – Route the original message to the forward node. The original message is not sent to the original node. If, however, the forwarded node is not available for routing then the MSU is routed to the original node.
- `duplicate` – Route the message as normal to the original destination and route a copy of the original message to the duplicate node.
- `dupdisc` – Duplicate and discard – Route the original message to the duplicate node. The original message is not sent to the original node.

`:npc/npca/npci/npcn/npcn24` – The new ANSI point code (`npc/npca`), new ITU-I point code or ITU-I spare point code (`npci`), new 14-bit ITU-N point code or 14-bit ITU-N spare point code (`npcn`), or new 24-bit ITU-N point code (`npcn24`) of the node that the MSU is routed to by the `forward`, `duplicate`, or `dupdisc` screening actions. The EAGLE 5 ISS can contain 14-bit ITU-N point codes or 24-bit ITU-N point codes, but not both. The `npc/npca` parameters can be specified only if the Enhanced GSM MAP Screening feature is enabled and on.

`:nssn` – The new subsystem number of the node that the MSU is routed to by the `forward`, `duplicate`, or `dupdisc` screening actions

`:force` – The mated application override. Is the GSM MAP screening operation code to be entered without a mated application in the database (`yes` or `no`)?

`:nmapset` – The new MAP set ID, shown in the `rtrv-map` command. This parameter can be specified only if the Flexible GTT Load Sharing feature is enabled. The status of the Flexible GTT Load Sharing feature is shown in the `rtrv-ctrl-feat` output. To enable the Flexible GTT Load Sharing feature, perform the “Activating the Flexible GTT Load Sharing Feature” procedure in the *Database Administration Manual - Global Title Translation*.

If the Flexible GTT Load Sharing feature is not enabled:

- The `nmapset` parameter cannot be used.
- The `npc/npca/npci/npcn/npcn24` and `nssn` values must be shown in the `rtrv-map` output, or else the `force=yes` parameter must be specified.

If the Flexible GTT Load Sharing feature is enabled:

- If the current `dfltact` parameter value is either `pass`, `route`, `discard`, or `atierr`, and the `dfltact` parameter value is changed to either `forward`, `duplicate`, or `dupdisc`, the GSM OPCODE entry must be assigned to a MAP set with the `nmapset=dflt` parameter (to assign the GSM OPCODE entry to the default MAP set), or with the `nmapset=<numbered MAP set ID>` parameter (to assign the GSM OPCODE entry to a MAP set other the default MAP set).
- If the default MAP set will be assigned to the GSM OPCODE entry, the `npc/npca/npci/npcn/npcn24` and `nssn` values must be shown in the default MAP set in the `rtrv-map` output. If the `npc/npca/npci/npcn /npcn24` or `nssn` values are not shown in the default MAP set in the `rtrv-map` output, the `force=yes` parameter must be specified.
- If a MAP set other than the default MAP set will be assigned to the GSM OPCODE entry, the `npc/npca/npci/npcn/npcn24` and `nssn` values must be shown in that MAP set in the `rtrv-map` output. The `force=yes` parameter cannot be specified with the `chg-gsms-opcode` command.
- If the point code and subsystem values are not being changed, the `nmapset` parameter does not have to be specified unless the MAP set ID assigned to the GSM OPCODE entry is being changed. The new MAP set must contain the point code and subsystem values in the GSM OPCODE entry.

`:nri` - The new routing indicator parameter. This parameter specifies whether a subsequent global title translation is required. This parameter has two values.

- `gt` - subsequent global title translation is required.
- `ssn` - subsequent global title translation is not required.

`:ntt` - the new translation type that will be assigned to the GSM OPCODE entry. The values for this parameter are 0 to 255, or the value `none` which removes and existing translation type that is assigned to the GSM OPCODE entry.

The `nopname` parameter value must be no more than 8 alphanumeric characters.

The reserved word `none` cannot be used as a value for the `nopname` parameter.

The `ndfltact=atierr` parameter cannot be specified unless the value of the operation code (`opcode`) referenced by the `opname` parameter value is 71. The `atierr` option is only valid for ATI MAP operation codes; `opcode=71` signifies an ATI MAP operation code.

The `npc/npca/npci/npcn/npcn24` and `nssn` values must be shown in the `rtrv-map` output, or else the `force=yes` parameter must be specified. If the `npc/npca/npci/npcn/npcn24` and `nssn` values are not shown in the `rtrv-map` output, and a new mated application is to be added, perform one of the "Provisioning a Mated Application" procedures in the *Database Administration Manual - Global Title Translation* and add the required mated application with the `npc/npca/npci/npcn/npcn24` and `nssn` values.

The `force=yes` parameter can be specified only with the `npc/npca/npci/npcn/npcn24` and `nssn` parameters.

The `ndfltact=forward`, `ndfltact=duplicate`, or `ndfltact=dupdisc` parameters can be specified only with the `npc/npca/npci/npcn/npcn24` and `nssn` parameters. If the `npc/npca/npci/npcn/npcn24` and `nssn` parameters are specified, the `ndfltact=forward`, `ndfltact=duplicate`, or `ndfltact=dupdisc` parameters must be specified.

The `npc/npca/npci/npcn/npcn24` and `nssn` parameters must be specified together.

The npc/npca/npci/npcn/npcn24 parameter values must be the DPC of a route or a member of a cluster route, and a proxy point code cannot be assigned to the point code. This can be verified with the rtrv-rte command. If the npc/npca/npci/npcn/npcn24 value is not shown in the rtrv-rte as the DPC of a route, go to the "Adding a Route Containing an SS7 DPC" procedure in the Database Administration Manual - SS7 and add a new route containing the npc/npca/npci/npcn/npcn24 value. To verify whether or not a proxy point code is assigned to the npc/npca/npci/npcn/npcn24 value, enter the rtrv-dstn command with the point code value. If a proxy point code is assigned to the point code, choose another point code.

1. Display the GSM MAP screening operation codes in the database using the rtrv-gsms-opcode command.

If the Flexible GTT Load Sharing feature is not enabled, this is an example of the possible output.

```

rlghncxa03w 08-09-10 11:43:04 GMT EAGLE5 39.2.0

OPCODE  OPNAME      DFLTACT  PCA          SSN  RI  TT
 36     for1         fwd      002-002-002  10  gt  10

OPCODE  OPNAME      DFLTACT  PCI          SSN  RI  TT
 93     dd93        dupdc    5-025-3     200 ssn 40
139     fwd139      fwd      3-159-7     128 ssn -

OPCODE  OPNAME      DFLTACT  PCN          SSN  RI  TT
187     dup187      dupl     11519       79  gt  50

OPCODE  OPNAME      DFLTACT  PCN24        SSN

OPCODE  OPNAME      DFLTACT
 22     sri         disc
 25     route25    route
 50     pass50     pass
 71     ati        atierr
150     discard1   disc
*      star      pass

GSMMS OPCODE Table (10 of 257) is 4% full

```

If the Flexible GTT Load Sharing feature is enabled, this is an example of the possible output.

```

rlghncxa03w 08-09-10 11:43:04 GMT EAGLE5 39.2.0

OPCODE  OPNAME      DFLTACT  PCA          SSN  MAPSET RI  TT
 36     for1         fwd      002-002-002  10  25  gt  10

OPCODE  OPNAME      DFLTACT  PCI          SSN  MAPSET RI  TT
 93     dd93        dupdc    5-025-3     200 20  ssn 40
139     fwd139      fwd      3-159-7     128 DFLT ssn -

OPCODE  OPNAME      DFLTACT  PCN          SSN  MAPSET RI  TT
187     dup187      dupl     11519       79  10  gt  50

OPCODE  OPNAME      DFLTACT  PCN24        SSN  MAPSET RI  TT

OPCODE  OPNAME      DFLTACT
 22     sri         disc
 25     route25    route
 50     pass50     pass
 71     ati        atierr
150     discard1   disc

```

```
*      star      pass
GSMS OPCODE Table (10 of 257) is 4% full
```

Note: If the default action parameter value will be changed to either `pass`, `discard`, `route`, or `atierr`, or the `npc/npca/npci/npcn/npcn24` and `nssn` parameters are not to be specified, skip steps 2 through 7, and go to step 8.

Note: If the `npc/npca` parameters are not being used in this procedure, or if the `rtrv-gsms-opcode` output in step 1 shows ANSI point code values (`pc/pca` parameter values) or the `opcode=*` parameter value, skip step 2, and go to step 3.

2. Verify that the Enhanced GSM MAP Screening feature is enabled and on by entering the `rtrv-ctrl-feat` command with the part number of the Enhanced GSM MAP Screening feature.

Enter this command.

```
rtrv-ctrl-feat:partnum=893012401
```

The following is an example of the possible output.

```
rlghncxa03w 06-10-28 21:15:37 GMT EAGLE5 36.0.0
The following features have been permanently enabled:
Feature Name          Partnum   Status   Quantity
Enhanced GMS (EGMS)   893012401 on       ----

The following features have been temporarily enabled:
Feature Name          Partnum   Status   Quantity   Trial Period Left
Zero entries found.

The following features have expired temporary keys:
Feature Name          Partnum
Zero entries found.
```

If the Enhanced GSM MAP screening feature is not enabled or off, go to the [Activating the GSM MAP Screening Feature](#) on page 293 to enable and turn on the Enhanced GSM MAP screening feature.

3. Perform one of these actions.
 - If the `ndfltact` parameter value will be either `pass`, `discard`, `route`, or `atierr`, skip steps 4 through 7, and continue the procedure with step 8.
 - If the point code is not being changed, skip steps 4 through 7, and continue the procedure with step 8. If the point code and subsystem values are not being changed, and the Flexible GTT Load Sharing feature is enabled, the `nmapset` parameter does not have to be specified unless the MAP set ID assigned to the GSM OPCODE entry is being changed. The new MAP set must contain the point code and subsystem values in the GSM OPCODE entry.
 - If the `ndfltact` parameter value will be either `forward`, `duplicate`, or `dupdisc`, perform one of these actions.
 - To use a point code and a MAP set from the mated application table, and MAP sets are not shown in the `rtrv-gsms-opcode` output in step 1, the Flexible GTT Load Sharing Feature must be enabled. Perform the “Activating the Flexible GTT Load Sharing Feature” procedure in the *Database Administration Manual - Global Title Translation* and enable

the Flexible GTT Load Sharing feature. After enabling the Flexible GTT Load Sharing feature, skip steps 4 and 5 and continue the procedure with step 6.

- To use a point code and a MAP set from the mated application table, and MAP sets are shown in the `rtrv-gsms-opcode` output in step 1, skip steps 4 and 5 and continue the procedure with step 6.
- To use a point code in the mated application table, but without using a MAP set, and MAP sets are not shown in the `rtrv-gsms-opcode` output in step 1, skip steps 4 and 5 and continue the procedure with step 6.
- To use a point code that is not in the mated application table, the `force=yes` parameter must be specified with the `chg-gsms-opcode` command. A proxy point code cannot be assigned to this point code. If the Flexible GTT Load Sharing feature is enabled, the `force=yes` parameter can be used only if the default MAP set is assigned to the GSM OPCODE entry. Continue the procedure with step 4.

4. Display the destination point codes in the database by entering the `rtrv-dstn` command. This is an example of the possible output.

```
rlghncxa03w 06-10-10 11:43:04 GMT EAGLE5 37.5.0

  DPCA          CLLI          BEI  ELEI  ALIASI          ALIASN          DOMAIN
001-207-000    ----- no   ---  -----  -----  SS7
001-001-001    ----- no   ---  -----  -----  SS7
001-001-002    ----- no   ---  -----  -----  SS7
001-005-000    ----- no   ---  -----  -----  SS7
001-007-000    ----- no   ---  -----  -----  SS7
008-012-003    ----- no   ---  -----  -----  SS7
003-002-004    ----- no   ---  -----  -----  SS7
009-002-003    ----- no   ---  -----  -----  SS7
010-020-005    ----- no   ---  -----  -----  SS7

  DPCI          CLLI          BEI  ELEI  ALIASI          ALIASN          DOMAIN
1-207-0        ----- no   ---  -----  -----  SS7
0-015-0        ----- no   ---  -----  -----  SS7
0-017-0        ----- no   ---  -----  -----  SS7
1-011-1        ----- no   ---  -----  -----  SS7
1-011-2        ----- no   ---  -----  -----  SS7

  DPCN          CLLI          BEI  ELEI  ALIASA          ALIASI          DOMAIN
DPCN24        CLLI          BEI  ELEI  ALIASA          ALIASI          DOMAIN

Destination table is (14 of 2000) 1% full
Alias table is (0 of 12000) 0% full
PPC table is (1 of 20) 5% full
```

If the required point code is not shown in the `rtrv-dstn` output, perform the "Adding a Destination Point Code" procedure in the *Database Administration Manual - SS7* to add the required point code. A proxy point code cannot be assigned to the point code.

After the new point code has been added, skip steps 5 through 7 and perform the "Adding a Route Containing an SS7 DPC" procedure in the *Database Administration Manual - SS7* and add the required route to the database. After the route has been added, continue the procedure with step 8.

5. Display the point code that will be assigned to the mated application by using the `rtrv-dstn` command and specifying the point code. For this example, enter this command.

```
rtrv-dstn:dpca=010-020-005
```

This is an example of the possible output.

```
rlghncxa03w 06-10-10 11:43:04 GMT EAGLE5 37.5.0
  DPCA          CLLI          BEI ELEI  ALIASI          ALIASN          DOMAIN
  010-020-005  ----- no   ---  -----  -----  SS7
  PPC          NCAI          PRX
  009-002-003  ----          no
Destination table is (14 of 2000) 1% full
Alias table is (0 of 12000) 0% full
PPC table is (1 of 20) 5% full
```

If the adjacent point code is not shown in the `rtrv-dstn` command output, the following output is displayed.

```
DPCA          CLLI          BEI ELEI  ALIASI          ALIASN/N24      DOMAIN
No destinations meeting the requested criteria were found
Destination table is (14 of 2000) 1% full
Alias table is (0 of 12000) 0% full
PPC table is (1 of 20) 5% full
```

A proxy point code (a point code value is shown in the PPC column) cannot be assigned to the point code. If a proxy point code is shown in this step, choose another point code from the `rtrv-dstn` output in the previous step and repeat this step.

If the point code is not shown in the `rtrv-dstn` output, perform the "Adding a Destination Point Code" procedure in the *Database Administration Manual - SS7* and add the adjacent point code to the destination point code table.

After the new point code has been added, skip steps 6 and 7, and perform the "Adding a Route Containing an SS7 DPC" procedure in the *Database Administration Manual - SS7* and add the required route to the database. After the route has been added, continue the procedure with step 8.

- The point code and subsystem number being assigned to the GSM operations code must be in the mated application table.

Enter the `rtrv-map` command with the `npc/npca/npci/npcn/npcn24` and `nssn` values that will be specified with the `chg-gsms-opcode` command in step 8.

If the Flexible GTT Load Sharing feature is not enabled, for this example, enter these commands.

For this example, enter this command.

```
rtrv-map:pci=4-038-1:ssn=50
```

This is an example of the possible output.

```
rlghncxa03w 06-10-25 09:42:31 GMT EAGLE5 36.0.0
MAP TABLE IS 2 % FULL (20 of 1024)
```

```
PCI          Mate PCI      SSN RC MULT SRM MRC GRP NAME SSO
4-038-1                    50 10  SOL --- --- GRP01  ON
```

Note: If the point code and subsystem number is not shown in the `rtrv-map` output, and is not added to the database in one of these procedures, the `force=yes` parameter must be specified with the `chg-gsms-opcode` command in step 5.

If the Flexible GTT Load Sharing feature is enabled and the current `dfltact` parameter value is either `pass`, `route`, `discard`, or `atierr`, and the `dfltact` parameter value is changed to either `forward`, `duplicate`, or `dupdisc`, the GSM OPCODE entry must be assigned to a MAP set with the `nmapset=dflt` parameter (to assign the GSM OPCODE entry to the default MAP set), or with the `nmapset=<numbered MAP set ID>` parameter (to assign the GSM OPCODE entry to a MAP set other the default MAP set).

- The point code specified with the `chg-gsms-opcode` command must be the DPC of a route. If the point code specified with the `chg-gsms-opcode` command is an ANSI point code, the point code can be a member of a cluster point code when that cluster point code is the DPC of a route.

Enter the `rtrv-rte` command with the `dpc` parameter specifying the point code to be used with the `chg-gsms-opcode` command to verify whether or not the point code is the DPC of a route. For this example, enter these commands.

```
rtrv-rte:dpci=4-038-1
```

This is an example of the possible output.

```
rlghncxa03w 06-10-07 11:43:04 GMT EAGLE5 36.0.0
DPCI          ALIASN/N24      ALIASA      LSN          RC          APC
4-038-1      12111              240-111-111 1s300001     10          4-038-1
                                     1s300002     10          2-066-7
                                     1s300003     20          5-087-4
                                     RTX:No      CLLI=idpl
```

If the point code is not shown in the `rtrv-rte` output, if the point code is an ANSI point code, the point code is not a member of a cluster point code when that cluster point code is the DPC of a route, go to the "Adding a Route Containing an SS7 DPC" procedure in the Database Administration Manual - SS7 and add the required route to the database.

- Change the attributes of GSM MAP screening operation codes in the database with the `chg-gsms-opcode` command.

For this example, enter these commands:

```
chg-gsms-opcode:opname=pass100:ndfltact=discard
```

```
chg-gsms-opcode:opname=discard1:nopname=pass1:ndfltact=pass
```

```
chg-gsms-opcode:opname=sri:nopname=irs
```

```
chg-gsms-opcode:opname=fwd139:nopname=fwd1000:npci=4-038-1:nssn=50
:nmapset=18:nri=gt:ntt=60
```

When each of these commands has successfully completed, this message appears.

```
rlghncxa03w 06-10-10 11:43:04 GMT EAGLE5 36.0.0
```

```
GSM Map Op-Code Table is (8 of 256) 3% full
CHG-GSMS-OPCODE: MASP A - COMPLTD
```

Note: See [Figure 53: Changing a GSM MAP Screening Operation Code](#) on page 358 (Sheet 7) for the rules that apply to the `chg-gsms-opcode` command.

9. Verify the changes using the `rtrv-gsms-opcode` command with the `opname` parameter value specified in step 8.

If the `opname` parameter value was changed in step 8, the new `opname` parameter value should be specified with the `rtrv-gsms-opcode` command. For this example, enter these commands.

```
rtrv-gsms-opcode:opname=pass100
```

This is an example of the possible output.

```
rlghncxa03w 06-10-10 11:43:04 GMT EAGLE5 36.0.0
OPCODE  OPNAME      DFLTACT
100     pass100      discard
```

```
GSMMS OPCODE Table (10 of 257) is 4% full
```

```
rtrv-gsms-opcode:opname=pass1
```

This is an example of the possible output.

```
rlghncxa03w 06-10-10 11:43:04 GMT EAGLE5 36.0.0
OPCODE  OPNAME      DFLTACT
150     pass1       pass
```

```
GSMMS OPCODE Table (10 of 257) is 4% full
```

```
rtrv-gsms-opcode:opname=irs
```

This is an example of the possible output.

```
rlghncxa03w 06-10-10 11:43:04 GMT EAGLE5 36.0.0
OPCODE  OPNAME      DFLTACT
22      irs         disc
```

```
GSMMS OPCODE Table (10 of 257) is 4% full
```

```
rtrv-gsms-opcode:opname=fwd1000
```

This is an example of the possible output.

```
rlghncxa03w 08-09-10 11:43:04 GMT EAGLE5 39.2.0
OPCODE  OPNAME      DFLTACT  PCI          SSN  MAPSET RI  TT
139     fwd1000    fwd      4-38-1      50   18   gt   60
```

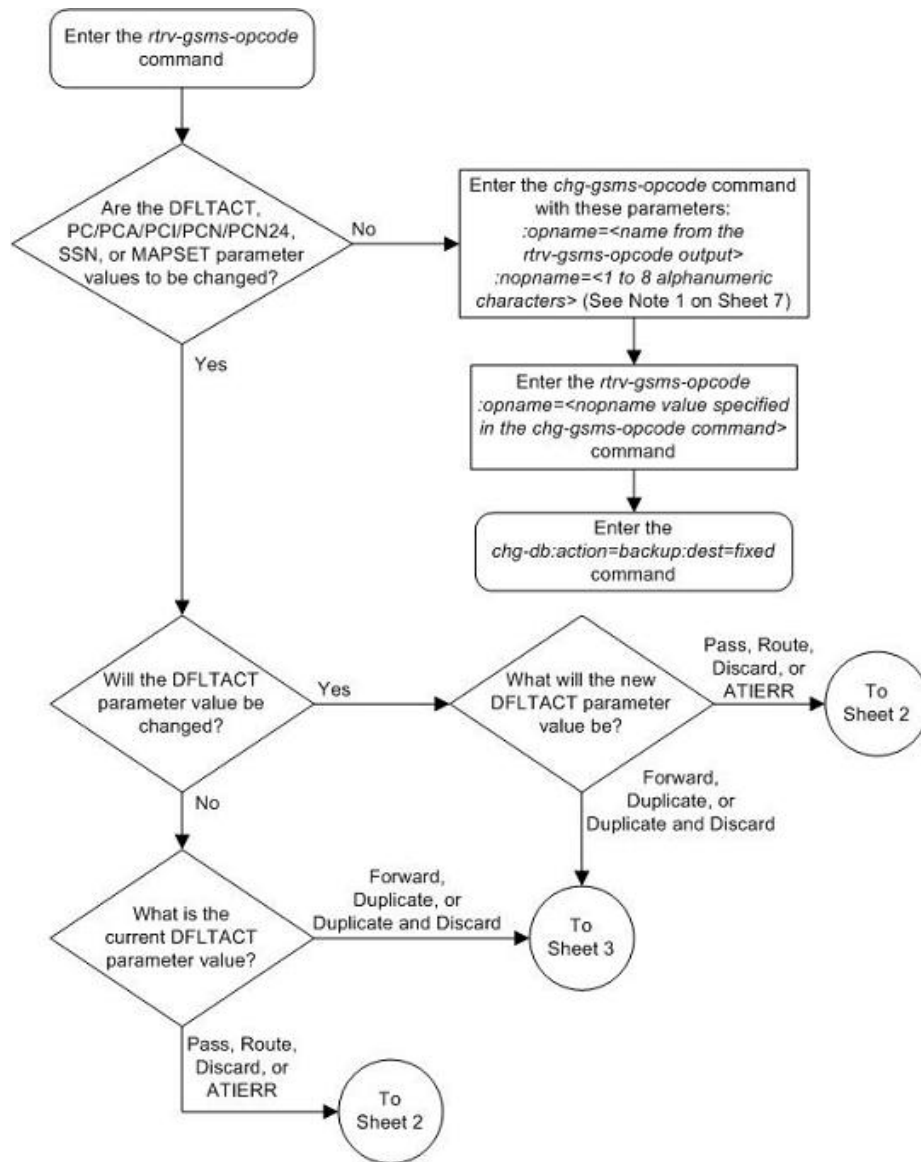
```
GSMMS OPCODE Table (10 of 257) is 4% full
```

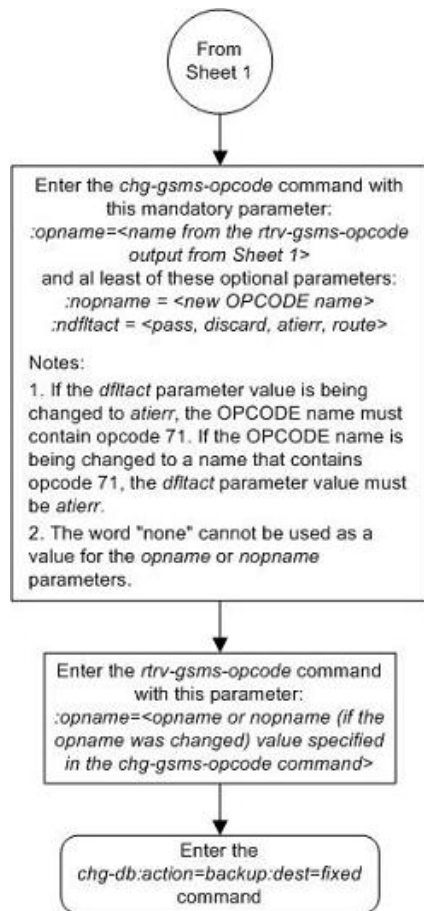
10. Backup the new changes using the `chg-db:action=backup:dest=fixed` command.

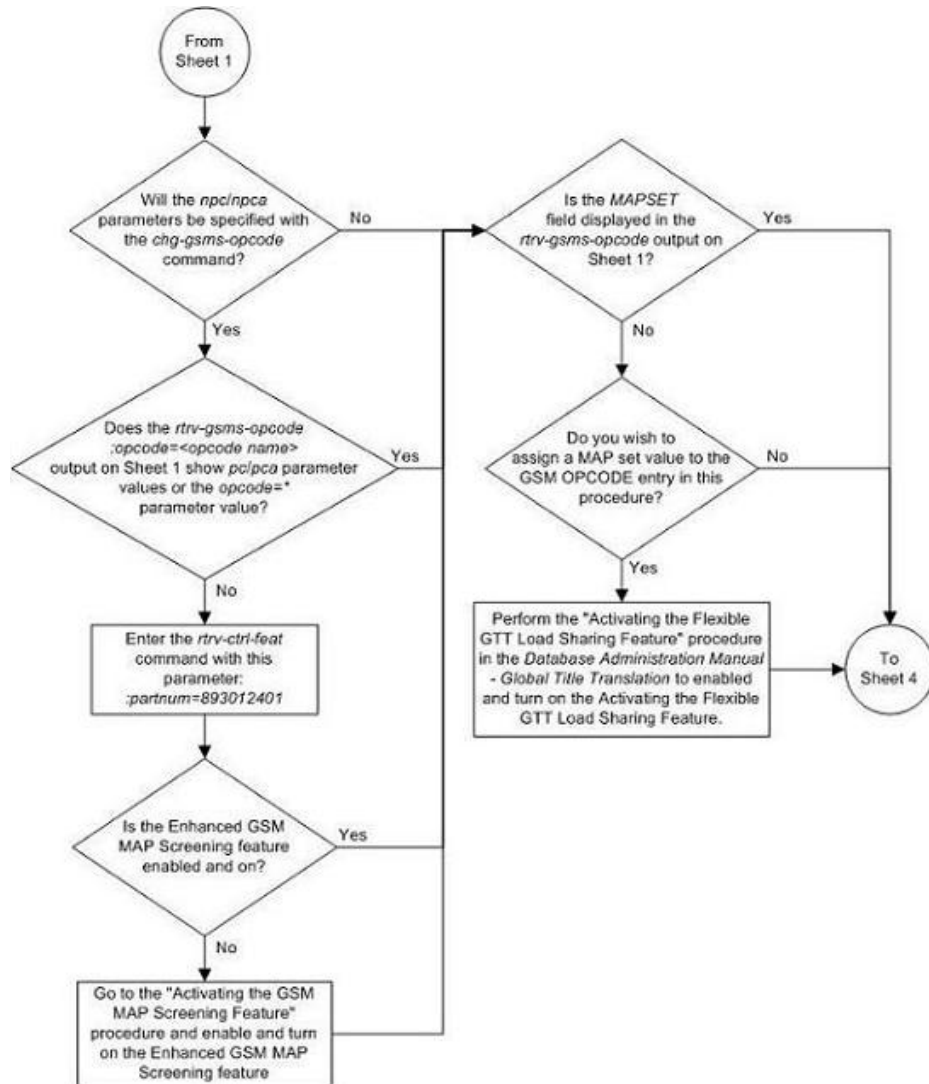
These messages should appear, the active Maintenance and Administration Subsystem Processor (MASP) appears first.

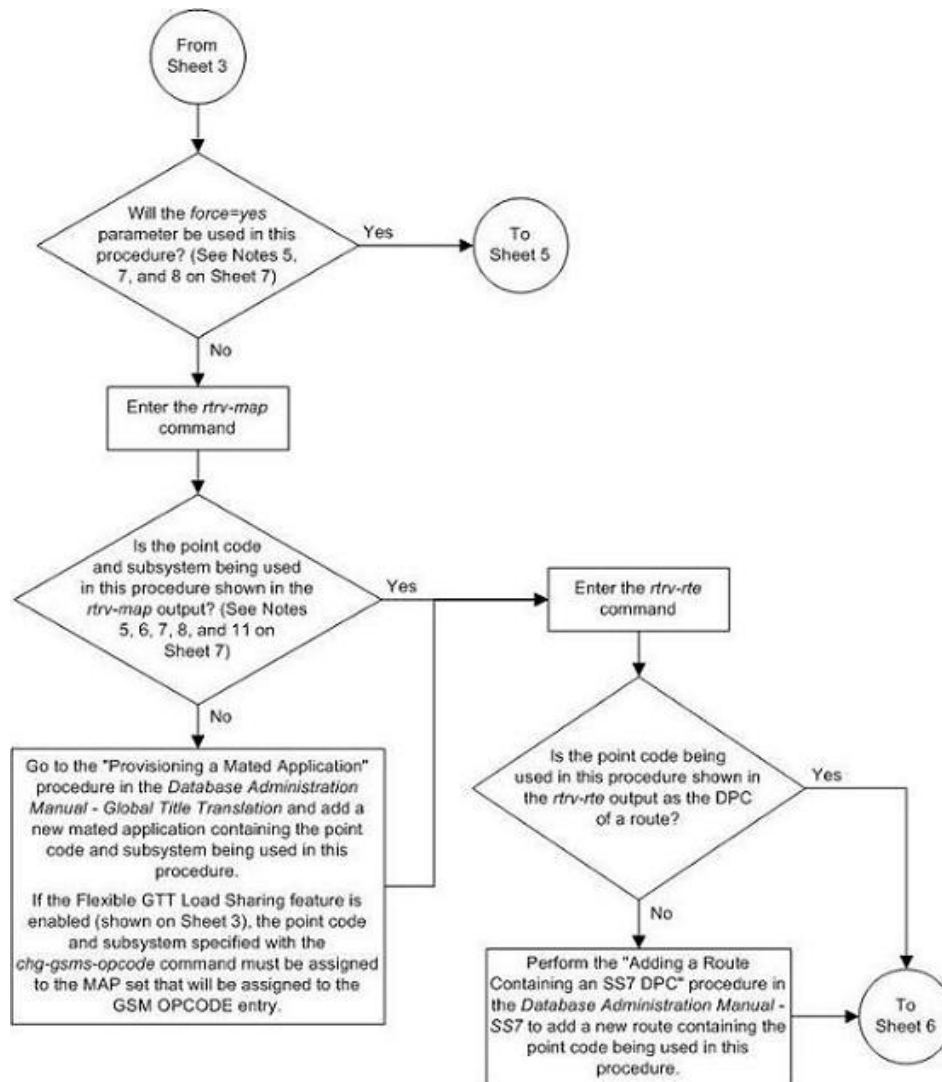
```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk complete.
BACKUP (FIXED) : MASP A - Backup starts on standby MASP.
BACKUP (FIXED) : MASP A - Backup on standby MASP to fixed disk complete.
```

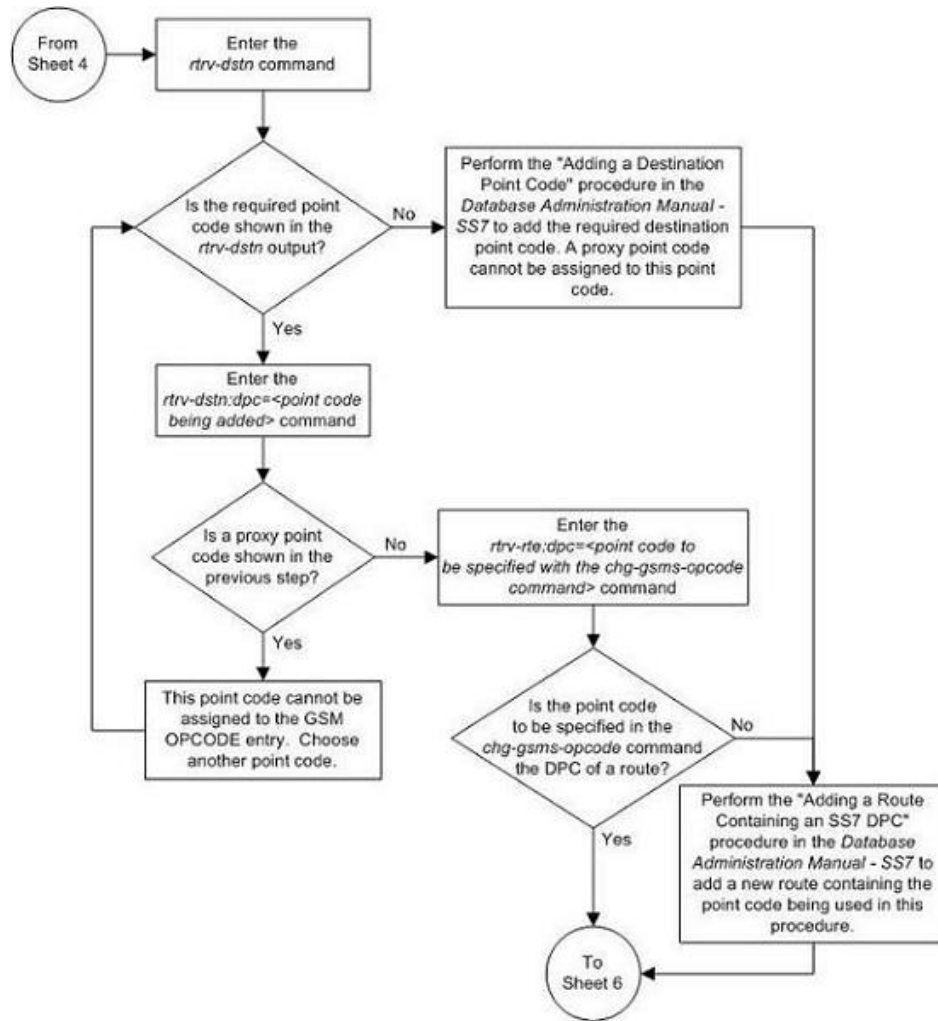
Figure 53: Changing a GSM MAP Screening Operation Code

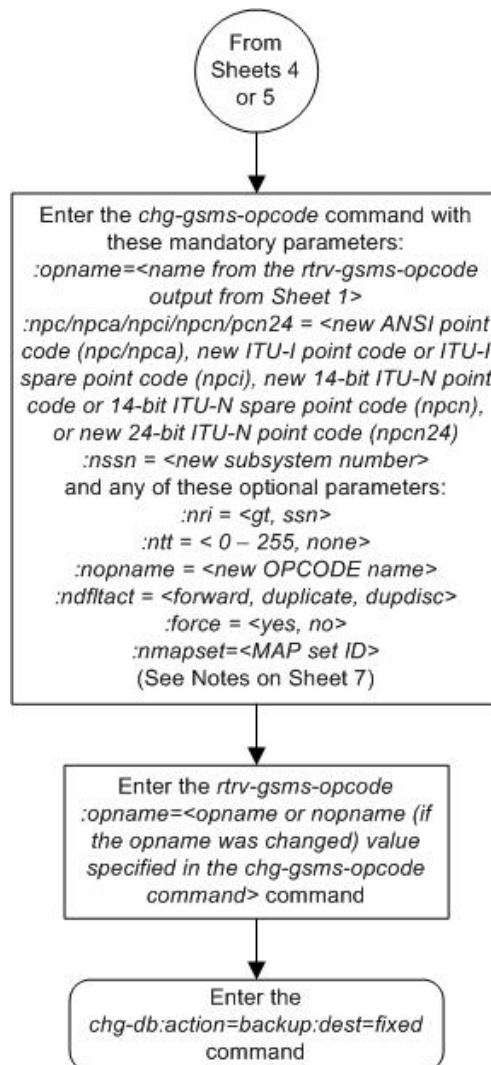












Notes:

1. The word "none" cannot be used as a value for the *opname* or *nopname* parameters.
2. The EAGLE 5 ISS can contain 14-bit ITU-N point codes or 24-bit ITU-N point codes, but not both.
3. If the point code and subsystem number values are not being changed, the *npc/npca/nci/ncn/ncn24* and *nssn* parameters must be specified with the current values for these parameters.
4. The *npc/npca/nci/ncn/ncn24* value must be shown in the *rtrv-rte* output on Sheets 4 or 5 as the DPC of a route. The *npc/npca* value must be a full point code value. The *npc/npca* value can be a member of a cluster point code when that cluster point code is the DPC of a route. A proxy point code cannot be assigned to the point code.
5. If the Flexible GTT Load Sharing feature is not enabled, shown on Sheet 3, the *npc/npca/nci/ncn/ncn24* and *nssn* values must be shown in the *rtrv-map* output on Sheet 4. If the *npc/npca/nci/ncn/ncn24* or *nssn* values are not shown in the *rtrv-map* output, the *force=yes* parameter must be specified.
6. If the Flexible GTT Load Sharing feature is enabled, shown on Sheet 3, and the current *dfltact* parameter value is either *pass*, *route*, *discard*, or *atierr*, and the *dfltact* parameter value is changed to either *forward*, *duplicate*, or *dupdisc*, the GSM OPCODE entry must be assigned to a MAP set with the *nmapset=dflt* parameter (to assign the GSM OPCODE entry to the default MAP set), or with the *nmapset=<numbered MAP set ID>* parameter (to assign the GSM OPCODE entry to a MAP set other than the default MAP set).
7. If the Flexible GTT Load Sharing feature is enabled, shown on Sheet 3, and the default MAP set will be assigned to the GSM OPCODE entry, the *npc/npca/nci/ncn/ncn24* and *nssn* values must be shown in the default MAP set in the *rtrv-map* output on Sheet 4. If the *npc/npca/nci/ncn/ncn24* or *nssn* values are not shown in the default MAP set in the *rtrv-map* output, the *force=yes* parameter must be specified.
8. If the Flexible GTT Load Sharing feature is enabled, shown on Sheet 3, and a MAP set other than the default MAP set will be assigned to the GSM OPCODE entry, the *npc/npca/nci/ncn/ncn24* and *nssn* values must be shown in that MAP set in the *rtrv-map* output on Sheet 4.
9. To specify the *npc/npca* parameters, the Enhanced GSM MAP Screening feature must be enabled and turned on.
10. If only the point code or subsystem number value is being changed, the point code or subsystem number value being changed must be specified with the new value for the parameter being changed. The current value for the point code or subsystem number parameter not being changed must be specified. The *ndfltact* parameter does not have to be specified. For example, if the current point code is *pca=002-002-002* and the subsystem number is 50, and the point code is being changed to *pca=003-003-003* and the subsystem number is not changing, the *npca* parameter value would be the new point code value (003-003-003) and the *nssn* parameter value would be the current value (50).
11. If the Flexible GTT Load Sharing feature is enabled, shown on Sheet 3, and the point code and subsystem values are not being changed, the *nmapset* parameter does not have to be specified unless the MAP set ID assigned to the GSM OPCODE entry is being changed. The new MAP set must contain the point code and subsystem values in the GSM OPCODE entry.
12. If an optional parameter is not specified, the value for that parameter is not changed.
13. The value *none* for the *tt* parameter removes the existing *tt* parameter value that is assigned to the GSM OPCODE entry. A dash is shown in the *TT* column of the *rtrv-gsms-opcode* output when the *tt* value is removed.
14. If, when the *chg-gsms-opcode* command is completed, the *ri* parameter value is *ssn*, then a numerical value must be assigned to the *ssn* parameter.

Adding a GSM MAP Screening Entry

Use this procedure to provision the GSM MAP screening entries that filter or allow TCAP messages for certain MAP operation codes in the database using the `ent-gsmmap-scrn` command. The messages are filtered or allowed based on the origination addresses (*saddr/eaddr*), numbering plan value (*npv*), nature of address indicator value (*naiv*), MAP opnames (*opname*), and forbidden (*forbid*) parameters.

The `ent-gsmmap-scrn` command uses these parameters.

`:saddr` – The origination address (1 - 15 decimal digits, 1 - 15 hex digits, or *) for a single entry or the starting origination address for a range of entries of the CGPA/CDPA entry to be screened.

`:eaddr` – The ending origination address (1 - 15 decimal digits or 1 - 15 hex digits) for a range of entries of the CGPA/CDPA entry to be screened.

`:action` – The screening action to take if a message is forbidden as defined by the `forbid` parameter. One of these actions can be assigned.

- `pass` – Route the message as normal to the destination.
- `discard` – The MSU is to be discarded.
- `atierr` – An ATI (Any Time Interrogation) reject message is generated. This option is only valid for ATI MAP operation codes.
- `route` – Route the message as normal to the original destination node.
- `forward` – Route the original message to the forward node. The original message is not sent to the original node. If, however, the forwarded node is not available for routing then the MSU is routed to the original node.
- `duplicate` – Route the message as normal to the original destination and route a copy of the original message to the duplicate node.
- `dupdisc` – Duplicate and discard – Route the original message to the duplicate node. The original message is not sent to the original node.

`:pc/pca/pci/pcn/pcn24` – The ANSI point code (`pc/pca`), ITU-I point code or ITU-I spare point code (`pci`), 14-bit ITU-N point code or 14-bit ITU-N spare point code (`pcn`), or 24-bit ITU-N point code (`pcn24`) of the node that the MSU is routed to by the `forward`, `duplicate`, or `dupdisc` screening actions. The EAGLE 5 ISS can contain 14-bit ITU-N point codes or 24-bit ITU-N point codes, but not both. To specify the `pc/pca` parameters, the Enhanced GSM MAP Screening feature must be enabled and on.

`:ssn` – The subsystem number of the node that the MSU is routed to by the `forward`, `duplicate`, or `dupdisc` screening actions. The values for this parameter are 2 to 255, or the value `none`. The default value for this parameter is `none`.

`:force` – The mated application override. Is the GSM MAP screening operation code to be entered without a mated application in the database (`yes` or `no`)?

`:forbid` – The forbidden parameter value. If a forbidden parameter is detected, the message is rejected by the action defined by the `action` parameter. One of four forbidden parameter values can be specified.

- `all` – All parameters are forbidden. Take the specified screening action defined by the `action` parameter for incoming messages that contain the entered address and operation code combination.
- `none` – No parameters are forbidden. Take the specified screening action defined by the `action` parameter for incoming messages that contain the entered address and operation code combination.
- `state` – Take the specified screening action defined by the `action` parameter for incoming messages that contain `state` as the forbidden parameter for the entered address and operation code combination.
- `location` – Take the specified screening action defined by the `action` parameter for incoming messages that contain `location` as the forbidden parameter for the entered address and operation code combination.

Note: The `state` and `location` values are valid only for GSM ATI messages.

`:naiv` – The nature of address value (0 - 15 or *).

`:npv` – The numbering plan value (0 - 127 or *).

`:opname` – The user-defined name for the operation code. The `opname` value references the operation code (`opcode`) shown in the `rtrv-gsms-opcode` command. GSM MAP screening is performed on the specified address or addresses for the referenced operation code.

`:cgsr` – The CGPA screening reference name consisting of 1 alphabetic character and 3 optional alphanumeric characters.

`:cdsr` – The CDPA screening reference name consisting of 1 alphabetic character and 3 optional alphanumeric characters.

`:mapset` – The MAP set ID, shown in the `rtrv-map` command. This parameter can be specified only if the Flexible GTT Load Sharing feature is enabled. The status of the Flexible GTT Load Sharing feature is shown in the `rtrv-ctrl-feat` output. To enable the Flexible GTT Load Sharing feature, perform the “Activating the Flexible GTT Load Sharing Feature” procedure in the *Database Administration Manual - Global Title Translation*.

`:ri` - The routing indicator parameter. This parameter specifies whether a subsequent global title translation is required. This parameter has two values.

- `gt` - subsequent global title translation is required.
- `ssn` - subsequent global title translation is not required. This is the default value for the `ri` parameter.

`:tt` - the translation type that will be assigned to the GSM MAP screening entry. This parameter specifies the value that the translation type for the CdPA is set to as a result of GSM MAP screening. The values for this parameter are 0 to 255, or the value `none` which specifies that no translation type will be assigned to the GSM MAP screening entry.

[Table 26: Add GSM MAP Screening Entry Parameter Combinations](#) on page 367 shows the parameter combinations that can be used in this procedure.

Table 26: Add GSM MAP Screening Entry Parameter Combinations

Entry Containing a Point Code and SSN (See Note 1)	Entry Without a Point Code and SSN (See Note 1)	Entry containing the Action ATIERR (See Note 1)	Entry Containing a Point Code and SSN (See Note 1)	Entry Without a Point Code and SSN (See Note 1)	Entry containing the Action ATIERR (See Note 1)
Enhanced GSM MAP Screening Feature Enabled and On	Enhanced GSM MAP Screening Feature Enabled and On	Enhanced GSM MAP Screening Feature Enabled and On	GSM MAP Screening Feature Enabled and On Only	GSM MAP Screening Feature Enabled and On Only	GSM MAP Screening Feature Enabled and On Only
Mandatory Parameters					

Entry Containing a Point Code and SSN (See Note 1) Enhanced GSM MAP Screening Feature Enabled and On	Entry Without a Point Code and SSN (See Note 1) Enhanced GSM MAP Screening Feature Enabled and On	Entry containing the Action ATIERR (See Note 1) Enhanced GSM MAP Screening Feature Enabled and On	Entry Containing a Point Code and SSN (See Note 1) GSM MAP Screening Feature Enabled and On Only	Entry Without a Point Code and SSN (See Note 1) GSM MAP Screening Feature Enabled and On Only	Entry containing the Action ATIERR (See Note 1) GSM MAP Screening Feature Enabled and On Only
:opname = opname value (See Note 2)	:opname = opname value (See Note 2)	:opname = opname value containing opcode=71 (See Note 2)	:opname = opname value (See Note 2)	:opname = opname value (See Note 2)	:opname = opname value containing opcode=71 (See Note 2)
:cgsr = CGSR name (See Note 3)	:cgsr = CGSR name (See Note 3)	:cgsr = CGSR name (See Note 3)	:cgsr = CGSR name (See Note 3)	:cgsr = CGSR name (See Note 3)	:cgsr = CGSR name (See Note 3)
			saddr = 0 - 15 decimal digits (See Notes 4, 5, and 6)	saddr = 0 - 15 decimal digits (See Notes 4, 5, and 6)	saddr = 0 - 15 decimal digits (See Notes 4, 5, and 6)
Optional Parameters					
:saddr = 0 - 15 hex digits, or * (See Notes 4, 5, and 6)	:saddr = 0 - 15 hex digits, or * (See Notes 4, 5, and 6)	:saddr = 0 - 15 hex digits, or * (See Notes 4, 5, and 6)	:eaddr = 0 - 15 decimal digits (See Notes 4, 5, and 6)	:eaddr = 0 - 15 decimal digits (See Notes 4, 5, and 6)	:eaddr = 0 - 15 decimal digits (See Notes 4, 5, and 6)
:eaddr = 0 - 15 hex digits (See Notes 4, 5, 6, and 7)	:eaddr = 0 - 15 hex digits (See Notes 4, 5, 6, and 7)	:eaddr = 0 - 15 hex digits (See Notes 4, 5, 6, and 7)	:forbid = all	:forbid = all, none (See Note 15)	:forbid = state, location
:cdsr = CDSR name (See Note 3)	:cdsr = CDSR name (See Note 3)	:cdsr = CDSR name (See Note 3)	:action = forward, duplicate, dupdisc (See Note 9)	:action = pass, discard, route (See Note 15)	:action = atierr

<p>Entry Containing a Point Code and SSN (See Note 1) Enhanced GSM MAP Screening Feature Enabled and On</p>	<p>Entry Without a Point Code and SSN (See Note 1) Enhanced GSM MAP Screening Feature Enabled and On</p>	<p>Entry containing the Action ATIERR (See Note 1) Enhanced GSM MAP Screening Feature Enabled and On</p>	<p>Entry Containing a Point Code and SSN (See Note 1) GSM MAP Screening Feature Enabled and On Only</p>	<p>Entry Without a Point Code and SSN (See Note 1) GSM MAP Screening Feature Enabled and On Only</p>	<p>Entry containing the Action ATIERR (See Note 1) GSM MAP Screening Feature Enabled and On Only</p>
:forbid = all	:forbid = all, none (See Note 15)	:forbid = state, location	:npv = 0 - 15, or * (See Note 8)	:npv = 0 - 15, or * (See Note 8)	:npv = 0 - 15, or * (See Note 8)
:action = forward, duplicate, dupdisc (See Note 9)	:action = pass, discard, route (See Note 15)	:action = atierr	:naiv = 0 - 127, or * (See Note 8)	:naiv = 0 - 127, or * (See Note 8)	:naiv = 0 - 127, or * (See Note 8)
:npv = 0 - 15, or * (See Note 8)	:npv = 0 - 15, or * (See Note 8)	:npv = 0 - 15, or * (See Note 8)	:pci/pcn/pcn24 = point code value (See Notes 10, 11, 12, 13, and 14)		
:naiv = 0 - 127, or * (See Note 8)	:naiv = 0 - 127, or * (See Note 8)	:naiv = 0 - 127, or * (See Note 8)	:ssn = 0 - 255, none (See Notes 13, 14, and 16)		
pc/pa/pci/pcn/ pcn24 = point code value (See Notes 10, 11, 12, 13, and 14)			:force=yes (See Notes 13 and 14)		
:ssn = 0 - 255, none (See			:mapset= dflt or numbered MAP set ID (See Notes 13 and 14)		
			:ri = gt, ssn (See Note 16)		

Entry Containing a Point Code and SSN (See Note 1) Enhanced GSM MAP Screening Feature Enabled and On	Entry Without a Point Code and SSN (See Note 1) Enhanced GSM MAP Screening Feature Enabled and On	Entry containing the Action ATIERR (See Note 1) Enhanced GSM MAP Screening Feature Enabled and On	Entry Containing a Point Code and SSN (See Note 1) GSM MAP Screening Feature Enabled and On Only	Entry Without a Point Code and SSN (See Note 1) GSM MAP Screening Feature Enabled and On Only	Entry containing the Action ATIERR (See Note 1) GSM MAP Screening Feature Enabled and On Only
Notes 13, 14, and 16)					
:force=yes (See Notes 13 and 14)			:tt = 0 - 255, none		
:mapset = dflt or numbered MAP set ID (See Notes 13 and 14)					
:ri = gt, ssn (See Note 16)					
:tt = 0 - 255, none					
<p>Notes:</p> <ol style="list-style-type: none"> When a CGPA entry (<i>cgsr</i> parameter is specified without the <i>cdsr</i> parameter) is added to the GSM MAP Screening table, a default wild card entry is created for the CGPA entry, thus adding two entries to the GSM MAP Screening table. The default wild card CDPA entry is not shown in the <i>rtrv-gsmmap-scrn</i> output. As a result, the GSM MAP Screening table must have at least two free entries in order to provision a CGPA entry in the GSM MAP Screening table. When the first provisioned wildcard (*) CDPA entry is added to a CGPA entry, the number of entries in the GSM MAP Screening table, shown in the GSM MAP Screening command outputs, does not change. The <i>opname</i> parameter value must be shown in either the <i>rtrv-gsms-opcode</i> or <i>rtrv-gsmmap-scrn</i> output. The <i>cgsr</i> and <i>cdsr</i> parameter values consist of 1 alphabetic character and up to 3 optional alphanumeric characters. If the <i>cdsr</i> parameter is not specified, a CGPA entry with a default wild card CDPA entry is created in the GSM MAP Screening table (see Note 1). If the <i>cdsr</i> parameter is specified, a CDPA entry is created in the GSM MAP Screening table. 					

Entry Containing a Point Code and SSN (See Note 1) Enhanced GSM MAP Screening Feature Enabled and On	Entry Without a Point Code and SSN (See Note 1) Enhanced GSM MAP Screening Feature Enabled and On	Entry containing the Action ATIERR (See Note 1) Enhanced GSM MAP Screening Feature Enabled and On	Entry Containing a Point Code and SSN (See Note 1) GSM MAP Screening Feature Enabled and On Only	Entry Without a Point Code and SSN (See Note 1) GSM MAP Screening Feature Enabled and On Only	Entry containing the Action ATIERR (See Note 1) GSM MAP Screening Feature Enabled and On Only
<p>4. If a single entry is specified for the CGPA/CDPA (that is, the eaddr parameter is not specified) then the saddr/npv/naiv/opname parameter combination cannot exist in the GSM MAP Screening table.</p> <p>5. If a range of entries is specified for the CGPA/CDPA (that is, the eaddr parameter is specified) then the saddr/eaddr/npv/naiv/opname parameter combination cannot exist in the GSM MAP Screening table or overlap with another range entry in the GSM MAP Screening table.</p> <p>6. The eaddr parameter value must contain the same number of digits as the saddr parameter value. The eaddr parameter value must be greater than the saddr parameter value. The saddr parameter must be specified with the eaddr parameter.</p> <p>7. The eaddr parameter cannot be specified with the saddr=* parameter.</p> <p>8. If the Enhanced GSM MAP Screening feature is not enabled or off, and either the npv or naiv parameters are specified, both the npv and naiv parameters must be specified. If the asterisk (*) is specified for either the npv or naiv parameters, the asterisk must be specified for both the npv and naiv parameters. If numbers are specified for either the npv or naiv parameters, numbers must be specified for both the npv and naiv parameters.</p> <p>9. If the action parameter values are either forward, duplicate, or dupdisc, the point code and ssn parameters must be specified with the ent-gsmmap-scrn command. A proxy point code cannot be assigned to this point code.</p> <p>10. The point code value must be the DPC of a route or a member of a cluster route. The pc/pca value must be a full point code, The pc/pca value can be a member of a cluster point code when that cluster point code is the DPC of a route. This can be verified with the rtrv-rte command. If the point code value is not shown in the rtrv-rte output as the DPC of a route, go to the "Adding a Route Containing an SS7 DPC" procedure in the Database Administration Manual - SS7 and add a new route containing the point code value.</p> <p>11. The EAGLE 5 ISS can contain 14-bit ITU-N point codes or 24-bit ITU-N point codes, but not both at the same time.</p> <p>12. If either the point code or ssn parameters are specified, then both the point code and ssn parameters must be specified.</p> <p>13. If the Flexible GTT Load Sharing feature is not enabled:</p> <ul style="list-style-type: none"> • The mapset parameter cannot be specified. • The point code and subsystem number values specified with the ent-gsmmap-scrn command must be shown in the rtrv-map output, or else the force=yes parameter must be specified. 					

Entry Containing a Point Code and SSN (See Note 1) Enhanced GSM MAP Screening Feature Enabled and On	Entry Without a Point Code and SSN (See Note 1) Enhanced GSM MAP Screening Feature Enabled and On	Entry containing the Action ATIERR (See Note 1) Enhanced GSM MAP Screening Feature Enabled and On	Entry Containing a Point Code and SSN (See Note 1) GSM MAP Screening Feature Enabled and On Only	Entry Without a Point Code and SSN (See Note 1) GSM MAP Screening Feature Enabled and On Only	Entry containing the Action ATIERR (See Note 1) GSM MAP Screening Feature Enabled and On Only
<p>If the point code and subsystem number values are not shown in the <code>rtrv-map</code> output, and a new mated application is to be added, perform one of the "Provisioning a Mated Application" procedures in the <i>Database Administration Manual - Global Title Translation</i> and add the required mated application with the point code and subsystem number values.</p> <p>14. If the Flexible GTT Load Sharing feature is enabled:</p> <ul style="list-style-type: none"> • The <code>mapset</code> parameter must be specified. • The <code>force=yes</code> parameter can be used only if the default MAP set assigned to the GSM MAP screening entry. • If the MAP set assigned to the GSM MAP screening entry is a MAP set other than the default MAP set, the <code>force=yes</code> parameter cannot be used. The point code and subsystem contained in the GSM MAP screening entry must be in the MAP set assigned to the GSM MAP screening entry. • If the default MAP set is assigned to the GSM MAP screening entry and the <code>force=yes</code> parameter is not specified, the point code and subsystem contained in the GSM MAP screening entry must be in the default MAP set. <p>15. If the <code>forbid=none</code> parameter is specified, then the <code>action=pass</code> parameter must be specified.</p> <p>16. If the <code>ri=ssn</code> parameter is specified, a numerical value must be specified for the <code>ssn</code> parameter.</p>					

GSM screening entries can either be single entries or range entries. Single entries have precedence in screening over range entries. Thus the single entry table is searched first and if a match is found, the range table is never searched. Range entries may overlap single entries.

If a message is screened and does not contain matching GTA, NPV, and NAIV values, the message is rejected. The message is rejected with the default action defined by the `ent-gsms-opcode` command for the operation code (`opcode`) parameter entry referenced by the operation name (`opname`) parameter.

This examples used in this procedure are based on the examples shown in [Table 27: Example CGPA GSM MAP Screening Configuration Table](#) on page 373 and [Table 28: Example CDPA GSM MAP Screening Configuration Table](#) on page 373.

Table 27: Example CGPA GSM MAP Screening Configuration Table

CGSR	SADDR	EADDR	NPV	NAIV	OPNAME	FORBID
cg01	9194600000	---	5	75	pass50	none
cg02	252555100000	252700000000	12	37	discard1	all
cg03	8284540000	8284600000	---	---	ati	state
cg04	2416546464	---	0	127	route25	none
cg05	854000000	857000000	3	99	dd93	all
cg06	154363000000	155000000000	8	86	sri	all
cg07	368900000	369000000	9	111	dup187	none
CGSR	ACTION	PC/PCA/PCI/ PCN/PCN24	SSN	MAPSET		
cg01	pass	N/A	N/A	N/A		
cg02	discard	N/A	N/A	N/A		
cg03	atierr	N/A	N/A	N/A		
cg04	route	N/A	N/A	N/A		
cg05	forward	3-201-7	100	DFLT		
cg06	duplicate	9384	30	10		
cg07	dupdisc	4-102-6	150	20		

Table 28: Example CDPA GSM MAP Screening Configuration Table

CGSR	CDSR	SADDR	EADDR	OPNAME	NPV	NAIV	FORBID
cg01	cd01	---	---	pass50	6	15	all
cg02	cd15	---	---	discard1	10	15	all

CGSR	CDSR	SADDR	EADDR	OPNAME	NPV	NAIV	FORBID
cg07	cd10	---	---	dup187	11	57	all
CGSR	CDSR	ACTION	PC/PCA/ PCI/PCN/ PCN24	SSN	MAPSET		
cg01	cd01	pass	N/A	N/A	N/A		
cg02	cd15	discard	N/A	N/A	N/A		
cg07	cd10	dupdisc	5-97-2	135	30		

1. Display the GSM MAP screening operation codes in the database using the `rt rv-gsms-opcode` command.

If the Flexible GTT Load Sharing feature is not enabled, this is an example of the possible output.

```
rlghncxa03w 08-09-10 11:43:04 GMT EAGLE5 39.2.0
OPCODE  OPNAME    DFLTACT    PCA          SSN  RI  TT
 36     for1      fwd        002-002-002  10   gt  40

OPCODE  OPNAME    DFLTACT    PCI          SSN  RI  TT
 93     dd93     dupdc      5-25-3       200  ssn 10
139     fwd139   fwd        3-159-7      128  ssn -

OPCODE  OPNAME    DFLTACT    PCN          SSN  RI  TT
187     dup187   dupl       11519        79   gt  50

OPCODE  OPNAME    DFLTACT    PCN24        SSN  RI  TT

OPCODE  OPNAME    DFLTACT
 22     sri      disc
 25     route25 route
 50     pass50   pass
 71     ati      atierr
150     discard1 disc
*      star    pass
```

GSMMS OPCODE Table (10 of 257) is 4% full

If the Flexible GTT Load Sharing feature is enabled, this is an example of the possible output.

```
rlghncxa03w 08-09-10 11:43:04 GMT EAGLE5 39.2.0
OPCODE  OPNAME    DFLTACT    PCA          SSN  MAPSET RI  TT
 36     for1      fwd        002-002-002  10   25   gt  40

OPCODE  OPNAME    DFLTACT    PCI          SSN  MAPSET RI  TT
 93     dd93     dupdc      5-025-3     200  20   ssn 10
139     fwd139   fwd        3-159-7     128  DFLT ssn -
```

```

OPCODE  OPNAME      DFLTACT  PCN          SSN  MAPSET RI  TT
187     dup187      dup1     11519        79   10    gt  50

OPCODE  OPNAME      DFLTACT  PCN24        SSN  MAPSET RI  TT

OPCODE  OPNAME      DFLTACT
22      sri         disc
25      route25    route
50      pass50     pass
71      ati        atierr
150     discard1   disc
*       star       pass

GSMMS OPCODE Table (10 of 257) is 4% full

```

Note:

If the desired GSM MAP screening operation code entry is not shown in the `rtrv-gsms-opcode` output, go to the [Adding a GSM MAP Screening Operation Code](#) on page 329 and add the required entry. Skip step 2 and go to step 3.

If either the `forbid=state`, `forbid=location`, or `action=atierr` parameters are to be assigned to the GSM MAP screening entry, the GSM MAP screening operation code table must contain an entry containing the operation code value 71.

2. Enter the `rtrv-gsmmap-scrn` command with an `opname` value shown in the `rtrv-gsms-opcode` command output in step 1 to display the GSM MAP screening entries in the database.

For this example, enter these commands.

```
rtrv-gsmmap-scrn:opname=pass50
```

This is an example of the possible output.

```

rlghncxa03w 08-09-20 09:07:58 GMT  EAGLE5 39.2.0

Single CgPA Entries for OPNAME: pass50
-----
SADDR          NP NAI FORBD ACT      PCA          SSN CGSR RI  TT
SADDR          NP NAI FORBD ACT      PCI          SSN CGSR RI  TT
SADDR          NP NAI FORBD ACT      PCN          SSN CGSR RI  TT
SADDR          NP NAI FORBD ACT      PCN24        SSN CGSR RI  TT
SADDR          NP NAI FORBD ACT      CGSR

Range CgPA Entries for OPNAME: pass50
-----
SADDR          EADDR          NP NAI FORBD ACT      PCA
SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT      PCI          SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT      PCN          SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT      PCN24        SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT      CGSR

```

GSM Map Screening table is (1500 of 4000) 38% full

rtrv-gsmmap-scrn:opname=discard1

This is an example of the possible output.

rlghncxa03w 08-09-20 09:07:58 GMT EAGLE5 39.2.0

Single CgPA Entries for OPNAME: discard1

```
-----
SADDR          NP NAI FORBD ACT      PCA          SSN CGSR RI  TT
SADDR          NP NAI FORBD ACT      PCI          SSN CGSR RI  TT
SADDR          NP NAI FORBD ACT      PCN          SSN CGSR RI  TT
SADDR          NP NAI FORBD ACT      PCN24        SSN CGSR RI  TT
SADDR          NP NAI FORBD ACT  CGSR
```

Range CgPA Entries for OPNAME: discard1

```
-----
SADDR          EADDR          NP NAI FORBD ACT      PCA
SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT      PCI          SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT      PCN          SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT      PCN24        SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT  CGSR
```

GSM Map Screening table is (1500 of 4000) 38% full

rtrv-gsmmap-scrn:opname=ati

This is an example of the possible output.

rlghncxa03w 08-09-20 09:07:58 GMT EAGLE5 39.2.0

Single CgPA Entries for OPNAME: ati

```
-----
SADDR          NP NAI FORBD ACT      PCA          SSN CGSR RI  TT
SADDR          NP NAI FORBD ACT      PCI          SSN CGSR RI  TT
SADDR          NP NAI FORBD ACT      PCN          SSN CGSR RI  TT
SADDR          NP NAI FORBD ACT      PCN24        SSN CGSR RI  TT
SADDR          NP NAI FORBD ACT  CGSR
919462000000005 1 0  locat atier atil
```

Range CgPA Entries for OPNAME: ati

```
-----
SADDR          EADDR          NP NAI FORBD ACT      PCA
SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT      PCI          SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT      PCN          SSN CGSR
```



```

SADDR          EADDR          NP NAI FORBD ACT          PCN24          SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT          CGSR
91946188888888 9194619000000000 4 1  locat atier ati2
919462000000000 9194630000000000 * *  locat atier ati3
    
```

GSM Map Screening table is (1500 of 4000) 38% full

rtrv-gsmmap-scrn:opname=route25

This is an example of the possible output.

```

rlghncxa03w 08-09-20 09:07:58 GMT  EAGLE5 39.2.0
Single CgPA Entries for OPNAME: route25
-----
SADDR          NP NAI FORBD ACT          PCA          SSN CGSR RI  TT
SADDR          NP NAI FORBD ACT          PCI          SSN CGSR RI  TT
SADDR          NP NAI FORBD ACT          PCN          SSN CGSR RI  TT
SADDR          NP NAI FORBD ACT          PCN24        SSN CGSR RI  TT
SADDR          NP NAI FORBD ACT          CGSR
    
```

Range CgPA Entries for OPNAME: route25

```

-----
SADDR          EADDR          NP NAI FORBD ACT          PCA
SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT          PCI          SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT          PCN          SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT          PCN24        SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT          CGSR
    
```

GSM Map Screening table is (1500 of 4000) 38% full

rtrv-gsmmap-scrn:opname=dd93

This is an example of the possible output.

```

rlghncxa03w 08-09-20 09:07:58 GMT  EAGLE5 39.2.0
Single CgPA Entries for OPNAME: dd93
-----
SADDR          NP NAI FORBD ACT          PCA          SSN CGSR RI  TT
SADDR          NP NAI FORBD ACT          PCI          SSN CGSR RI  TT
SADDR          NP NAI FORBD ACT          PCN          SSN CGSR RI  TT
SADDR          NP NAI FORBD ACT          PCN24        SSN CGSR RI  TT
SADDR          NP NAI FORBD ACT          CGSR
    
```

Range CgPA Entries for OPNAME: dd93

```

-----
SADDR          EADDR          NP NAI FORBD ACT          PCA
SSN CGSR
    
```

```
SADDR          EADDR          NP NAI FORBD ACT      PCI          SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT      PCN          SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT      PCN24        SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT      CGSR

GSM Map Screening table is (1500 of 4000) 38% full
```

rtrv-gsmmap-scrn:opname=sri

This is an example of the possible output.

```
rlghncxa03w 08-09-20 09:07:58 GMT  EAGLE5 39.2.0
Single CgPA Entries for OPNAME: sri
-----
SADDR          NP NAI FORBD ACT      PCA          SSN CGSR RI  TT
SADDR          NP NAI FORBD ACT      PCI          SSN CGSR RI  TT
SADDR          NP NAI FORBD ACT      PCN          SSN CGSR RI  TT
SADDR          NP NAI FORBD ACT      PCN24        SSN CGSR RI  TT
SADDR          NP NAI FORBD ACT      CGSR

Range CgPA Entries for OPNAME: sri
-----
SADDR          EADDR          NP NAI FORBD ACT      PCA
SSN CGSR

SADDR          EADDR          NP NAI FORBD ACT      PCI          SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT      PCN          SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT      PCN24        SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT      CGSR

GSM Map Screening table is (1500 of 4000) 38% full
```

rtrv-gsmmap-scrn:opname=dup187

This is an example of the possible output.

```
rlghncxa03w 08-09-20 09:07:58 GMT  EAGLE5 39.2.0
Single CgPA Entries for OPNAME: dup187
-----
SADDR          NP NAI FORBD ACT      PCA          SSN CGSR RI  TT
SADDR          NP NAI FORBD ACT      PCI          SSN CGSR RI  TT
SADDR          NP NAI FORBD ACT      PCN          SSN CGSR RI  TT
SADDR          NP NAI FORBD ACT      PCN24        SSN CGSR RI  TT
SADDR          NP NAI FORBD ACT      CGSR

Range CgPA Entries for OPNAME: dup187
-----
SADDR          EADDR          NP NAI FORBD ACT      PCA
```

```
SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT      PCI          SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT      PCN          SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT      PCN24        SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT      CGSR
GSM Map Screening table is (1500 of 4000) 38% full
```

If the Flexible GTT Load Sharing feature is enabled, the MAPSET field is shown in the `rtrv-gsmmap-scrn` output as shown in the following output example.

```
rlghncxa03w 08-09-20 09:07:58 GMT EAGLE5 39.2.0
Single CgPA Entries for OPNAME: dup187
-----
SADDR          NP NAI FORBD ACT      PCA          SSN CGSR MAPSET RI  TT
SADDR          NP NAI FORBD ACT      PCI          SSN CGSR MAPSET RI  TT
SADDR          NP NAI FORBD ACT      PCN          SSN CGSR MAPSET RI  TT
SADDR          NP NAI FORBD ACT      PCN24        SSN CGSR MAPSET RI  TT
SADDR          NP NAI FORBD ACT      CGSR
Range CgPA Entries for OPNAME: dup187
-----
SADDR          EADDR          NP NAI FORBD ACT      PCA
SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT      PCI          SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT      PCN          SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT      PCN24        SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT      CGSR
GSM Map Screening table is (1500 of 4000) 38% full
```

Note:

If any of the following parameters or values are not being used in this procedure, skip step 3 and go to step 4.

- `saddr=*`
- `cdsr`
- `pc/pca`
- The `saddr` or `eaddr` parameter values containing hex digits.

If the `rtrv-gsmmap-scrn` output in this step shows any of the parameters or values listed above, skip step 3, and go to step 4.

3. Verify that the Enhanced GSM MAP Screening feature is enabled and on by entering the `rtrv-ctrl-feat` command with the part number of the Enhanced GSM MAP Screening feature.

Enter this command.

```
rtrv-ctrl-feat:partnum=893012401
```

The following is an example of the possible output.

```
rlghncxa03w 06-10-28 21:15:37 GMT EAGLE5 36.0.0
The following features have been permanently enabled:

Feature Name          Partnum    Status    Quantity
Enhanced GSM (EGMS)  893012401  on       ----

The following features have been temporarily enabled:

Feature Name          Partnum    Status    Quantity    Trial Period Left
Zero entries found.

The following features have expired temporary keys:

Feature Name          Partnum
Zero entries found.
```

If the Enhanced GSM MAP screening feature is not enabled or off, go to the [Activating the GSM MAP Screening Feature](#) on page 293 to enable and turn on the Enhanced GSM MAP screening feature.

4. Perform one of these actions.

- If the action parameter value will be either `pass`, `discard`, `route`, or `atierr`, skip steps 4 through 8, and continue the procedure with step 9.
- If the action parameter value will be either `forward`, `duplicate`, or `dupdisc`, perform one of these actions.
 - To use a point code and a MAP set from the mated application table, and MAP sets are not shown in the `rtrv-gsmmap-scrn` output in step 2, the Flexible GTT Load Sharing Feature must be enabled. Perform the “Activating the Flexible GTT Load Sharing Feature” procedure in the *Database Administration Manual - Global Title Translation* and enable the Flexible GTT Load Sharing feature. After enabling the Flexible GTT Load Sharing feature, skip steps 5 and 6 and continue the procedure with step 7.
 - To use a point code and a MAP set from the mated application table, and MAP sets are shown in the `rtrv-gsmmap-scrn` output in step 2, skip steps 5 and 6 and continue the procedure with step 7.
 - To use a point code in the mated application table, but without using a MAP set, and MAP sets are not shown in the `rtrv-gsmmap-scrn` output in step 2, skip steps 5 and 6 and continue the procedure with step 7.
 - To use a point code that is not in the mated application table, the `force=yes` parameter must be specified with the `ent-gsmmap-scrn` command. A proxy point code cannot be assigned to this point code. If the Flexible GTT Load Sharing feature is enabled, the `force=yes` parameter can be used only if the default MAP set is assigned to the GSM MAP screening entry. Continue the procedure with step 5.

5. Display the destination point codes in the database by entering the `rtrv-dstn` command. This is an example of the possible output.

```
rlghncxa03w 06-10-10 11:43:04 GMT EAGLE5 37.5.0

DPCA          CLLI          BEI  ELEI  ALIASI          ALIASN          DOMAIN
001-207-000  -----  no  ---  -----  -----  SS7
001-001-001  -----  no  ---  -----  -----  SS7
001-001-002  -----  no  ---  -----  -----  SS7
```

```

001-005-000 ----- no --- -----
001-007-000 ----- no --- -----
008-012-003 ----- no --- -----
003-002-004 ----- no --- -----
009-002-003 ----- no --- -----
010-020-005 ----- no --- -----

DPCI          CLLI          BEI ELEI  ALIASI          ALIASN          DOMAIN
1-207-0      ----- no --- -----
0-015-0      ----- no --- -----
0-017-0      ----- no --- -----
1-011-1      ----- no --- -----
1-011-2      ----- no --- -----

DPCN          CLLI          BEI ELEI  ALIASA          ALIASI          DOMAIN
DPCN24       CLLI          BEI ELEI  ALIASA          ALIASI          DOMAIN

Destination table is (14 of 2000) 1% full
Alias table is (0 of 12000) 0% full
PPC table is (1 of 20) 5% full

```

If the required point code is not shown in the `rtrv-dstn` output, perform the "Adding a Destination Point Code" procedure in the *Database Administration Manual - SS7* to add the required point code. A proxy point code cannot be assigned to the point code.

After the new point code has been added, skip steps 6 through 8 and perform the "Adding a Route Containing an SS7 DPC" procedure in the *Database Administration Manual - SS7* and add the required route to the database. After the route has been added, continue the procedure with step 9.

6. Display the point code that will be assigned to the mated application by using the `rtrv-dstn` command and specifying the point code. For this example, enter this command.

```
rtrv-dstn:dpca=010-020-005
```

This is an example of the possible output.

```

rlghncxa03w 06-10-10 11:43:04 GMT EAGLE5 37.5.0

DPCA          CLLI          BEI ELEI  ALIASI          ALIASN          DOMAIN
010-020-005  ----- no --- -----

PPC          NCAI          PRX
009-002-003  ----          no

Destination table is (14 of 2000) 1% full
Alias table is (0 of 12000) 0% full
PPC table is (1 of 20) 5% full

```

If the adjacent point code is not shown in the `rtrv-dstn` command output, the following output is displayed.

```

DPCA          CLLI          BEI ELEI  ALIASI          ALIASN/N24      DOMAIN

No destinations meeting the requested criteria were found

Destination table is (14 of 2000) 1% full

```

```
Alias table is (0 of 12000) 0% full
PPC table is (1 of 20) 5% full
```

A proxy point code (a point code value is shown in the PPC column) cannot be assigned to the point code. If a proxy point code is shown in this step, choose another point code from the `rtrv-dstn` output in the previous step and repeat this step.

If the point code is not shown in the `rtrv-dstn` output, perform the "Adding a Destination Point Code" procedure in the *Database Administration Manual - SS7* and add the adjacent point code to the destination point code table.

After the new point code has been added, skip steps 7 and 8 and perform the "Adding a Route Containing an SS7 DPC" procedure in the *Database Administration Manual - SS7* and add the required route to the database. After the route has been added, continue the procedure with step 9.

- The point code and subsystem number being assigned to the GSM MAP screening entry must be in the mated application table.

Enter the `rtrv-map` command with the `pci/pcn/pcn24` and `ssn` values that will be specified with the `ent-gsmmap-scrn` command in step 9.

If the Flexible GTT Load Sharing feature is not enabled, for this example, enter these commands.

```
rtrv-map:pci=3-201-7:ssn=100
```

This is an example of the possible output.

```
rlghncxa03w 06-10-25 09:42:31 GMT EAGLE5 36.0.0
MAP TABLE IS 2 % FULL (20 of 1024)
PCI          Mate PCI      SSN RC MULT SRM MRC GRP NAME SSO
3-201-5      3-201-5      100 10 SOL --- --- GRP01  ON
```

```
rtrv-map:pcn=9384:ssn=30
```

This is an example of the possible output.

```
rlghncxa03w 06-10-25 09:42:31 GMT EAGLE5 36.0.0
MAP TABLE IS 2 % FULL (20 of 1024)
PCN          Mate PCN      SSN RC MULT SRM MRC GRP NAME SSO
9384         9384         30 10 SOL --- --- GRP01  ON
```

```
rtrv-map:pci=4-102-6:ssn=150
```

This is an example of the possible output.

```
rlghncxa03w 06-10-25 09:42:31 GMT EAGLE5 36.0.0
MAP TABLE IS 2 % FULL (20 of 1024)
PCI          Mate PCI      SSN RC MULT SRM MRC GRP NAME SSO
4-102-6      4-102-6      150 10 SOL --- --- GRP01  ON
```

If the Flexible GTT Load Sharing feature is enabled:

- The `mapset` parameter must be specified with the `ent-gsmmap-scrn` command in step 9.

- The point code and subsystem contained in the GSM MAP screening entry must be in the MAP set assigned to the GSM MAP screening entry.

For this example, enter these commands.

```
rtrv-map:pci=3-201-7:ssn=100
```

This is an example of the possible output.

```
rlghncxa03w 06-10-25 09:42:31 GMT EAGLE5 36.0.0
MAP TABLE IS 2 % FULL (20 of 1024)
PCI           Mate PCI      SSN RC MULT SRM MRC GRP NAME SSO
MAPSET ID=DFLT
3-201-7              100 10 SOL --- --- GRP01  ON
```

```
rtrv-map:pcn=9384:ssn=30
```

This is an example of the possible output.

```
rlghncxa03w 06-10-25 09:42:31 GMT EAGLE5 36.0.0
MAP TABLE IS 2 % FULL (20 of 1024)
PCN           Mate PCN      SSN RC MULT SRM MRC GRP NAME SSO
MAPSET ID=10
9384              30 10 SOL --- --- GRP01  ON
```

```
rtrv-map:pci=4-102-6:ssn=150
```

This is an example of the possible output.

```
rlghncxa03w 06-10-25 09:42:31 GMT EAGLE5 36.0.0
MAP TABLE IS 2 % FULL (20 of 1024)
PCI           Mate PCI      SSN RC MULT SRM MRC GRP NAME SSO
MAPSET ID=20
4-102-6              150 10 SOL --- --- GRP01  ON
```

If the point code and subsystem number is not shown in the `rtrv-map` output, perform one of the “Provisioning a Mated Application” procedures in the *Database Administration Manual - Global Title Translation* and add the required point code and subsystem number to the mated application table.

8. The point code specified with the `ent-gsmmap-scrn` command must be the DPC of a route.

If the point code specified with the `ent-gsmmap-scrn` command is an ANSI point code, the point code can be a member of a cluster point code when that cluster point code is the DPC of a route. Enter the `rtrv-rte` command with the `dpc` parameter specifying the point code to be used with the `ent-gsmmap-scrn` command to verify whether or not the point code is the DPC of a route. For this example, enter these commands.

```
rtrv-rte:dpci=3-201-7
```

This is an example of the possible output.

```
rlghncxa03w 06-10-07 11:43:04 GMT EAGLE5 36.0.0
DPCI        ALIASN/N24      ALIASA      LSN          RC      APC
3-201-7     12111                240-111-111 1s100001    10     1-234-5
                                     1s100002    10     1-234-6
```

```
ls100003 20 1-234-7
ls100004 30 1-234-1
ls100005 40 1-234-2
ls100006 50 1-234-3
RTX:No CLLI=idpl
```

```
rtrv-rte:dpcn=9384
```

This is an example of the possible output.

```
rlghncxa03w 06-10-07 11:43:04 GMT EAGLE5 36.0.0
DPCN          ALIASA          ALIASI  LSN          RC          APC
9384          011-222-111      0-001-1 ls200001     10          11111
              011-222-111      0-001-1 ls200002     10          11112
              011-222-111      0-001-1 ls200003     20          11113
              011-222-111      0-001-1 ls200004     30          11114
              011-222-111      0-001-1 ls200005     40          11115
              011-222-111      0-001-1 ls200006     50          11116
RTX:No CLLI=ndpl
```

```
rtrv-rte:dpci=4-102-6
```

This is an example of the possible output.

```
DPCI          ALIASN/N24      ALIASA      LSN          RC          APC
4-102-6      7659            240-039-150 ls100001     10          5-25-3
              7659            240-039-150 ls100002     10          3-250-6
              7659            240-039-150 ls100003     20          7-34-7
              7659            240-039-150 ls100004     30          6-98-1
              7659            240-039-150 ls100005     40          3-142-2
              7659            240-039-150 ls100006     50          1-178-3
RTX:No CLLI=idpl
```

If the point code is not shown in the `rtrv-rte` output, if the point code is an ANSI point code, the point code is not a member of a cluster point code when that cluster point code is the DPC of a route, go to the "Adding a Route Containing an SS7 DPC" procedure in the *Database Administration Manual - SS7* and add the required route to the database.

9. Add the new CGPA GSM MAP screening entries to the database with the `ent-gsmmap-scrn` command.

Note: If a CDPA entry is being added to an existing CGPA entry, skip steps 9 and 10, and go to step 11.

See [Table 26: Add GSM MAP Screening Entry Parameter Combinations](#) on page 367 for the parameter combinations that can be used with the `ent-gsmmap-scrn` command.

For this example, enter these commands:

```
ent-gsmmap-scrn:saddr=9194600000:npv=5:naiv=75:opname=pass50
:forbid=none:action=pass:cgsr=cg01
```

```
ent-gsmmap-scrn:saddr=252555100000:eaddr=252700000000:npv=12:naiv=37
:opname=discard1:forbid=all :action=discard:cgsr=cg02
```

```
ent-gsmmap-scrn:saddr=8284540000:eaddr=8284600000:opname=ati
:forbid=state:action=atierr:cgsr=cg03
```

```
ent-gsmmap-scrn:saddr=2416546464:opname=route25:forbid=all
:action=route:npv=0:naiv=127:cgsr=cg04
```



```
ent-gsmmap-scrn:saddr=854000000:eaddr=857000000:opname=dd93
:forbid=all:action=forward:npv=3:naiv=99:pci=3-201-7:ssn=100:cgsr=cg05
:mapset=df1t

ent-gsmmap-scrn:saddr=154363000000:eaddr=155000000000:opname=sri
:forbid=all:action=duplicate:npv=8:naiv=86:pcn=9384:ssn=30:cgsr=cg06
:mapset=10

ent-gsmmap-scrn:saddr=368900000:eaddr=369000000:opname=dup187
:forbid=all:action=dupdisc:npv=9:naiv=111:pci=4-102-6:ssn=150:cgsr=cg07
:mapset=20
```

When each of these commands has successfully completed, this message appears.

```
rlghncxa03w 06-10-20 09:07:58 GMT EAGLE5 36.0.0
GSM Map Screening table is (1512 of 4000) 38% full
ENT-GSM MAP-SCRN: MASP A - COMPLTD
```

- Verify the changes using the `rtrv-gsmmap-scrn` command and specifying the `opname` and `cgsr` parameter values specified in step 9.

For this example, enter these commands:

```
rtrv-gsmmap-scrn:opname=pass50
```

This is an example of the possible output.

```
rlghncxa03w 08-09-20 09:07:58 GMT EAGLE5 39.2.0
Single CgPA Entries for OPNAME: pass50
-----
SADDR          NP NAI FORBD ACT      PCA          SSN CGSR  MAPSET RI  TT
SADDR          NP NAI FORBD ACT      PCI          SSN CGSR  MAPSET RI  TT
SADDR          NP NAI FORBD ACT      PCN          SSN CGSR  MAPSET RI  TT
SADDR          NP NAI FORBD ACT      PCN24        SSN CGSR  MAPSET RI  TT
SADDR          NP NAI FORBD ACT  CGSR
9194600000    5 75 none pass cg01
Range CgPA Entries for OPNAME: pass50
-----
SADDR          EADDR          NP NAI FORBD ACT      PCA
SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT      PCI          SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT      PCN          SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT      PCN24        SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT  CGSR
GSM Map Screening table is (1512 of 4000) 38% full
rtrv-gsmmap-scrn:opname=discard1
```

This is an example of the possible output.

```
rlghncxa03w 08-09-20 09:07:58 GMT EAGLE5 39.2.0
```

```

Single CgPA Entries for OPNAME: discard1
-----
SADDR          NP NAI FORBD ACT      PCA          SSN CGSR  MAPSET RI  TT
SADDR          NP NAI FORBD ACT      PCI          SSN CGSR  MAPSET RI  TT
SADDR          NP NAI FORBD ACT      PCN          SSN CGSR  MAPSET RI  TT
SADDR          NP NAI FORBD ACT      PCN24       SSN CGSR  MAPSET RI  TT
SADDR          NP NAI FORBD ACT  CGSR

Range CgPA Entries for OPNAME: discard1
-----
SADDR          EADDR          NP NAI FORBD ACT      PCA          SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT      PCI          SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT      PCN          SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT      PCN24       SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT  CGSR

252555100000  252700000000  12 37  all  disc  cg02

GSM Map Screening table is (1512 of 4000) 38% full

```

```
rtrv-gsmmap-scrn:opname=ati
```

This is an example of the possible output.

```

rlghncxa03w 08-09-20 09:07:58 GMT  EAGLE5 39.2.0

Single CgPA Entries for OPNAME: ati
-----
SADDR          NP NAI FORBD ACT      PCA          SSN CGSR  MAPSET RI  TT
SADDR          NP NAI FORBD ACT      PCI          SSN CGSR  MAPSET RI  TT
SADDR          NP NAI FORBD ACT      PCN          SSN CGSR  MAPSET RI  TT
SADDR          NP NAI FORBD ACT      PCN24       SSN CGSR  MAPSET RI  TT
SADDR          NP NAI FORBD ACT  CGSR

Range CgPA Entries for OPNAME: ati
-----
SADDR          EADDR          NP NAI FORBD ACT      PCA          SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT      PCI          SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT      PCN          SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT      PCN24       SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT  CGSR

8284540000    8284600000    * *  state atier cg03

GSM Map Screening table is (1512 of 4000) 38% full

rtrv-gsmmap-scrn:opname=route25

```

This is an example of the possible output.

```

rlghncxa03w 08-09-20 09:07:58 GMT EAGLE5 39.2.0
Single CgPA Entries for OPNAME: route25
-----
SADDR          NP NAI FORBD ACT      PCA          SSN CGSR  MAPSET RI  TT
SADDR          NP NAI FORBD ACT      PCI          SSN CGSR  MAPSET RI  TT
SADDR          NP NAI FORBD ACT      PCN          SSN CGSR  MAPSET RI  TT
SADDR          NP NAI FORBD ACT      PCN24        SSN CGSR  MAPSET RI  TT
SADDR          NP NAI FORBD ACT  CGSR
2416546464      0 127 all   route cg04
Range CgPA Entries for OPNAME: ati
-----
SADDR          EADDR          NP NAI FORBD ACT      PCA          SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT      PCI          SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT      PCN          SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT      PCN24        SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT  CGSR
GSM Map Screening table is (1512 of 4000) 38% full

```

rtrv-gsmmap-scrn:opname=dd93

This is an example of the possible output.

```

rlghncxa03w 08-09-20 09:07:58 GMT EAGLE5 39.2.0
Single CgPA Entries for OPNAME: dd93
-----
SADDR          NP NAI FORBD ACT      PCA          SSN CGSR  MAPSET RI  TT
SADDR          NP NAI FORBD ACT      PCI          SSN CGSR  MAPSET RI  TT
SADDR          NP NAI FORBD ACT      PCN          SSN CGSR  MAPSET RI  TT
SADDR          NP NAI FORBD ACT      PCN24        SSN CGSR  MAPSET RI  TT
SADDR          NP NAI FORBD ACT  CGSR
Range CgPA Entries for OPNAME: dd93
-----
SADDR          EADDR          NP NAI FORBD ACT      PCA          SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT      PCI          SSN CGSR
854000000      857000000      3 99 all   fwd      3-201-7    100 cg05
MAPSET = DFLT RI=ssn TT=-
SADDR          EADDR          NP NAI FORBD ACT      PCN          SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT      PCN24        SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT  CGSR

```

GSM Map Screening table is (1512 of 4000) 38% full

rtrv-gsmmap-scrn:opname=sri

This is an example of the possible output.

rlghncxa03w 08-09-20 09:07:58 GMT EAGLE5 39.2.0

Single CgPA Entries for OPNAME: sri

```
-----
SADDR          NP NAI FORBD ACT      PCA          SSN CGSR  MAPSET RI  TT
SADDR          NP NAI FORBD ACT      PCI          SSN CGSR  MAPSET RI  TT
SADDR          NP NAI FORBD ACT      PCN          SSN CGSR  MAPSET RI  TT
SADDR          NP NAI FORBD ACT      PCN24       SSN CGSR  MAPSET RI  TT
SADDR          NP NAI FORBD ACT  CGSR
```

Range CgPA Entries for OPNAME: sri

```
-----
SADDR          EADDR          NP NAI FORBD ACT      PCA          SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT      PCI          SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT      PCN          SSN CGSR
1534363000000  1550000000000  8 86 all dupl      9384          30 cg06
MAPSET = 10 RI=ssn TT=-
SADDR          EADDR          NP NAI FORBD ACT      PCN24       SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT  CGSR
```

GSM Map Screening table is (1512 of 4000) 38% full

rtrv-gsmmap-scrn:opname=dup187

This is an example of the possible output.

rlghncxa03w 08-09-20 09:07:58 GMT EAGLE5 39.2.0

Single CgPA Entries for OPNAME: dup187

```
-----
SADDR          NP NAI FORBD ACT      PCA          SSN CGSR  MAPSET RI  TT
SADDR          NP NAI FORBD ACT      PCI          SSN CGSR  MAPSET RI  TT
SADDR          NP NAI FORBD ACT      PCN          SSN CGSR  MAPSET RI  TT
SADDR          NP NAI FORBD ACT      PCN24       SSN CGSR  MAPSET RI  TT
SADDR          NP NAI FORBD ACT  CGSR
```

Range CgPA Entries for OPNAME: dup187

```
-----
SADDR          EADDR          NP NAI FORBD ACT      PCA          SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT      PCI          SSN CGSR
368900000      369000000      9 111 all dupdc    4-102-6      150 cg07
MAPSET = 20 RI=ssn TT=-
SADDR          EADDR          NP NAI FORBD ACT      PCN          SSN CGSR
```

```

SADDR          EADDR          NP NAI FORBD ACT      PCN24          SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT      CGSR
GSM Map Screening table is (1512 of 4000) 38% full

```

11. Add the new CDPA GSM MAP screening entries to the database with the `ent-gsmmap-scrn` command.

Note: If a CDPA entry is not being added, or if the Enhanced GSM MAP Screening feature is not enabled or off (see the `rtrv-ctrl-feat` output in step 3), skip steps 11 and 12, and go to step 13.

See [Table 26: Add GSM MAP Screening Entry Parameter Combinations](#) on page 367 for the parameter combinations that can be used with the `ent-gsmmap-scrn` command.

For this example, enter these commands:

```
ent-gsmmap-scrn:opname=pass50:npv=6:naiv=15:forbid=all:action=pass
:cgsr=cg01:cdsr=cd01
```

```
ent-gsmmap-scrn:opname=discard1:npv=10:naiv=15:forbid=all:action=discard
:cgsr=cg02:cdsr=cd15
```

```
ent-gsmmap-scrn:opname=dupl87:npv=11:naiv=57:forbid=all:pci=5-97-2
:ssn=135:action=dupdisc:cgsr=cg07:cdsr=cd10:mapset=30
```

When each of these commands has successfully completed, this message appears.

```

rlghncxa03w 06-10-20 09:07:58 GMT  EAGLE5 36.0.0
GSM Map Screening table is (1512 of 4000) 38% full
ENT-GSM MAP-SCRN: MASP A - COMPLTD

```

12. Verify the changes using the `rtrv-gsmmap-scrn` command and specifying the `opname`, `cgsr`, and `cdsr` parameter values specified in step 11.

For this example, enter these commands:

```
rtrv-gsmmap-scrn:opname=pass50:cgsr=cg01:cdsr=cd01
```

This is an example of the possible output.

```

rlghncxa03w 06-10-20 09:07:58 GMT  EAGLE5 36.0.0
SADDR          NP NAI FORBD ACT      CDSR
*              6  15  all   pass  cd01
GSM Map Screening table is (1512 of 4000) 38% full

```

```
rtrv-gsmmap-scrn:opname=discard1:cgsr=cg02:cdsr=cd15
```

This is an example of the possible output.

```

rlghncxa03w 06-10-20 09:07:58 GMT  EAGLE5 36.0.0
SADDR          NP NAI FORBD ACT      CDSR
*              10 15  all   disc  cd15
GSM Map Screening table is (1512 of 4000) 38% full

```

```
rtrv-gsmmap-scrn:opname=dupl87:cgsr=cg07:cdsr=cd10
```

This is an example of the possible output.

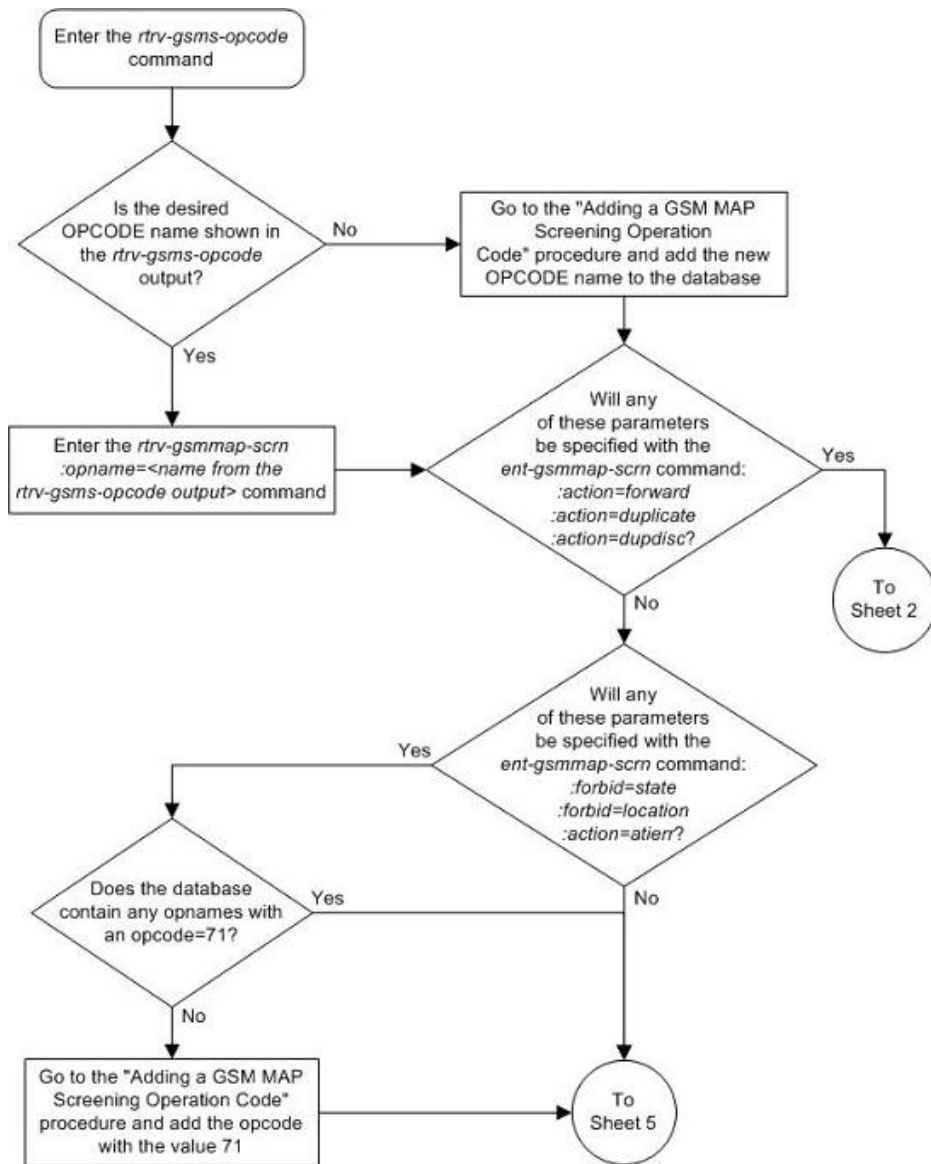
```
rlghncxa03w 08-09-20 09:07:58 GMT EAGLE5 39.2.0
SADDR          NP NAI FORBD ACT      PCI          SSN CDSR  MAPSET RI
*              11 57 all   dupdc    5-97-2      135 cd10  30    ssn
TT=-
GSM Map Screening table is (1512 of 4000) 38% full
```

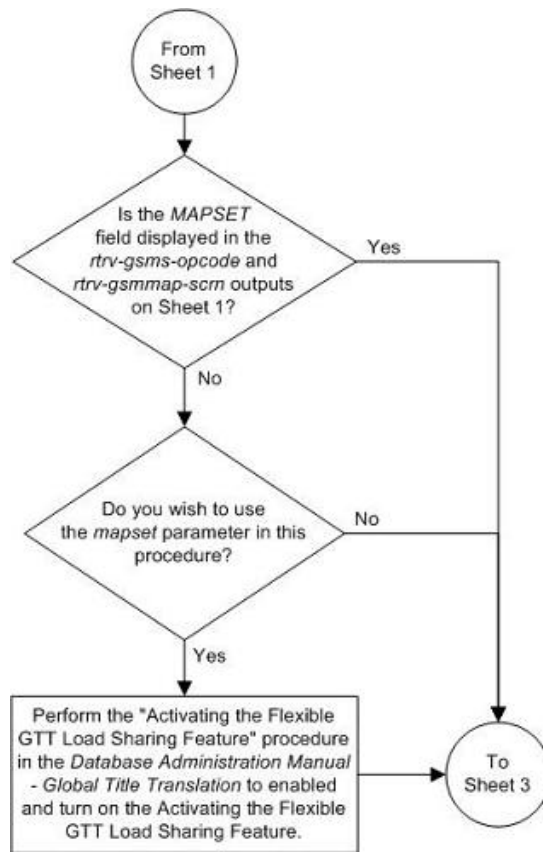
13. Backup the new changes using the `chg-db:action=backup:dest=fixed` command.

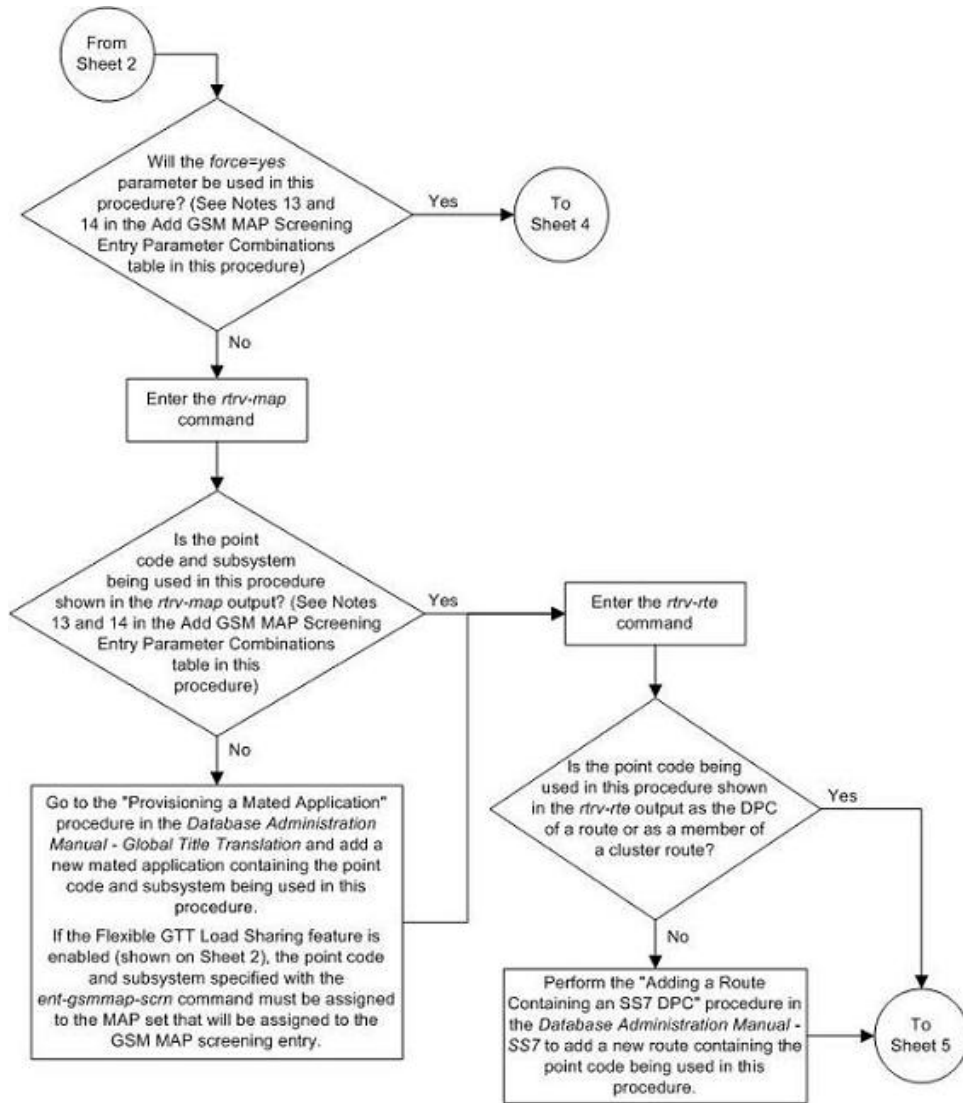
These messages should appear, the active Maintenance and Administration Subsystem Processor (MASP) appears first.

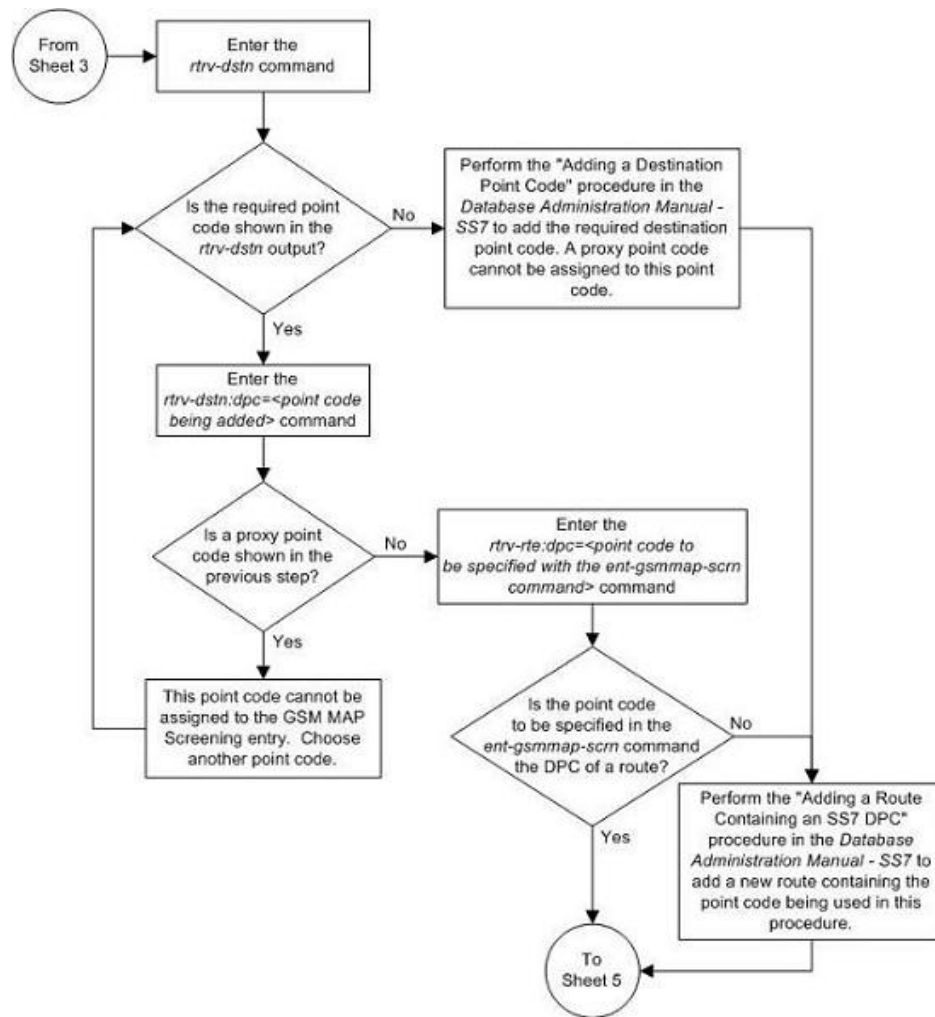
```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk complete.
BACKUP (FIXED) : MASP A - Backup starts on standby MASP.
BACKUP (FIXED) : MASP A - Backup on standby MASP to fixed disk complete.
```

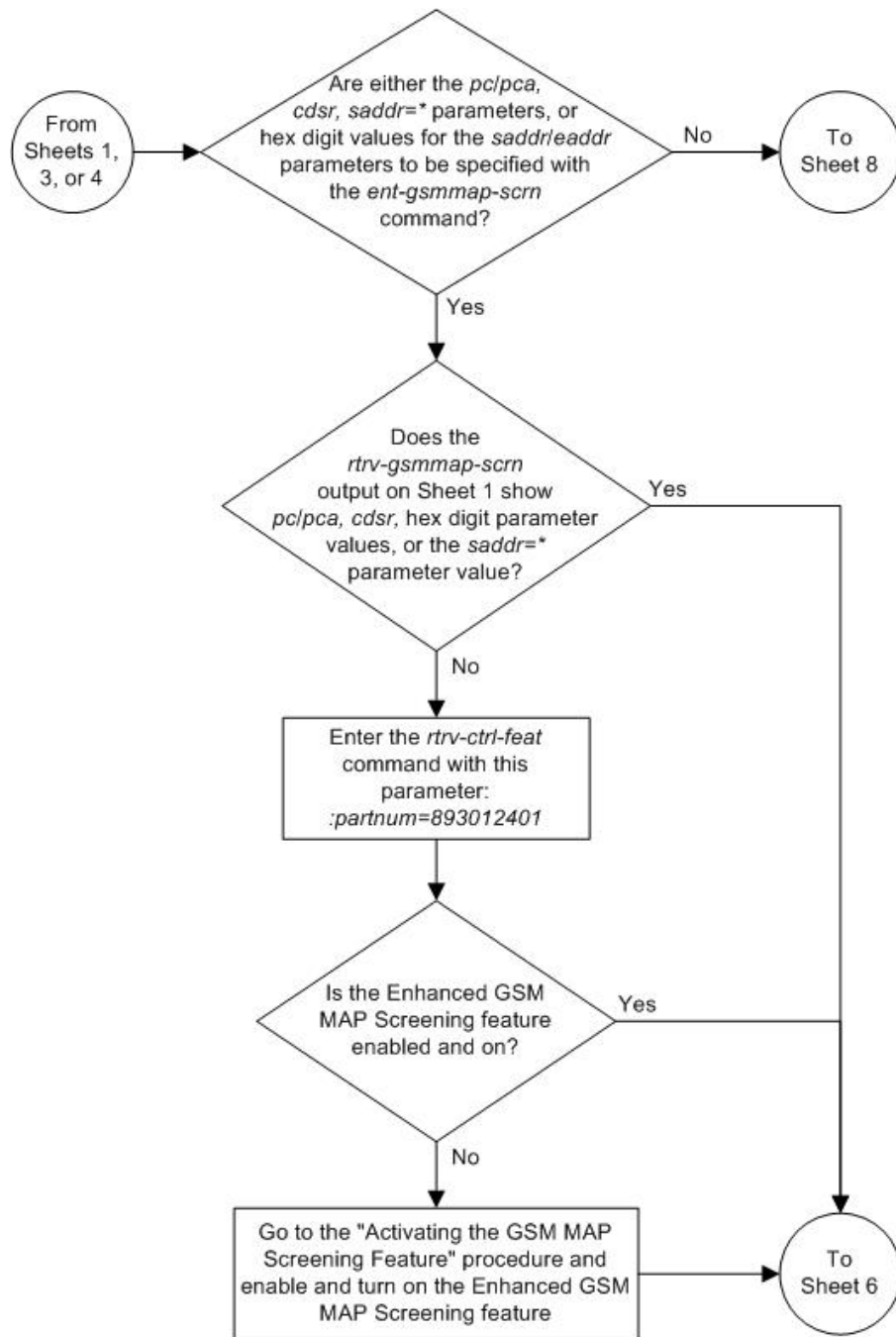
Figure 54: Adding a GSM MAP Screening Entry

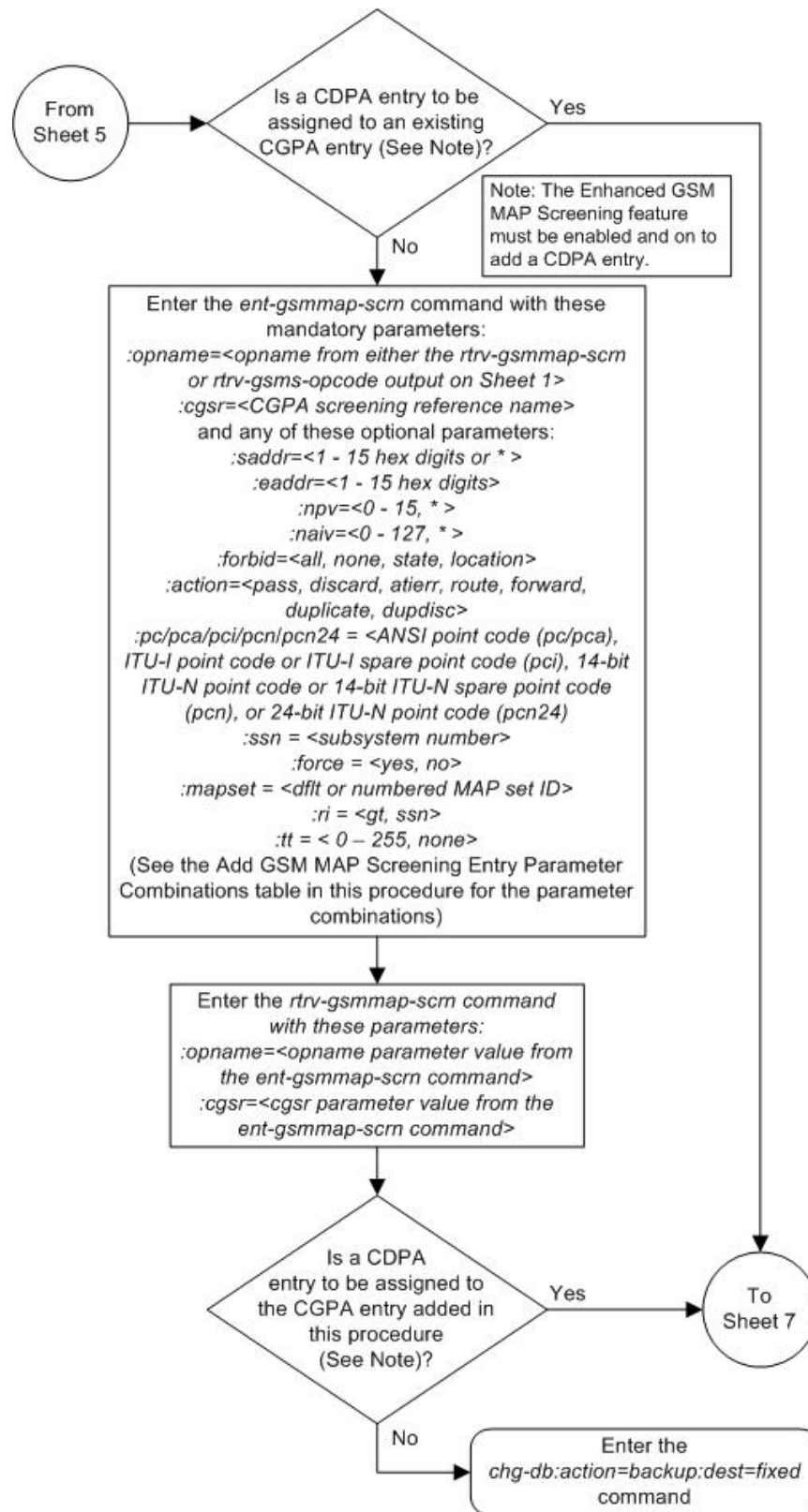


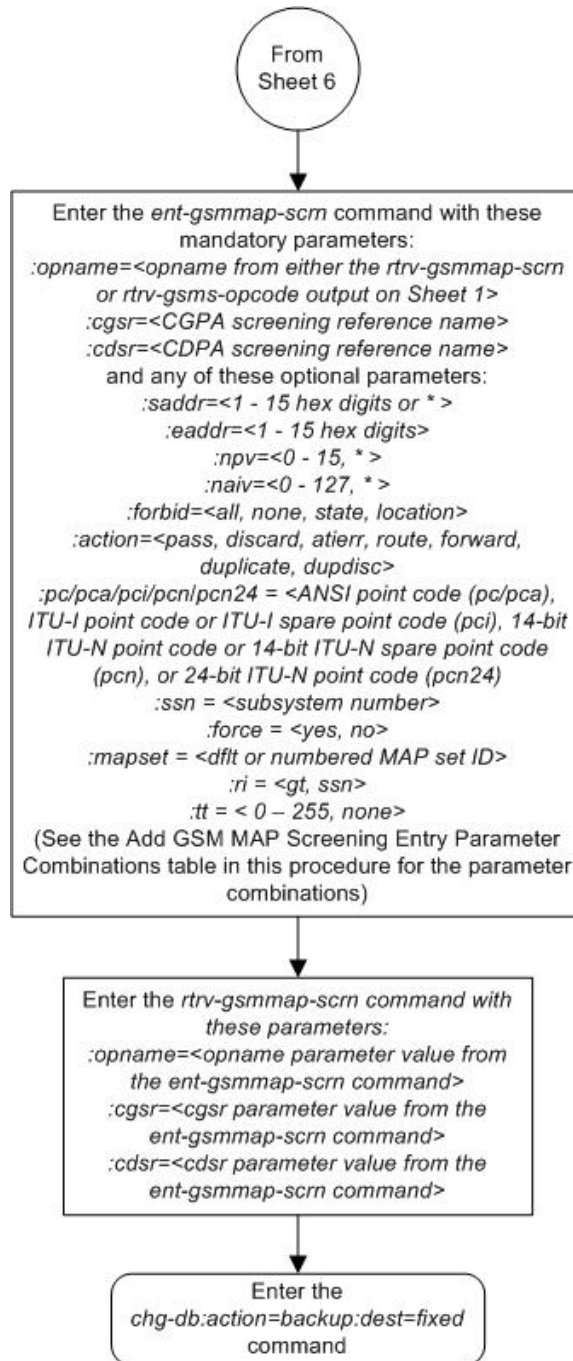


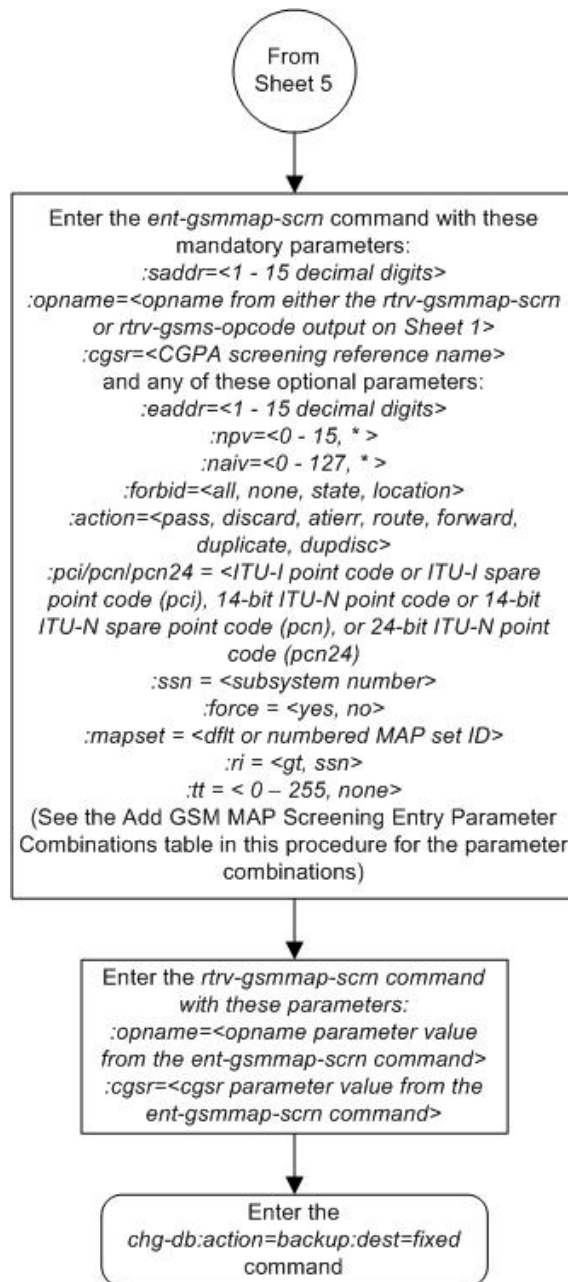












Removing a GSM MAP Screening Entry

Use this procedure to remove the GSM MAP screening entries that filter or allow TCAP messages containing MAP operation codes, origination addresses, and forbidden parameters using the *dlt-gsmmap-scrn* command. The *dlt-gsmmap-scrn* command uses these parameters:

- :opname* – The user-defined name for the operation code. The *opname* value references the operation code (*opcode*) shown in the *rtv-gsms-opcode* command output.

:cgsr – The CGPA screening reference name

:cdsr – The CDPA screening reference name

If the GSM MAP Screening entry contains CDPA entries, the individual CDPA entries can be removed without removing the CGPA entry. However, if you wish to remove the CGPA entry, all CDPA entries assigned to the CGPA entry must be removed before the CGPA entry can be removed.

To remove CDPA entries, the opname, cgsr, and cdsr parameters must be specified with the dlt-gsmmap-scrn command. To remove CGPA entries, the opname and cgsr parameters must be specified with the dlt-gsmmap-scrn command.

Unlike GTT (Global Title Translation) entries, the GSM MAP screening commands do not support splits of ranges during removing or changing entries.

1. Display the GSM MAP screening operation codes in the database using the rtrv-gsms-opcode command.

This is an example of the possible output.

```

rlghncxa03w 08-09-10 11:43:04 GMT EAGLE5 39.2.0
OPCODE  OPNAME    DFLTACT  PCA          SSN  RI  TT
 36      for1       fwd      002-002-002  10   gt  10
OPCODE  OPNAME    DFLTACT  PCI          SSN  RI  TT
 93      dd93      dupdc    5-25-3      200  ssn 30
 139     fwd139    fwd      3-159-7     128  ssn -
OPCODE  OPNAME    DFLTACT  PCN          SSN  RT  TT
 187     dup187    dup1     11519       79   gt  50
OPCODE  OPNAME    DFLTACT  PCN24        SSN
OPCODE  OPNAME    DFLTACT
 22      sri       disc
 25      route25  route
 50      pass50   pass
 71      ati      atierr
 150     discard1 disc
 *       star    pass
GSMMS OPCODE Table (10 of 257) is 4% full

```

2. Enter the rtrv-gsmmap-scrn command with an opname value shown in the rtrv-gsms-opcode command output in step 1 to display the CGPA GSM MAP screening entries. For this example, enter these commands.

```

rtrv-gsmmap-scrn:opname=pass50
rlghncxa03w 08-09-20 09:07:58 GMT EAGLE5 39.2.0
Single CgPA Entries for OPNAME: pass50
-----
SADDR          NP NAI FORBD ACT          PCA          SSN CGSR RI  TT
SADDR          NP NAI FORBD ACT          PCI          SSN CGSR RI  TT
SADDR          NP NAI FORBD ACT          PCN          SSN CGSR RI  TT
SADDR          NP NAI FORBD ACT          PCN24        SSN CGSR RI  TT

```

```
SADDR      NP NAI FORBD ACT  CGSR
9194600000 5  75 none  pass  cg01
```

Range CgPA Entries for OPNAME: pass50

```
-----
SADDR      EADDR      NP NAI FORBD ACT  PCA      SSN CGSR
SADDR      EADDR      NP NAI FORBD ACT  PCI      SSN CGSR
SADDR      EADDR      NP NAI FORBD ACT  PCN      SSN CGSR
SADDR      EADDR      NP NAI FORBD ACT  PCN24    SSN CGSR
SADDR      EADDR      NP NAI FORBD ACT  CGSR
```

GSM Map Screening table is (1512 of 4000) 38% full

```
rtrv-gsmmap-scrn:opname=ati
```

This is an example of the possible output.

```
rlghncxa03w 08-09-20 09:07:58 GMT  EAGLE5 39.2.0
```

Single CgPA Entries for OPNAME: ati

```
-----
SADDR      NP NAI FORBD ACT  PCA      SSN CGSR RI  TT
SADDR      NP NAI FORBD ACT  PCI      SSN CGSR RI  TT
SADDR      NP NAI FORBD ACT  PCN      SSN CGSR RI  TT
SADDR      NP NAI FORBD ACT  PCN24    SSN CGSR RI  TT
```

```
SADDR      NP NAI FORBD ACT  CGSR
919462000000005 1  0  locat atier atil
```

Range CgPA Entries for OPNAME: ati

```
-----
SADDR      EADDR      NP NAI FORBD ACT  PCA      SSN CGSR
SADDR      EADDR      NP NAI FORBD ACT  PCI
SSN CGSR
SADDR      EADDR      NP NAI FORBD ACT  PCN
SSN CGSR
SADDR      EADDR      NP NAI FORBD ACT  PCN24    SSN CGSR
SADDR      EADDR      NP NAI FORBD ACT  CGSR
8284540000  8284600000  * *  state atier cg03
9194618888888888 9194619000000000 4 1  locat atier ati2
9194620000000000 9194630000000000 * *  locat atier ati3
```

GSM Map Screening table is (1512 of 4000) 38% full

```
rtrv-gsmmap-scrn:opname=sri
```

This is an example of the possible output.

```
rlghncxa03w 08-09-20 09:07:58 GMT  EAGLE5 39.2.0
```

Single CgPA Entries for OPNAME: sri


```

SADDR      NP NAI FORBD ACT      PCA      SSN CGSR RI TT
SADDR      NP NAI FORBD ACT      PCI      SSN CGSR RI TT
SADDR      NP NAI FORBD ACT      PCN      SSN CGSR RI TT
SADDR      NP NAI FORBD ACT      PCN24    SSN CGSR RI TT
SADDR      NP NAI FORBD ACT  CGSR
Range CgPA Entries for OPNAME: sri
-----
SADDR      EADDR      NP NAI FORBD ACT      PCA      SSN CGSR
SADDR      EADDR      NP NAI FORBD ACT      PCI      SSN CGSR
SADDR      EADDR      NP NAI FORBD ACT      PCN      SSN CGSR
1534363000000 1550000000000 8 86 all dupl 9384 30 cg06
RI=ssn TT=-
SADDR      EADDR      NP NAI FORBD ACT      PCN24    SSN CGSR
SADDR      EADDR      NP NAI FORBD ACT  CGSR

GSM Map Screening table is (1512 of 4000) 38% full

```

Note: The `rtrv-gsmmap-scrn` output in step 2 shows only the CGPA entries in the MAP screening table for the specified OPNAME. The CGPA entries in step 2 could contain CDPA entries that would have to be removed before the CGPA entry could be removed. CDPA entries can be in the MAP screening table only if the Enhanced GSMMAP Screening feature is enabled and on.

If any of the following parameters or values are shown in the `rtrv-gsmmap-scrn` output in step 2, the Enhanced GSM MAP Screening feature is enabled and on. Skip step 3 and go to step 4.

- `saddr=*`
- `pc/pca`
- The `saddr` or `eaddr` parameter values containing hex digits.

If the `rtrv-gsmmap-scrn` output in step 2 does not show any of these parameters or values, it is possible that the Enhanced GSM MAP Screening feature is enabled and on. Perform step 3 to verify the status of the Enhanced GSM MAP Screening feature.

3. Enter the `rtrv-ctrl-feat` command with the part number of the Enhanced GSM MAP Screening feature.

Enter this command.

```
rtrv-ctrl-feat:partnum=893012401
```

The following is an example of the possible output.

```

rlghncxa03w 06-10-28 21:15:37 GMT EAGLE5 36.0.0
The following features have been permanently enabled:

Feature Name          Partnum    Status    Quantity
Enhanced GMS (EGMS)  893012401  on       ----

The following features have been temporarily enabled:

```

```
Feature Name      Partnum      Status      Quantity      Trial Period Left
Zero entries found.
```

The following features have expired temporary keys:

```
Feature Name      Partnum
Zero entries found.
```

Note: If step 3 shows that the Enhanced GSM MAP Screening feature is not enabled or off, CDPA entries cannot be in the MAP screening table. Skip step 4 and go to step 5.

- To display the CDPA entries assigned to the CGPA entry shown in step 2, enter the `rtrv-gsmmap-scrn` command with the `opname` and `cgsr` parameter values specified shown in step 2.

For this example, enter these commands.

```
rtrv-gsmmap-scrn:opname=pass50:cgsr=cg01
```

```
rlghncxa03w 08-09-20 09:07:58 GMT  EAGLE5 39.2.0
Single CdPA Entries for OPNAME: pass50 and CGSR: cg01
-----
SADDR          NP NAI FORBD ACT      PCA          SSN CDSR RI  TT
SADDR          NP NAI FORBD ACT      PCI          SSN CDSR RI  TT
SADDR          NP NAI FORBD ACT      PCN          SSN CDSR RI  TT
SADDR          NP NAI FORBD ACT      PCN24        SSN CDSR RI  TT
SADDR          NP NAI FORBD ACT      CDSR
*              6 15 all pass cd01
Range CdPA Entries for OPNAME: pass50 and CGSR: cg01
-----
SADDR          EADDR          NP NAI FORBD ACT      PCA          SSN CDSR
SADDR          EADDR          NP NAI FORBD ACT      PCI          SSN CDSR
SADDR          EADDR          NP NAI FORBD ACT      PCN          SSN CDSR
SADDR          EADDR          NP NAI FORBD ACT      PCN24        SSN CDSR
SADDR          EADDR          NP NAI FORBD ACT      CDSR
GSM Map Screening table is (1512 of 4000) 38% full
```

```
rtrv-gsmmap-scrn:opname=ati:cgsr=cg03
```

This is an example of the possible output.

```
rlghncxa03w 08-09-20 09:07:58 GMT  EAGLE5 39.2.0
Single CdPA Entries for OPNAME: ati and CGSR: cg03
-----
SADDR          NP NAI FORBD ACT      PCA          SSN CDSR RI  TT
SADDR          NP NAI FORBD ACT      PCI          SSN CDSR RI  TT
SADDR          NP NAI FORBD ACT      PCN          SSN CDSR RI  TT
SADDR          NP NAI FORBD ACT      PCN24        SSN CDSR RI  TT
```

```

SADDR          NP NAI FORBD ACT   CDSR
919461000000130 2 16  locat atier ati5

Range CdPA Entries for OPNAME: ati and CGSR: cg03
-----
SADDR          EADDR          NP NAI FORBD ACT   PCA          SSN CDSR
SADDR          EADDR          NP NAI FORBD ACT   PCI
SSN CDSR
SADDR          EADDR          NP NAI FORBD ACT   PCN          SSN CDSR
SADDR          EADDR          NP NAI FORBD ACT   PCN24        SSN CDSR
SADDR          EADDR          NP NAI FORBD ACT   CDSR
4329290000    5450000000    * *  state atier cd15
9194630000000000 9194640000000000 11 95  locat atier ati7
8035490000000000 8036500000000000 * *  locat atier ati9

GSM Map Screening table is (1512 of 4000) 38% full

```

```
rtrv-gsmmap-scrn:opname=sri:cgsr=cg06
```

This is an example of the possible output.

```

rlghncxa03w 08-09-20 09:07:58 GMT  EAGLE5 39.2.0

Single CgPA Entries for OPNAME: sri and CGSR: cg06
-----
SADDR          NP NAI FORBD ACT   PCA          SSN CDSR
SADDR          NP NAI FORBD ACT   PCI          SSN CDSR
SADDR          NP NAI FORBD ACT   PCN          SSN CDSR
SADDR          NP NAI FORBD ACT   PCN24        SSN CDSR
SADDR          NP NAI FORBD ACT   CDSR

Range CgPA Entries for OPNAME: sri and CGSR: cg06
-----
SADDR          EADDR          NP NAI FORBD ACT   PCA          SSN CDSR
SADDR          EADDR          NP NAI FORBD ACT   PCI          SSN CDSR
SADDR          EADDR          NP NAI FORBD ACT   PCN          SSN CDSR
SADDR          EADDR          NP NAI FORBD ACT   PCN24        SSN CDSR
SADDR          EADDR          NP NAI FORBD ACT   CDSR

GSM Map Screening table is (1512 of 4000) 38% full

```

- Remove the GSM MAP screening entries from the database with the `dlt-gsmmap-scrn` command.

If CDPA entries are being removed, these parameters must be specified with the `dlt-gsmmap-scrn` command: `opname`, `cgsr`, and `cdsr`.

If the GSM MAP Screening entry contains CDPA entries, the individual CDPA entries can be removed without removing the CGPA entry. However, if you wish to remove the CGPA entry,

all CDPA entries assigned to the CGPA entry must be removed before the CGPA entry can be removed.

To remove a CGPA entry, enter the `dlt-gsmmap-scrn` command with the `opname`, and `cgsr` parameter values.

For this example, enter these commands:

```
dlt-gsmmap-scrn:opname=pass50:cgsr=cg01:cdsr=cd01
```

```
dlt-gsmmap-scrn:opname=ati:cgsr=cg03:cdsr=cd15
```

```
dlt-gsmmap-scrn:opname=sri:cgsr=cg06
```

To remove the CGPA entry `cg01` from the `opname pass50` (now that CGPA entry `cg01` has no CDPA entries assigned), enter this command:

```
dlt-gsmmap-scrn:opname=pass50:cgsr=cg01
```

When each of these commands has successfully completed, this message appears.

```
rlghncxa03w 06-10-20 09:07:58 GMT EAGLE5 36.0.0
GSM Map Screening table is (1508 of 4000) 38% full
DLT-GSM MAP-SCRN: MASP A - COMPLTD
```

6. Verify the changes using the `rtrv-gsmmap-scrn` command with the `opname` parameter value used in step 5.

If CDPA entries were removed from CGPA entries without removing the CGPA entry, specify the `opname` and `cgsr` parameter values used in step 5 with the `rtrv-gsmmap-scrn` command.

For this example, enter these commands:

```
rtrv-gsmmap-scrn:opname=pass50
```

This is an example of the possible output.

```
rlghncxa03w 08-09-20 09:07:58 GMT EAGLE5 39.2.0
Single CgPA Entries for OPNAME: pass50
-----
SADDR          NP NAI FORBD ACT      PCA          SSN CGSR RI  TT
SADDR          NP NAI FORBD ACT      PCI          SSN CGSR RI  TT
SADDR          NP NAI FORBD ACT      PCN          SSN CGSR RI  TT
SADDR          NP NAI FORBD ACT      PCN24        SSN CGSR RI  TT
SADDR          NP NAI FORBD ACT      CGSR
Range CgPA Entries for OPNAME: pass50
-----
SADDR          EADDR          NP NAI FORBD ACT      PCA          SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT      PCI          SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT      PCN          SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT      PCN24        SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT      CGSR
```

```
GSM Map Screening table is (1508 of 4000) 38% full
```

```
rtrv-gsmmap-scrn:opname=ati:cgsr=cg03
```

This is an example of the possible output.

```
rlghncxa03w 08-09-20 09:07:58 GMT EAGLE5 39.2.0
```

```
Single CdPA Entries for OPNAME: ati and CGSR: cg03
```

```
-----
SADDR          NP NAI FORBD ACT      PCA          SSN CDSR RI  TT
SADDR          NP NAI FORBD ACT      PCI          SSN CDSR RI  TT
SADDR          NP NAI FORBD ACT      PCN          SSN CDSR RI  TT
SADDR          NP NAI FORBD ACT      PCN24        SSN CDSR RI  TT
SADDR          NP NAI FORBD ACT      CDSR
919461000000130 2 16 locat atier ati5
```

```
Range CdPA Entries for OPNAME: ati and CGSR: cg03
```

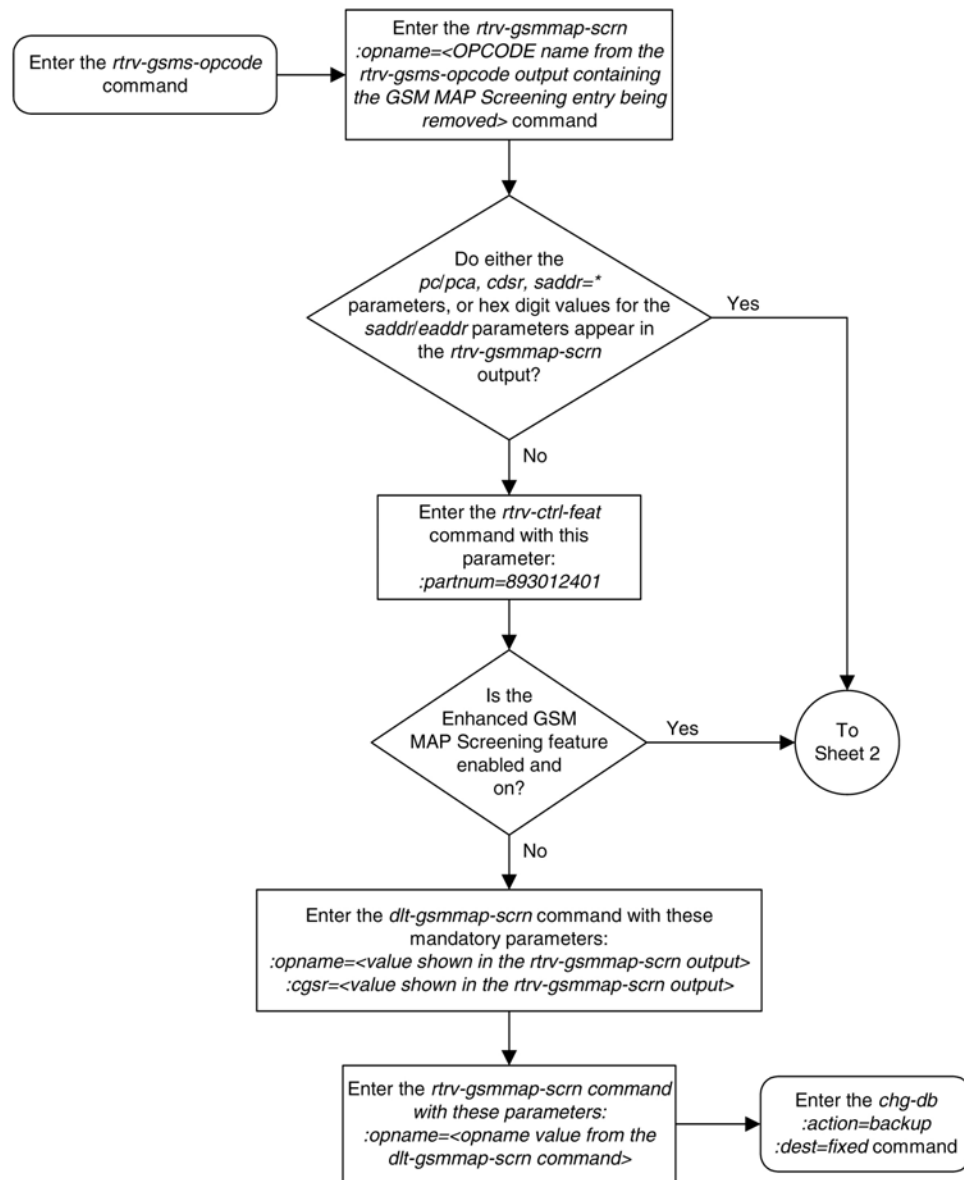
```
-----
SADDR          EADDR          NP NAI FORBD ACT      PCA          SSN CDSR
SADDR          EADDR          NP NAI FORBD ACT      PCI          SSN CDSR
SADDR          EADDR          NP NAI FORBD ACT      PCN          SSN CDSR
SADDR          EADDR          NP NAI FORBD ACT      PCN24        SSN CDSR
SADDR          EADDR          NP NAI FORBD ACT      CDSR
919463000000000 919464000000000 11 95 locat atier ati7
803549000000000 803650000000000 * * locat atier ati9
```

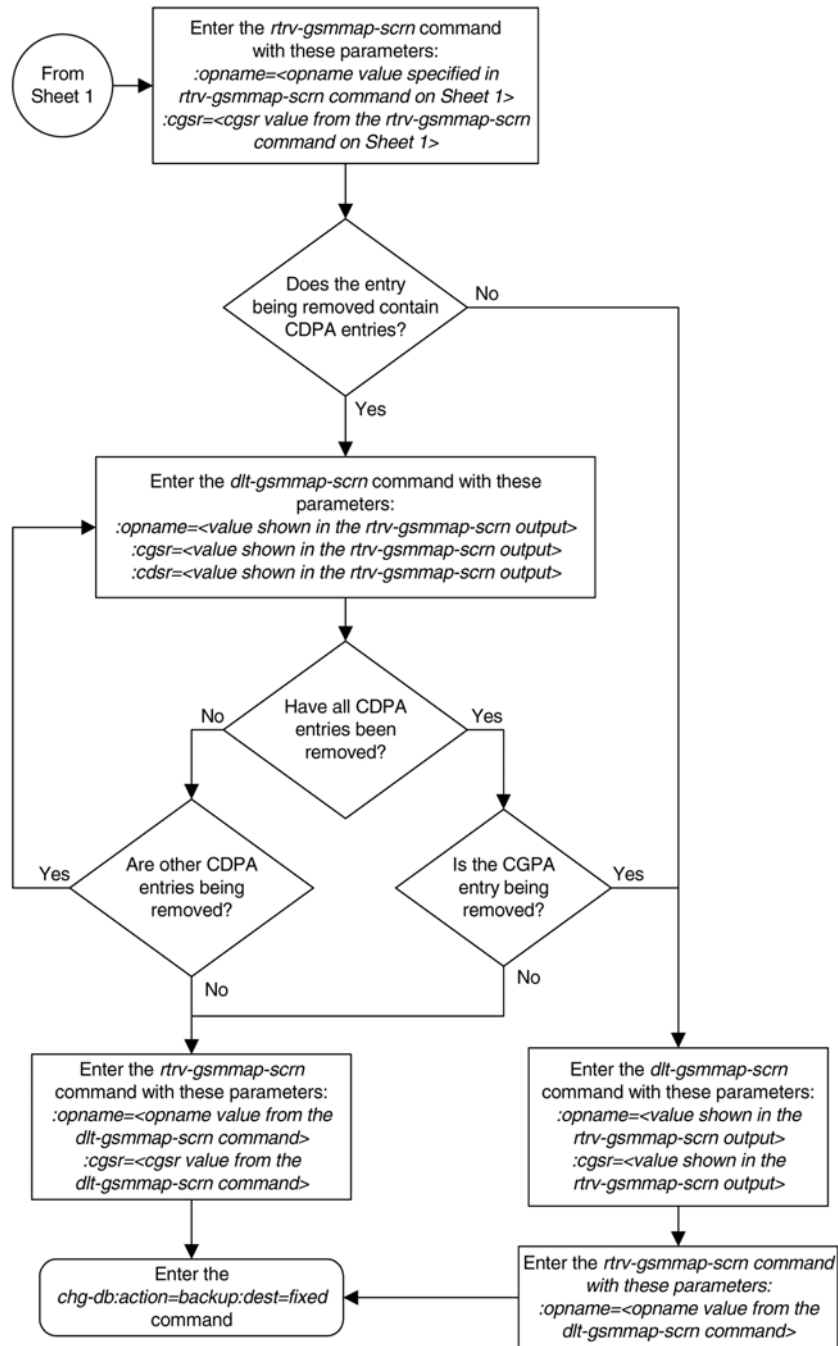
```
GSM Map Screening table is (1508 of 4000) 38% full
```

- Backup the new changes using the `chg-db:action=backup:dest=fixed` command. These messages should appear, the active Maintenance and Administration Subsystem Processor (MASP) appears first.

```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk complete.
BACKUP (FIXED) : MASP A - Backup starts on standby MASP.
BACKUP (FIXED) : MASP A - Backup on standby MASP to fixed disk complete.
```

Figure 55: Removing a GSM MAP Screening Entry





Changing a GSM MAP Screening Entry

Use this command to change the attributes of the GSM MAP screening entries that filter or allow TCAP messages for certain MAP operation codes using the `chg-gsmmap-scrn` command. The

SCCP messages contain MAP operation codes, origination addresses, numbering plan values, nature of address indicator values, and forbidden parameters.

The `chg-gsmmap-scrn` command uses these parameters.

`:opname` – The user-defined name for the operation code. The `opname` value references the operation code (`opcode`) defined with the `ent-gsms-opcode` command. GSM MAP screening is performed on the specified address or addresses for the referenced operation code.

`:naction` – The new screening action to take if a message is forbidden as defined by the `forbid` parameter value. One of these actions can be assigned.

- `pass` – Route the message as normal to the destination.
- `discard` – The MSU is to be discarded.
- `atierr` – An ATI (Any Time Interrogation) reject message is generated. This option is only valid for ATI MAP operation codes.
- `route` – Route the message as normal to the original destination node.
- `forward` – Route the original message to the forward node. The original message is not sent to the original node. If, however, the forwarded node is not available for routing then the MSU is routed to the original node.
- `duplicate` – Route the message as normal to the original destination and route a copy of the original message to the duplicate node.
- `dupdisc` – Duplicate and discard – Route the original message to the duplicate node. The original message is not sent to the original node.

`:npc/npca/npci/npcn/npcn24` – The new ANSI point code (`npc/npca`), new ITU-I point code or ITU-I spare point code (`npci`), new 14-bit ITU-N point code or 14-bit ITU-N spare point code (`npcn`), or new 24-bit ITU-N point code (`npcn24`) of the node that the MSU is routed to by the `forward`, `duplicate`, or `dupdisc` screening actions. The EAGLE 5 ISS can contain 14-bit ITU-N point codes or 24-bit ITU-N point codes, but not both.

`:nssn` – The new subsystem number of the node that the MSU is routed to by the `forward`, `duplicate`, or `dupdisc` screening actions

`:force` – The mated application override. Is the GSM MAP screening operation code to be entered without a mated application in the database (`yes` or `no`)?

`:nforbid` – The new forbidden parameter value. If a forbidden parameter is detected, the message is rejected by the action defined by the `action` parameter value. One of four forbidden parameter values can be specified.

- `all` – All parameters are forbidden. Take the specified screening action defined by the `naction` parameter for incoming messages that contain the entered address and operation code combination.
- `none` – No parameters are forbidden. Take the specified screening action defined by the `naction` parameter for incoming messages that contain the entered address and operation code combination.
- `state` – Take the specified screening action defined by the `naction` parameter for incoming messages that contain `state` as the forbidden parameter for the entered address and operation code combination.
- `location` – Take the specified screening action defined by the `naction` parameter for incoming messages that contain `location` as the forbidden parameter for the entered address and operation code combination.

`:cgssr` – The current CGPA screening reference name.

:cdsr – The current CDPA screening reference name.

:ncgsr – The new CGPA screening reference name consisting of 1 alphabetic character and 3 optional alphanumeric characters.

:ncdsr – The new CDPA screening reference name consisting of 1 alphabetic character and 3 optional alphanumeric characters.

:nmapset – The new MAP set ID, shown in the `rtrv-map` command. This parameter can be specified only if the Flexible GTT Load Sharing feature is enabled. The status of the Flexible GTT Load Sharing feature is shown in the `rtrv-ctrl-feat` output. To enable the Flexible GTT Load Sharing feature, perform the “Activating the Flexible GTT Load Sharing Feature” procedure in the *Database Administration Manual - Global Title Translation*.

:nri - The new routing indicator parameter. This parameter specifies whether a subsequent global title translation is required. This parameter has two values.

- `gt` - subsequent global title translation is required.
- `ssn` - subsequent global title translation is not required.

:ntt - the new translation type that will be assigned to the GSM MAP screening entry. This parameter specifies the value that the translation type for the CdPA is set to as a result of GSM MAP screening. The values for this parameter are 0 to 255, or the value none which specifies removes the existing translation type from to the GSM MAP screening entry.

If a message is screened and does not contain matching `npv` and `naiv` values, the message is rejected. The message is rejected with the default action defined by the `chg-gsms-opcode` command for the operation code (`opcode`) parameter entry referenced by the operation name (`opname`) parameter.

[Table 29: Change GSM MAP Screening Entry Parameter Combinations](#) on page 409 shows the parameter combinations that can be used in this procedure.

Table 29: Change GSM MAP Screening Entry Parameter Combinations

Entry Containing a Point Code and SSN Enhanced GSM MAP Screening Feature Enabled and On	Entry Without a Point Code and SSN Enhanced GSM MAP Screening Feature Enabled and On	Entry containing the Action ATIERR Enhanced GSM MAP Screening Feature Enabled and On	Entry Containing a Point Code and SSN GSM MAP Screening Feature Enabled and On Only	Entry Without a Point Code and SSN GSM MAP Screening Feature Enabled and On Only	Entry containing the Action ATIERR GSM MAP Screening Feature Enabled and On Only
Mandatory Parameters					
:opname = current	:opname = current	:opname = current opname value containing	:opname = current opname value (See Note 2)	:opname = current opname value (See Note 2)	:opname = current opname value

Entry Containing a Point Code and SSN Enhanced GSM MAP Screening Feature Enabled and On	Entry Without a Point Code and SSN Enhanced GSM MAP Screening Feature Enabled and On	Entry containing the Action ATIERR Enhanced GSM MAP Screening Feature Enabled and On	Entry Containing a Point Code and SSN GSM MAP Screening Feature Enabled and On Only	Entry Without a Point Code and SSN GSM MAP Screening Feature Enabled and On Only	Entry containing the Action ATIERR GSM MAP Screening Feature Enabled and On Only
opname value (See Note 2)	opname value (See Note 2)	opcode=71 (See Note 2)			containing opcode=71 (See Note 2)
:cgsr = current CGSR value	:cgsr = current CGSR value	:cgsr = current CGSR value	:cgsr = current CGSR value	:cgsr = current CGSR value	:cgsr = current CGSR value
Optional Parameters (See Note 1)					
:cdsr = current CDSR value (See Notes 3 and 4)	:cdsr = current CDSR value (See Notes 3 and 4)	:cdsr = current CDSR value (See Notes 3 and 4)	:nforbid = all	:nforbid = all, none (See Note 13)	:nforbid = state, location
:nforbid = all	:nforbid = all, none (See Note 13)	:nforbid = state, location	:naction = forward, duplicate, dupdisc (See Note 6)	:naction = pass, discard, route (See Note 13)	:naction = atierr
:naction = forward, duplicate, dupdisc (See Note 6)	:naction = pass, discard, route (See Note 13)	:naction = atierr	:ncgsr = new CGSR value	:ncgsr = new CGSR value	:ncgsr = new CGSR value
:ncgsr = new CGSR value (See Notes 4 and 5)	:ncgsr = new CGSR value (See Notes 4 and 5)	:ncgsr = new CGSR value (See Notes 4 and 5)	:npci/npcn/ npcn24 =point code value (See Notes 7, 8, 9, 10, 11, and 12)		
:ncdsr = new CDSR value	:ncdsr = new CDSR value	:ncdsr = new CDSR value	:nssn = 0 - 255, none (See Notes 7, 8, 9,		

Entry Containing a Point Code and SSN Enhanced GSM MAP Screening Feature Enabled and On	Entry Without a Point Code and SSN Enhanced GSM MAP Screening Feature Enabled and On	Entry containing the Action ATIERR Enhanced GSM MAP Screening Feature Enabled and On	Entry Containing a Point Code and SSN GSM MAP Screening Feature Enabled and On Only	Entry Without a Point Code and SSN GSM MAP Screening Feature Enabled and On Only	Entry containing the Action ATIERR GSM MAP Screening Feature Enabled and On Only
(See Notes 3 and 5)	(See Notes 3 and 5)	(See Notes 3 and 5)	10, 11, 12, and 14)		
npc/npc/npci/ npcn/npcn24 = point code value (See Notes 7, 8, 9, 10, 11, and 12)			:force=yes (See Notes 11 and 12)		
			:nmapset = dflt or numbered MAP set ID (See Notes 11 and 12)		
:nssn = 0 - 255, none (See Notes 7, 8, 9, 10, 11, 12, and 14)			:nri = gt, ssn (See Note 14)		
:force=yes (See Notes 11 and 12)			:ntt = 0 - 255, none (See Note 15)		
:nmapset = dflt or numbered MAP set ID (See Notes 11 and 12)					
:nri = gt, ssn (See Note 14)					
:ntt = 0 - 255, none (See Note 15)					

Entry Containing a Point Code and SSN Enhanced GSM MAP Screening Feature Enabled and On	Entry Without a Point Code and SSN Enhanced GSM MAP Screening Feature Enabled and On	Entry containing the Action ATIERR Enhanced GSM MAP Screening Feature Enabled and On	Entry Containing a Point Code and SSN GSM MAP Screening Feature Enabled and On Only	Entry Without a Point Code and SSN GSM MAP Screening Feature Enabled and On Only	Entry containing the Action ATIERR GSM MAP Screening Feature Enabled and On Only
<p>Notes:</p> <ol style="list-style-type: none"> At least one optional parameter must be specified with the <code>chg-gsmmap-scrn</code> command. If the <code>cdsr</code> parameter is specified, at least one other optional parameter must be specified with the <code>chg-gsmmap-scrn</code> command. The <code>opname</code> parameter value must be shown in the <code>rtrv-gsms-opcode</code> output. The <code>cdsr</code> parameter must be specified when the <code>ncdsr</code> parameter is specified. The <code>ncgsr</code> parameter should not be specified when the <code>cdsr</code> parameter is specified. The <code>ncgsr</code> and <code>ncdsr</code> parameters cannot be specified together. The point code value must be the DPC of a route or a member of a cluster route. The <code>npc/npca</code> value must be a full point code, The <code>npc/npca</code> value can be a member of a cluster point code when that cluster point code is the DPC of a route. This can be verified with the <code>rtrv-rte</code> command. If the point code value is not shown in the <code>rtrv-rte</code> output as the DPC of a route, go to the "Adding a Route Containing an SS7 DPC" procedure in the <i>Database Administration Manual - SS7</i> and add a new route containing the point code value. A proxy point code cannot be assigned to the point code. The EAGLE 5 ISS can contain 14-bit ITU-N point codes or 24-bit ITU-N point codes, but not both at the same time. If the new or current (if unchanged) <code>action</code> parameter values are either <code>forward</code>, <code>duplicate</code>, or <code>dupdisc</code>, the point code and <code>nssn</code> parameters must be specified with the <code>chg-gsmmap-scrn</code> command. If the point code or subsystem number values are not being changed, the point code and subsystem number parameters must be specified with the current values for these parameters. If only the point code or subsystem number value is being changed, the point code or subsystem number value being changed must be specified with the new value for the parameter being changed. The current value for the point code or subsystem number parameter not being changed must be specified. The <code>naction</code> parameter does not have to be specified. For example, if the current point code is <code>pca=002-002-002</code> and the subsystem number is 50, and the point code is being changed to <code>pca=003-003-003</code> and the subsystem number is not changing, the <code>npca</code> parameter value would be the new point code value (003-003-003) and the <code>nssn</code> parameter value would be the current value (50). To specify the <code>npc/npca</code> parameters, the Enhanced GSM MAP Screening feature must be enabled and turned on. If the Flexible GTT Load Sharing feature is not enabled: 					

Entry Containing a Point Code and SSN Enhanced GSM MAP Screening Feature Enabled and On	Entry Without a Point Code and SSN Enhanced GSM MAP Screening Feature Enabled and On	Entry containing the Action ATIERR Enhanced GSM MAP Screening Feature Enabled and On	Entry Containing a Point Code and SSN GSM MAP Screening Feature Enabled and On Only	Entry Without a Point Code and SSN GSM MAP Screening Feature Enabled and On Only	Entry containing the Action ATIERR GSM MAP Screening Feature Enabled and On Only
<ul style="list-style-type: none"> • The <code>nmapset</code> parameter cannot be specified. • The point code and subsystem number values specified with the <code>chg-gsmmap-scrn</code> command must be shown in the <code>rtrv-map</code> output, or else the <code>force=yes</code> parameter must be specified. If the point code and subsystem number values are not shown in the <code>rtrv-map</code> output, and a new mated application is to be added, perform one of the "Provisioning a Mated Application" procedures in the <i>Database Administration Manual - Global Title Translation</i> and add the required mated application with the point code and subsystem number values. <p>12. If the Flexible GTT Load Sharing feature is enabled:</p> <ul style="list-style-type: none"> • If the current <code>action</code> parameter value is either <code>pass</code>, <code>route</code>, <code>discard</code>, or <code>atierr</code>, and the <code>action</code> parameter value is changed to either <code>forward</code>, <code>duplicate</code>, or <code>dupdisc</code>, the GSM MAP screening entry must be assigned to a MAP set with the <code>nmapset=dflt</code> parameter (to assign the GSM MAP screening entry to the default MAP set), or with the <code>nmapset=<numbered MAP set ID></code> parameter (to assign the GSM MAP screening entry to a MAP set other the default MAP set). • If the default MAP set will be assigned to the GSM MAP screening entry, the <code>npc/npca/npci/npcn/npcn24</code> and <code>nssn</code> values must be shown in the default MAP set in the <code>rtrv-map</code> output. If the <code>npc/npca/npci/npcn/npcn24</code> or <code>nssn</code> values are not shown in the default MAP set in the <code>rtrv-map</code> output, the <code>force=yes</code> parameter must be specified. • If a MAP set other than the default MAP set will be assigned to the GSM MAP screening entry, the <code>npc/npca/npci/npcn/npcn24</code> and <code>nssn</code> values must be shown in that MAP set in the <code>rtrv-map</code> output. • If the point code and subsystem values are not being changed, the <code>nmapset</code> parameter does not have to be specified unless the MAP set ID assigned to the GSM MAP screening entry is being changed. The new MAP set must contain the point code and subsystem values in the GSM MAP screening entry. <p>13. If the value of the <code>forbid</code> parameter is being changed to <code>none</code>, and the current value of the <code>action</code> parameter is not <code>pass</code>, the <code>naction=pass</code> parameter must be specified. If the current value of the <code>forbid</code> parameter is <code>none</code> and will not be changed, the value of the <code>action</code> parameter must be <code>pass</code> and cannot be changed.</p> <p>14. If, when the <code>chg-gsmmap-scrn</code> command is completed, the <code>ri</code> parameter value is <code>ssn</code>, then a numerical value must be assigned to the <code>ssn</code> parameter.</p>					

Entry Containing a Point Code and SSN Enhanced GSM MAP Screening Feature Enabled and On	Entry Without a Point Code and SSN Enhanced GSM MAP Screening Feature Enabled and On	Entry containing the Action ATIERR Enhanced GSM MAP Screening Feature Enabled and On	Entry Containing a Point Code and SSN GSM MAP Screening Feature Enabled and On Only	Entry Without a Point Code and SSN GSM MAP Screening Feature Enabled and On Only	Entry containing the Action ATIERR GSM MAP Screening Feature Enabled and On Only
15. The value none for the tt parameter removes the existing tt parameter value that is assigned to the GSM MAP screening entry. A dash is shown in the TT column of the rtrv-gsmmap-scrn output when the tt value is removed.					

1. Display the GSM MAP screening operation codes in the database using the rtrv-gsms-opcode command.

If the Flexible GTT Load Sharing feature is not enabled, this is an example of the possible output.

If the Flexible GTT Load Sharing feature is enabled, this is an example of the possible output.

If the default action for the GSM MAP screening entry will be `atierr`, or the `forbid` parameter value will be `location` or `state`, the `opname` value must contain an `opcode` value of 71.

2. Enter the rtrv-gsmmap-scrn command with an `opname` value shown in the rtrv-gsms-opcode command output in step 1 to display the CGPA GSM MAP screening entries to change.

For this example, enter this command.

```
rtrv-gsmmap-scrn:opname=ati
```

This is an example of the possible output.

```
rlghncxa03w 08-09-20 09:07:58 GMT EAGLE5 39.2.0
Single CgPA Entries for OPNAME: ati
-----
SADDR          NP NAI FORBD ACT      PCA          SSN CGSR RI  TT
SADDR          NP NAI FORBD ACT      PCI          SSN CGSR RI  TT
SADDR          NP NAI FORBD ACT      PCN          SSN CGSR RI  TT
SADDR          NP NAI FORBD ACT      PCN24        SSN CGSR RI  TT
SADDR          NP NAI FORBD ACT  CGSR
91946200000005 1 0  locat atier atil
Range CgPA Entries for OPNAME: ati
-----
SADDR          EADDR          NP NAI FORBD ACT      PCA
SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT      PCI          SSN CGSR
```

```
SADDR          EADDR          NP NAI FORBD ACT          PCN          SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT          PCN24         SSN CGSR

SADDR          EADDR          NP NAI FORBD ACT          CGSR
8284540000     8284600000     * * state atier cg03
91946188888888 919461900000000 4 1 locat atier ati2
91946200000000 919463000000000 * * locat atier ati3

GSM Map Screening table is (1512 of 4000) 38% full
```

rtrv-gsmmap-scrn:opname=dd93

This is an example of the possible output.

```
rlghncxa03w 08-09-20 09:07:58 GMT EAGLE5 39.2.0
Single CgPA Entries for OPNAME: dd93
-----
SADDR          NP NAI FORBD ACT          PCA          SSN CGSR RI TT
SADDR          NP NAI FORBD ACT          PCI          SSN CGSR RI TT
SADDR          NP NAI FORBD ACT          PCN          SSN CGSR RI TT
SADDR          NP NAI FORBD ACT          PCN24        SSN CGSR RI TT
SADDR          NP NAI FORBD ACT          CGSR

Range CgPA Entries for OPNAME: dd93
-----
SADDR          EADDR          NP NAI FORBD ACT          PCA          SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT          PCI          SSN CGSR
854000000     857000000     3 99 all fwd          3-201-7     100 cg05
RI=ssn TT=-

SADDR          EADDR          NP NAI FORBD ACT          PCN          SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT          PCN24        SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT          CGSR

GSM Map Screening table is (1512 of 4000) 38% full
```

If the Flexible GTTLoad Sharing feature is enabled, the MAPSET field is shown in the rtrv-gsmmap-scrn output as shown in the following output example.

```
rlghncxa03w 08-09-20 09:07:58 GMT EAGLE5 39.2.0
Single CgPA Entries for OPNAME: dd93
-----
SADDR          NP NAI FORBD ACT          PCA          SSN CGSR MAPSET RI
SADDR          NP NAI FORBD ACT          PCI          SSN CGSR MAPSET RI
SADDR          NP NAI FORBD ACT          PCN          SSN CGSR MAPSET RI
SADDR          NP NAI FORBD ACT          PCN24        SSN CGSR MAPSET RI
SADDR          NP NAI FORBD ACT          CGSR

Range CgPA Entries for OPNAME: dd93
-----
```

```

SADDR          EADDR          NP NAI FORBD ACT      PCA          SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT      PCI
SSN CGSR
854000000      857000000      3 99 all fwd      3-201-7      100 cg05
MAPSET = DFLT RI=ssn TT=-
SADDR          EADDR          NP NAI FORBD ACT      PCN          SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT      PCN24        SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT      CGSR

GSM Map Screening table is (1512 of 4000) 38% full

```

Note: If the `npc/npca` or `ncdsr` parameters are being specified in this procedure, the Enhanced GSM MAP Screening feature must be enabled and on. If these parameters are not being specified in this procedure, skip step 3 and go to step 4.

If any of the following parameters or values are shown in the `rtrv-gsmmap-scrn` output in this step, the Enhanced GSM MAP Screening feature is enabled and on. Skip step 3 and go to step 4.

- `saddr=*`
- `pc/pca`
- The `saddr` or `eaddr` parameter values containing hex digits.

If the `rtrv-gsmmap-scrn` output in this step does not show any of these parameters or values, it is possible that the Enhanced GSM MAP Screening feature is enabled and on. If you wish to use the `npc/npca` or `ncdsr` parameters, perform step 3 to verify the status of the Enhanced GSM MAP Screening feature.

3. Verify that the Enhanced GSM MAP Screening feature is enabled and on by entering the `rtrv-ctrl-feat` command with the part number of the Enhanced GSM MAP Screening feature.

Enter this command.

```
rtrv-ctrl-feat:partnum=893012401
```

The following is an example of the possible output.

```

rlghncxa03w 06-10-28 21:15:37 GMT EAGLE5 36.0.0
The following features have been permanently enabled:

Feature Name          Partnum    Status    Quantity
Enhanced GMS (EGMS)   893012401  on       ----

The following features have been temporarily enabled:

Feature Name          Partnum    Status    Quantity    Trial Period Left
Zero entries found.

The following features have expired temporary keys:

Feature Name          Partnum
Zero entries found.

```

- If the Enhanced GSM MAP screening feature is not enabled or is turned off, and you wish to use the `npc/npca` or `ncdsr` parameters, perform the [Activating the GSM MAP Screening Feature](#) on page 293 procedure to enable and turn on the Enhanced GSM MAP Screening

feature. After the Enhanced GSM MAP Screening feature has been enabled and turned on, continue the procedure with step 4.

- Skip step 4 and continue the procedure with step 5 if:
 - The Enhanced GSM MAP Screening feature will not be enabled and turned on in this step.
 - The `npc/npca` or `ncdsr` parameters will not be specified in this procedure and the Enhanced GSM MAP Screening feature is enabled and turned on.

4. Enter the `rtrv-gsmmap-scrn` command with an `opname` and `cgsr` values shown in the `rtrv-gsmmap-scrn` command output in step 2 to display the CDPA GSM MAP screening entries to change.

For this example, enter this command.

```
rtrv-gsmmap-scrn:opname=ati:cgsr=cg03
```

This is an example of the possible output.

```
rlghncxa03w 08-09-20 09:07:58 GMT EAGLE5 39.2.0
Single CdPA Entries for OPNAME: ati and CGSR: cg03
-----
SADDR          NP NAI FORBD ACT      PCA          SSN CDSR RI  TT
SADDR          NP NAI FORBD ACT      PCI          SSN CDSR RI  TT
SADDR          NP NAI FORBD ACT      PCN          SSN CDSR RI  TT
SADDR          NP NAI FORBD ACT      PCN24       SSN CDSR RI  TT

SADDR          NP NAI FORBD ACT      CDSR
919461000000130 2 16 locat atier ati5

Range CdPA Entries for OPNAME: ati and CGSR: cg03
-----
SADDR          EADDR          NP NAI FORBD ACT      PCA          SSN CDSR
SADDR          EADDR          NP NAI FORBD ACT      PCI          SSN CDSR
SADDR          EADDR          NP NAI FORBD ACT      PCN          SSN CDSR
SADDR          EADDR          NP NAI FORBD ACT      PCN24       SSN CDSR

SADDR          EADDR          NP NAI FORBD ACT      CDSR
4329290000    5450000000    * * state atier cd15
9194630000000000 9194640000000000 11 95 locat atier ati7
8035490000000000 8036500000000000 * * locat atier ati9

GSM Map Screening table is (1512 of 4000) 38% full
```

```
rtrv-gsmmap-scrn:opname=dd93:cgsr=cg05
```

This is an example of the possible output.

```
rlghncxa03w 08-09-20 09:07:58 GMT EAGLE5 39.2.0
Single CdPA Entries for OPNAME: dd93 and CGSR: cg05
-----
SADDR          NP NAI FORBD ACT      PCA          SSN CDSR RI  TT
```

SADDR	NP NAI FORBD ACT	PCI	SSN CDSR RI TT
SADDR	NP NAI FORBD ACT	PCN	SSN CDSR RI TT
SADDR	NP NAI FORBD ACT	PCN24	SSN CDSR RI TT
SADDR	NP NAI FORBD ACT	CDSR	
Range CgPA Entries for OPNAME: dd93 and CGSR: cg05			
SADDR	EADDR	NP NAI FORBD ACT	PCA SSN CDSR
SADDR	EADDR	NP NAI FORBD ACT	PCI SSN CDSR
SADDR	EADDR	NP NAI FORBD ACT	PCN SSN CDSR
SADDR	EADDR	NP NAI FORBD ACT	PCN24 SSN CDSR
SADDR	EADDR	NP NAI FORBD ACT	CDSR

GSM Map Screening table is (1512 of 4000) 38% full

Note: If the Flexible GTTLoad Sharing feature is enabled, the MAPSET field is shown in the `rtrv-gsmmap-scrn` output if the `action` parameter value for the GSM MAP screening entry is either `forward`, `duplicate`, or `dupdisc`.

5. Perform one of these actions.

- If the `naction` parameter value will be either `pass`, `discard`, `route`, or `atierr`, skip steps 6 through 9, and continue the procedure with step 10.
- If the point code is not being changed, skip steps 6 through 9, and continue the procedure with step 10. If the point code and subsystem values are not being changed, and the Flexible GTT Load Sharing feature is enabled, the `nmapset` parameter does not have to be specified unless the MAP set ID assigned to the GSM MAP screening entry is being changed. The new MAP set must contain the point code and subsystem values in the GSM MAP screening entry.
- If the `naction` parameter value will be either `forward`, `duplicate`, or `dupdisc`, perform one of these actions.
 - To use a point code and a MAP set from the mated application table, and MAP sets are not shown in the `rtrv-gsmmap-scrn` output in step 4, the Flexible GTT Load Sharing Feature must be enabled. Perform the "Activating the Flexible GTT Load Sharing Feature" procedure in the *Database Administration Manual - Global Title Translation* and enable the Flexible GTT Load Sharing feature. After enabling the Flexible GTT Load Sharing feature, skip steps 6 and 7 and continue the procedure with step 8.
 - To use a point code and a MAP set from the mated application table, and MAP sets are shown in the `rtrv-gsmmap-scrn` output in step 4, skip steps 6 and 7 and continue the procedure with step 8.
 - To use a point code in the mated application table, but without using a MAP set, and MAP sets are not shown in the `rtrv-gsmmap-scrn` output in step 4, skip steps 6 and 7 and continue the procedure with step 8.
 - To use a point code that is not in the mated application table, the `force=yes` parameter must be specified with the `chg-gsmmap-scrn` command. A proxy point code cannot be assigned to this point code. If the Flexible GTT Load Sharing feature is enabled, the `force=yes` parameter can be used only if the default MAP set is assigned to the GSM OPCODE entry. Continue the procedure with step 6.

- Display the destination point codes in the database by entering the `rtrv-dstn` command. This is an example of the possible output.

```
rlghncxa03w 06-10-10 11:43:04 GMT EAGLE5 37.5.0

  DPCA          CLLI          BEI  ELEI  ALIASI          ALIASN          DOMAIN
  001-207-000  ----- no   ---  -----  -----  SS7
  001-001-001  ----- no   ---  -----  -----  SS7
  001-001-002  ----- no   ---  -----  -----  SS7
  001-005-000  ----- no   ---  -----  -----  SS7
  001-007-000  ----- no   ---  -----  -----  SS7
  008-012-003  ----- no   ---  -----  -----  SS7
  003-002-004  ----- no   ---  -----  -----  SS7
  009-002-003  ----- no   ---  -----  -----  SS7
  010-020-005  ----- no   ---  -----  -----  SS7

  DPCI          CLLI          BEI  ELEI  ALIASI          ALIASN          DOMAIN
  1-207-0      ----- no   ---  -----  -----  SS7
  0-015-0      ----- no   ---  -----  -----  SS7
  0-017-0      ----- no   ---  -----  -----  SS7
  1-011-1      ----- no   ---  -----  -----  SS7
  1-011-2      ----- no   ---  -----  -----  SS7

  DPCN          CLLI          BEI  ELEI  ALIASA          ALIASI          DOMAIN
  DPCN24       CLLI          BEI  ELEI  ALIASA          ALIASI          DOMAIN

Destination table is (14 of 2000) 1% full
Alias table is (0 of 12000) 0% full
PPC table is (1 of 20) 5% full
```

If the required point code is not shown in the `rtrv-dstn` output, perform the "Adding a Destination Point Code" procedure in the *Database Administration Manual - SS7* to add the required point code. A proxy point code cannot be assigned to the point code.

After the new point code has been added, skip steps 7 through 9 and perform the "Adding a Route Containing an SS7 DPC" procedure in the *Database Administration Manual - SS7* and add the required route to the database. After the route has been added, continue the procedure with step 10.

- Display the point code that will be assigned to the mated application by using the `rtrv-dstn` command and specifying the point code. For this example, enter this command.

```
rtrv-dstn:dpca=010-020-005
```

This is an example of the possible output.

```
rlghncxa03w 06-10-10 11:43:04 GMT EAGLE5 37.5.0

  DPCA          CLLI          BEI  ELEI  ALIASI          ALIASN          DOMAIN
  010-020-005  ----- no   ---  -----  -----  SS7

  PPC          NCAI          PRX
  009-002-003  ----          no

Destination table is (14 of 2000) 1% full
Alias table is (0 of 12000) 0% full
PPC table is (1 of 20) 5% full
```

If the adjacent point code is not shown in the `rtrv-dstn` command output, the following output is displayed.

```
DPCA          CLLI          BEI  ELEI  ALIASI          ALIASN/N24      DOMAIN
```

```
No destinations meeting the requested criteria were found
```

```
Destination table is (14 of 2000) 1% full
Alias table is (0 of 12000) 0% full
PPC table is (1 of 20) 5% full
```

A proxy point code (a point code value is shown in the PPC column) cannot be assigned to the point code. If a proxy point code is shown in this step, choose another point code from the `rtrv-dstn` output in the previous step and repeat this step.

If the point code is not shown in the `rtrv-dstn` output, perform the "Adding a Destination Point Code" procedure in the Database *Administration Manual - SS7* and add the adjacent point code to the destination point code table.

After the new point code has been added, skip steps 8 and 9, and perform the "Adding a Route Containing an SS7 DPC" procedure in the Database *Administration Manual - SS7* and add the required route to the database. After the route has been added, continue the procedure with step 10.

8. The point code and subsystem number being assigned to the GSM MAP screening entry must be in the mated application table.

Enter the `rtrv-map` command with the `npc/npca/npci/npcn/npcn24` and `nssn` values that will be specified with the `chg-gsmmap-scrn` command in step 10.

If the Flexible GTT Load Sharing feature is not enabled, for this example, enter these commands.

```
rtrv-map:pci=5-79-2:ssn=89
```

This is an example of the possible output.

```
rlghncxa03w 06-10-25 09:42:31 GMT EAGLE5 36.0.0
MAP TABLE IS 2 % FULL (20 of 1024)
PCI           Mate PCI      SSN RC MULT SRM MRC GRP NAME SSO
5-79-2                89 10  SOL --- --- GRP01  ON
```

Note: If the point code and subsystem number is not shown in the `rtrv-map` output, and is not added to the database in one of these procedures, the `force=yes` parameter must be specified with the `chg-gsmmap-scrn` command in step 10.

If the Flexible GTT Load Sharing feature is enabled and the current `action` parameter value is either `pass`, `route`, `discard`, or `atierr`, and the `action` parameter value is changed to either `forward`, `duplicate`, or `dupdisc`, the GSM MAP screening entry must be assigned to a MAP set with the `nmapset=dflt` parameter (to assign the GSM MAP screening entry to the default MAP set), or with the `nmapset=<numbered MAP set ID>` parameter (to assign the GSM MAP screening entry to a MAP set other the default MAP set).

For this example, enter these commands.

```
rtrv-map:pci=5-79-2:ssn=89
```

This is an example of the possible output.

```
rlghncxa03w 06-10-25 09:42:31 GMT EAGLE5 36.0.0
MAP TABLE IS 2 % FULL (20 of 1024)
PCI           Mate PCI      SSN RC MULT SRM MRC GRP NAME SSO
```

```
MAPSET ID=20
5-79-2                89 10 SOL --- --- GRP01    ON
```

If the point code and subsystem number is not shown in the `rtrv-map` output, perform one of the "Provisioning a Mated Application" procedures in the *Database Administration Manual - Global Title Translation* and add the required point code and subsystem number to the mated application table.

- The point code specified with the `chg-gsmmap-scrn` command must be the DPC of a route. Enter the `rtrv-rte` command with the `dpc` parameter specifying the point code to be used with the `chg-gsmmap-scrn` command to verify whether or not the point code is the DPC of a route. For this example, enter these commands.

```
rtrv-rte:dpci=5-79-2
```

This is an example of the possible output.

```
rlghncxa03w 06-10-07 11:43:04 GMT EAGLE5 36.0.0
DPCI        ALIASN/N24        ALIASA        LSN        RC        APC
5-79-2      1501                230-101-191  1s100001   10        1-234-5
                                   1s100002   10        3-65-4
                                   RTX:No    CLLI=idp9
```

If the point code is not shown in the `rtrv-rte` output, go to the "Adding a Route Containing an SS7 DPC" procedure in the *Database Administration Manual - SS7* and add the required route to the database.

- Change the GSM MAP screening entry with the `chg-gsmmap-scrn` command.

[Table 29: Change GSM MAP Screening Entry Parameter Combinations](#) on page 409 shows the parameter combinations that can be used with the `chg-gsmmap-scrn` command.

For this example, the Enhanced GSM MAP Screening feature is enabled and on. Enter these commands:

```
chg-gsmmap-scrn:opname=ati:cgsr=cg03:cdsr=cd15:nforbid=none
:naction=pass
```

```
chg-gsmmap-scrn:opname=dd93:cgsr=cg05:nforbid=none:naction=pass
:npci=5-79-2:nssn=89:nmapset=20
```

When this command has successfully completed, this message appears.

```
rlghncxa03w 06-10-20 09:07:58 GMT EAGLE5 36.0.0
GSM Map Screening table is (1512 of 4000) 38% full
CHG-GSM MAP-SCRN: MASP A - COMPLTD
```

- Verify the changes using the `rtrv-gsmmap-scrn` command, specifying the `opname` parameter value used in step 10.

If the `cdsr` parameter was specified in step 10, specify the `cgsr`, and `cdsr` parameter values used in step 10 with the `opname` parameter value. For this example, the Enhanced GSM MAP Screening feature is enabled and on. Enter these commands:

```
rtrv-gsmmap-scrn:opname=ati:cgsr=cg03:cdsr=cd15
```

This is an example of the possible output.

```
rlghncxa03w 08-09-20 09:07:58 GMT EAGLE5 39.2.0
SADDR        EADDR        NP NAI FORBD ACT    CDSR  MAPSET RI
```

```
8284540000      8284600000      * * none pass cd15 DFLT ssn
TT=-
```

```
GSM Map Screening table is (1512 of 4000) 38% full
```

```
rtrv-gsmmap-scrn:opname=dd93
```

This is an example of the possible output.

```
rlghncxa03w 08-09-20 09:07:58 GMT EAGLE5 39.2.0
```

```
Single CgPA Entries for OPNAME: dd93
```

```
-----
SADDR          NP NAI FORBD ACT      PCA          SSN CGSR  MAPSET  RI
SADDR          NP NAI FORBD ACT      PCI          SSN CGSR  MAPSET  RI
SADDR          NP NAI FORBD ACT      PCN          SSN CGSR  MAPSET  RI
SADDR          NP NAI FORBD ACT      PCN24        SSN CGSR  MAPSET  RI
SADDR          NP NAI FORBD ACT  CGSR
```

```
Range CgPA Entries for OPNAME: dd93
```

```
-----
SADDR          EADDR          NP NAI FORBD ACT      PCA          SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT      PCI          SSN CGSR
854000000      860000000      3 99 none pass      5-79-2      89 cg05
MAPSET = 20 RI=ssn TT=-
SADDR          EADDR          NP NAI FORBD ACT      PCN          SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT      PCN24        SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT  CGSR
```

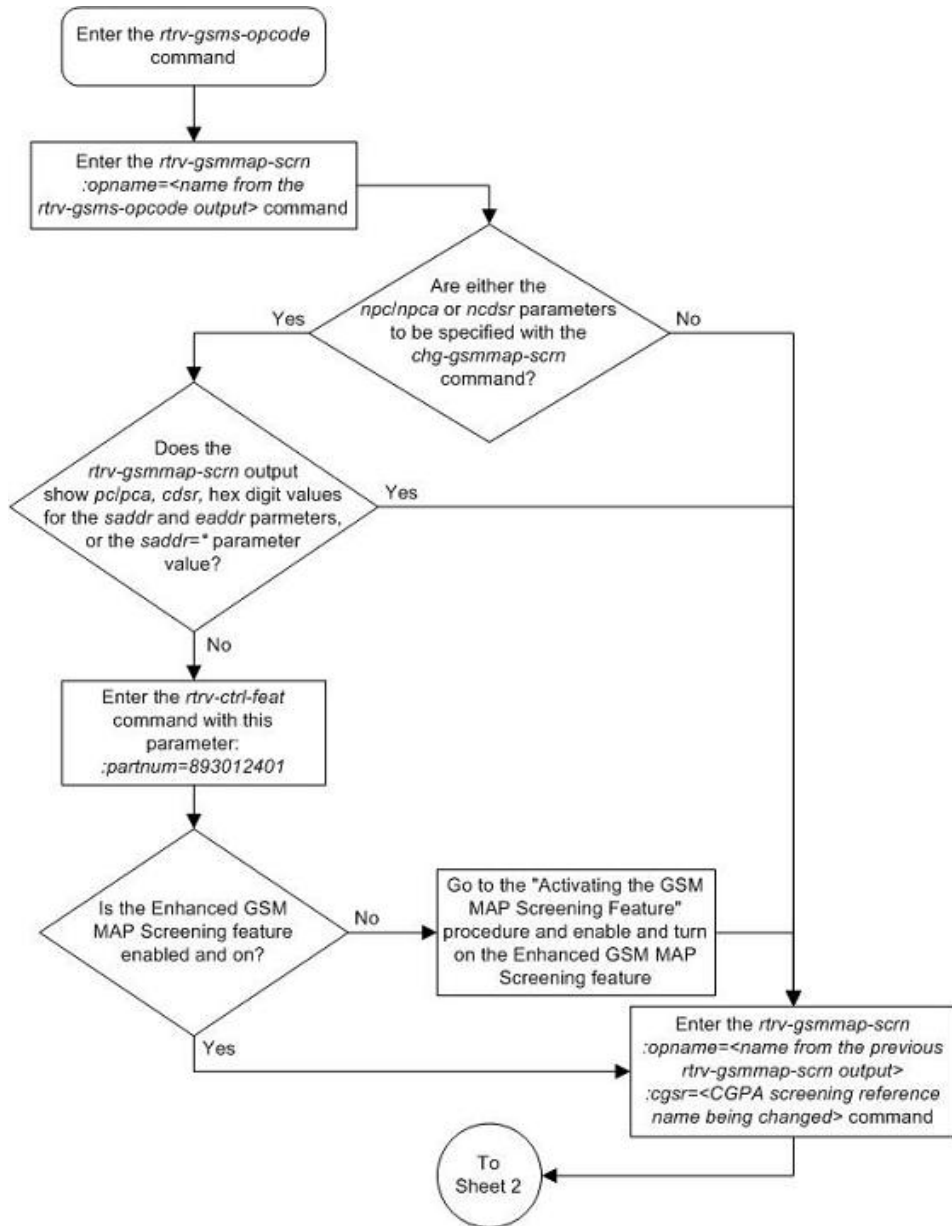
```
GSM Map Screening table is (1512 of 4000) 38% full
```

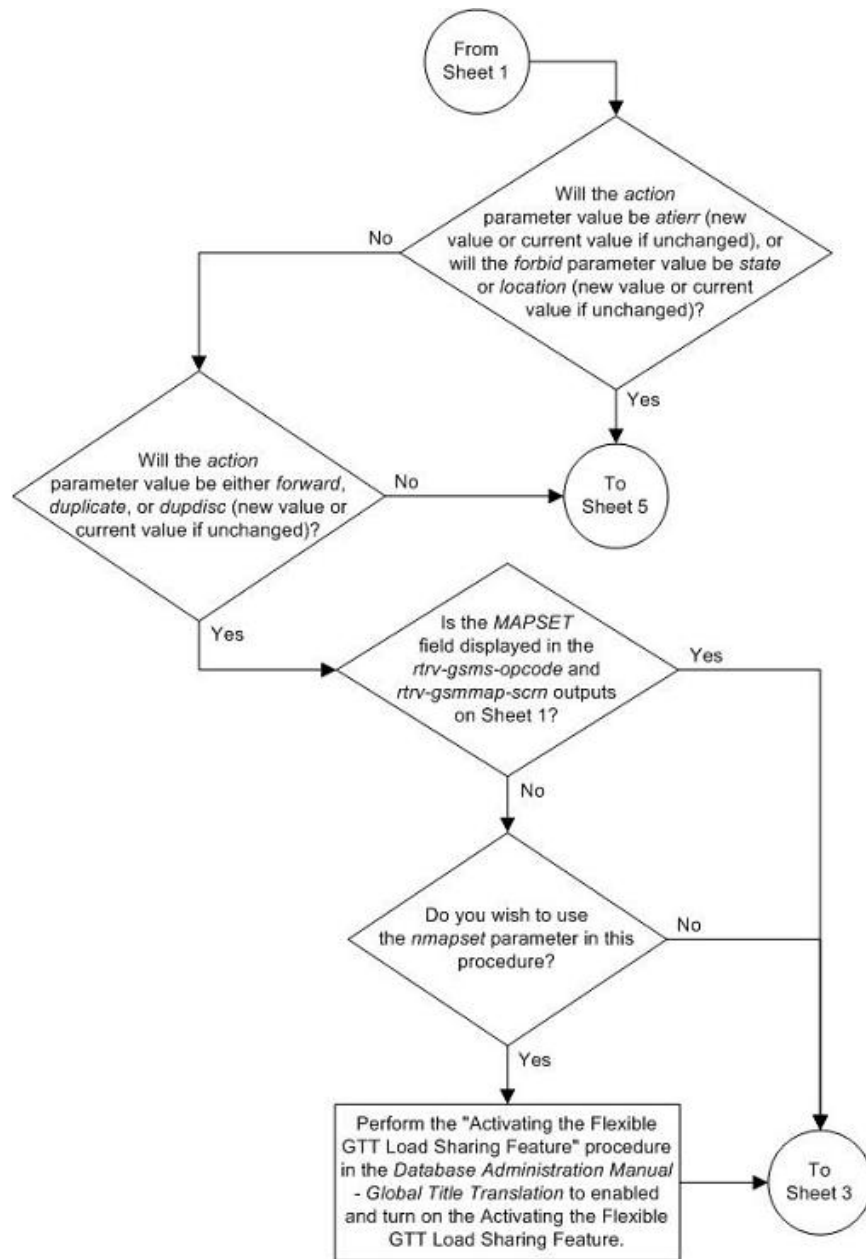
12. Backup the new changes using the `chg-db:action=backup:dest=fixed` command.

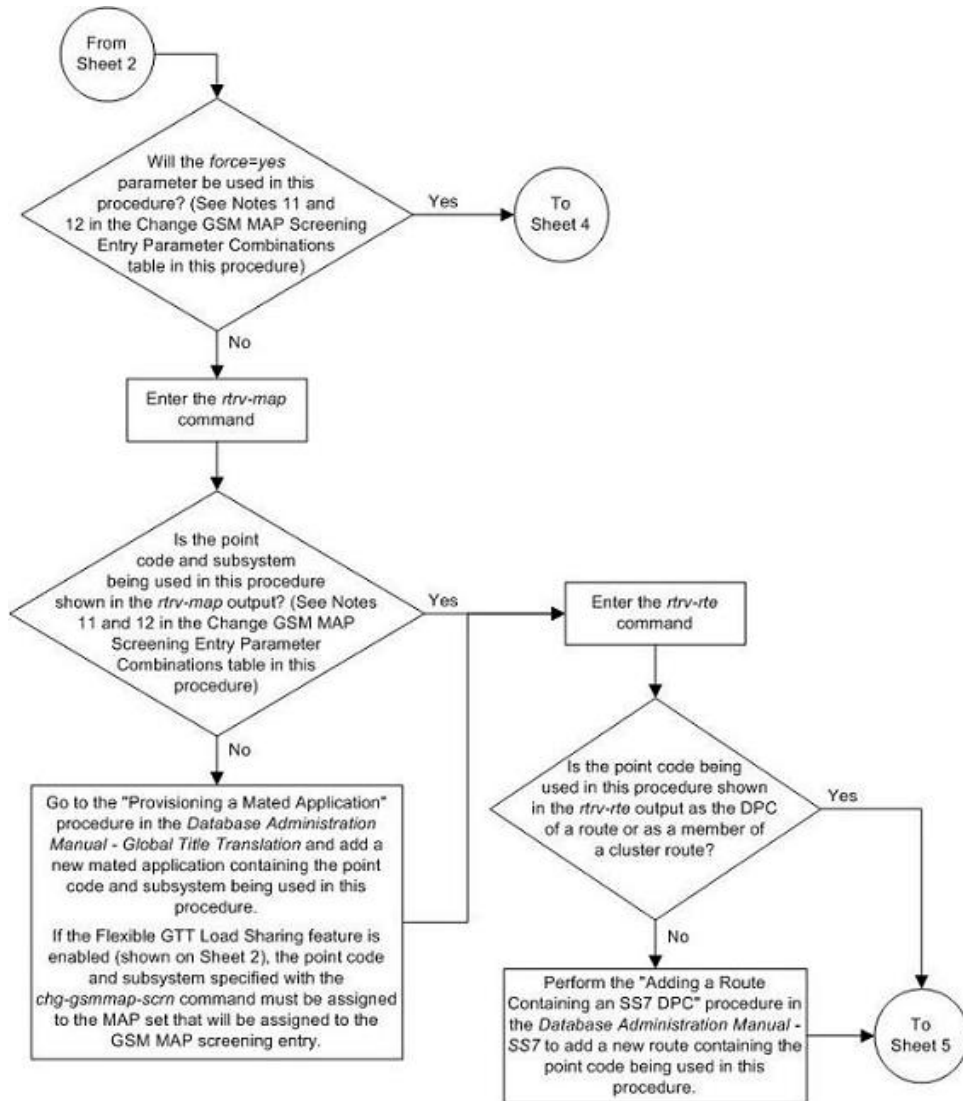
These messages should appear, the active Maintenance and Administration Subsystem Processor (MASP) appears first.

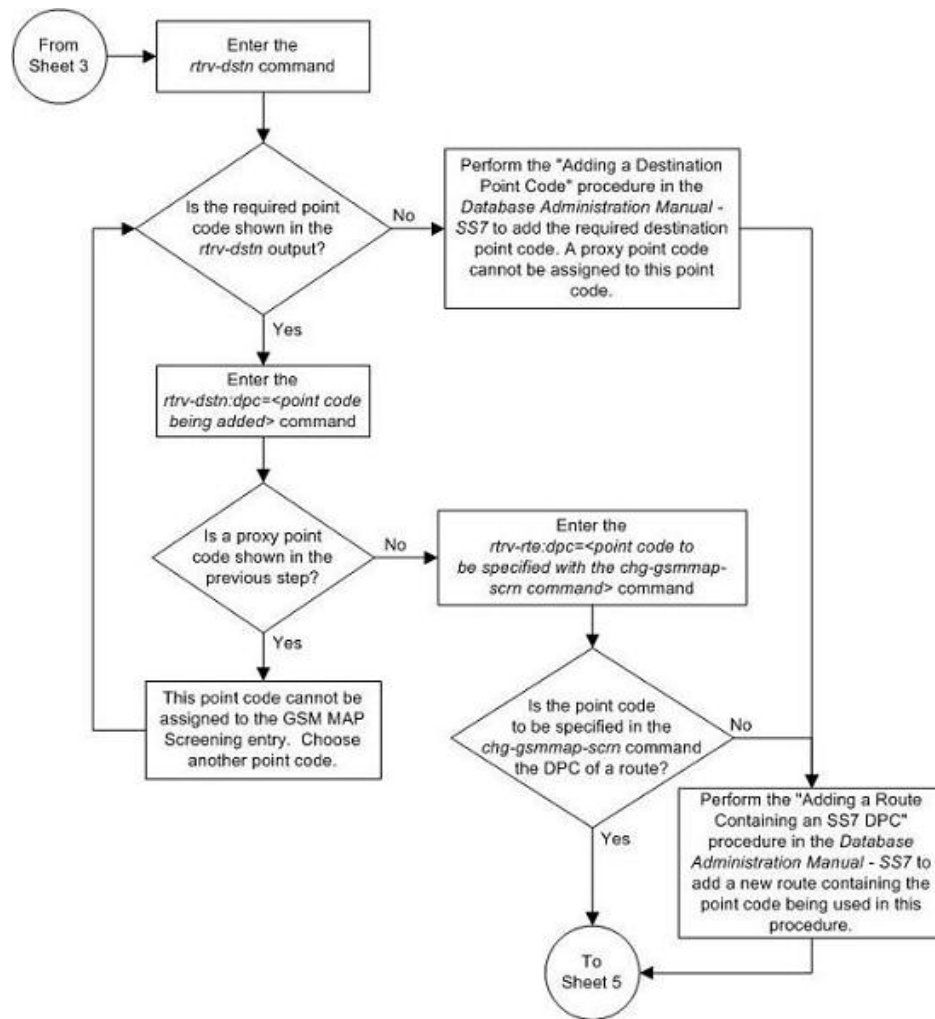
```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk complete.
BACKUP (FIXED) : MASP A - Backup starts on standby MASP.
BACKUP (FIXED) : MASP A - Backup on standby MASP to fixed disk complete.
```

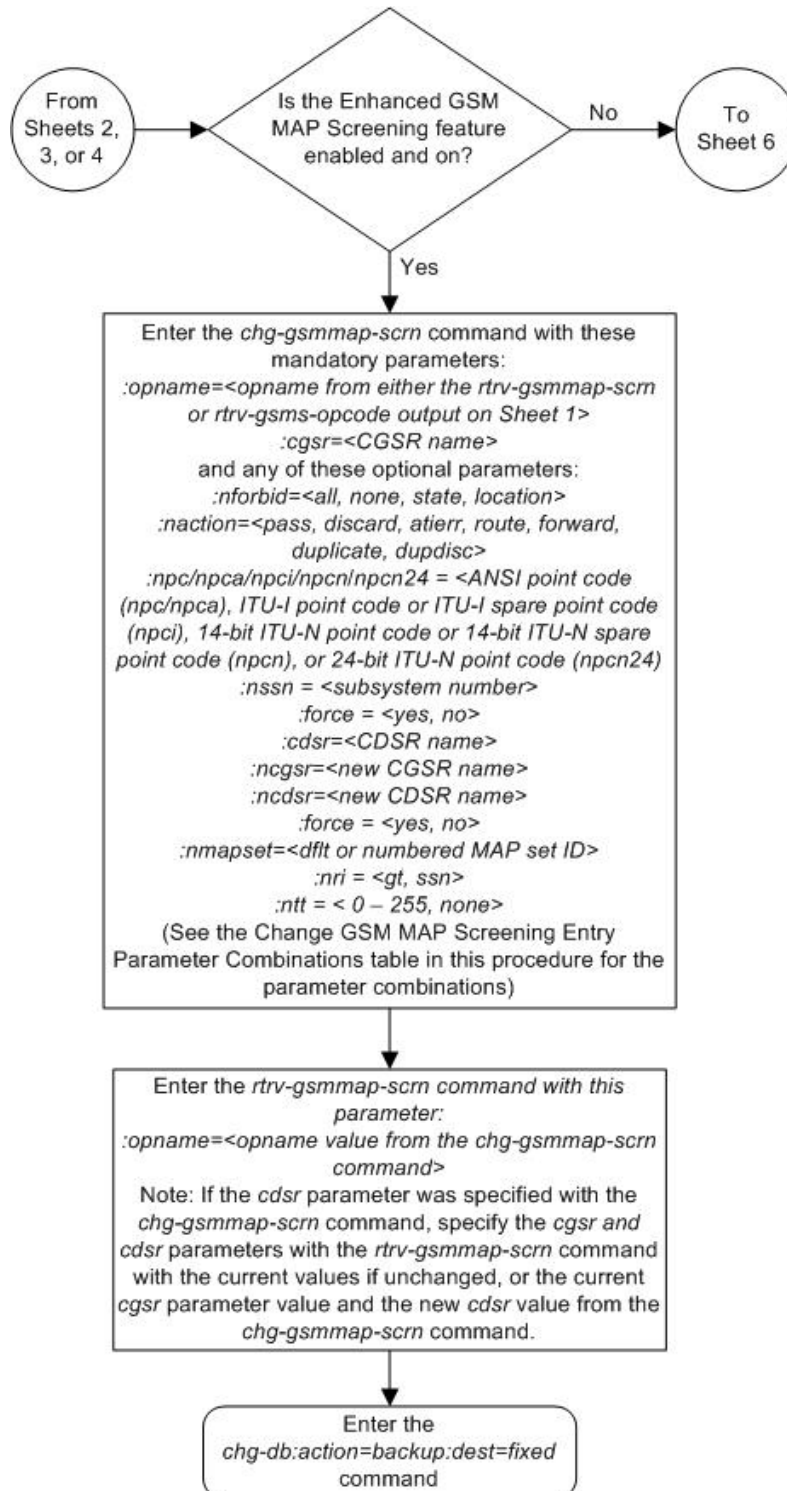
Figure 56: Changing a GSM MAP Screening Entry

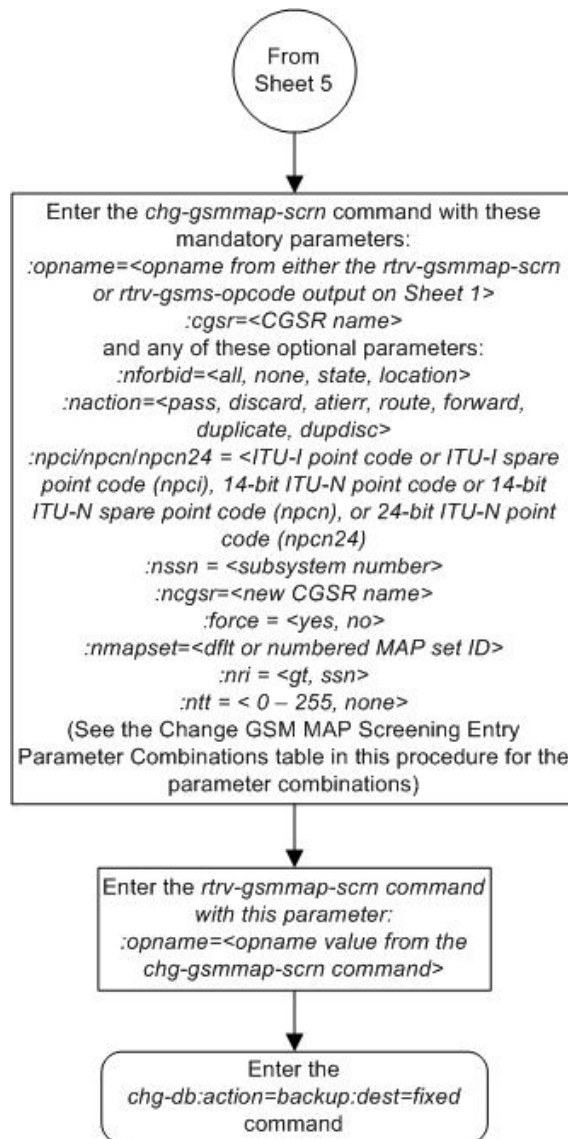












Changing the GSM MAP Screening TCAP Continue and End Message Processing Option

The option for enabling or disabling the processing of GSM MAP screening TCAP Continue and TCAP End messages can be changed with the *chg-sccpopts* command and with the following parameter:

:gmstcapce – This parameter has two values:

- *on* – enables the processing of TCAP Continue and TCAP End messages.
- *off* – disables the processing of TCAP Continue and TCAP End messages.

The system default value for this parameter is `off`.

The value of the `gsmstcapce` parameter is shown in the `GMSTCAPCE` field of the `rtrv-sccpopts` output. The `GMSTCAPCE` field of the `rtrv-sccpopts` output is shown only when the GSM MAP Screening feature is enabled and turned on. If the `GMSTCAPCE` field is not shown in the `rtrv-sccpopts` output, perform the [Activating the GSM MAP Screening Feature](#) on page 293 to enable and turn on the GSM MAP screening feature.

1. Display the existing value for the `gsmstcapce` parameter by entering the `rtrv-sccpopts` command.

The value for the `gsmstcapce` parameter is shown in the `GSMTCAPCE` field. This is an example of the possible output.

```
rlghncxa03w 06-10-17 16:02:05 GMT EAGLE5 36.0.0
SCCP OPTIONS
-----
GSMTCAPCE                               off
```

Note:

The `rtrv-sccpopts` command output contains other fields that are not used by this procedure. If you wish to see all the fields displayed by the `rtrv-sccpopts` command, see the `rtrv-sccpopts` command description in the *Commands Manual*.

If the `GSMTCAPCE` field is not shown in the `rtrv-sccpopts` output, perform the [Activating the GSM MAP Screening Feature](#) on page 293 to enable and turn on the GSM MAP screening feature. After the GSM MAP Screening feature is enabled and turned on, go to step 2.

If the `GSMTCAPCE` field is shown in the `rtrv-sccpopts` output, go to step 2.

2. Change the `gsmstcapce` parameter value by entering one of the following commands.

If the current value of the `gsmstcapce` parameter is `off`, or if the GSM MAP Screening feature was enabled and turned on in step 1, enter the following command to enable the processing of TCAP Continue and TCAP End messages.

```
chg-sccpopts:gsmstcapce=on
```

If the current value of the `gsmstcapce` parameter is `on`, enter the following command to disable the processing of TCAP Continue and TCAP End messages.

```
chg-sccpopts:gsmstcapce=off
```

When this command has successfully completed, this message should appear.

```
rlghncxa03w 06-10-07 00:22:57 GMT EAGLE5 36.0.0
CHG-SCCPOPTS: MASP A - COMPLTD
```

3. Verify the changes using the `rtrv-sccpopts` command.

This is an example of the possible output.

```
rlghncxa03w 06-10-17 16:02:05 GMT EAGLE5 36.0.0
SCCP OPTIONS
-----
GSMTCAPCE                               on
```

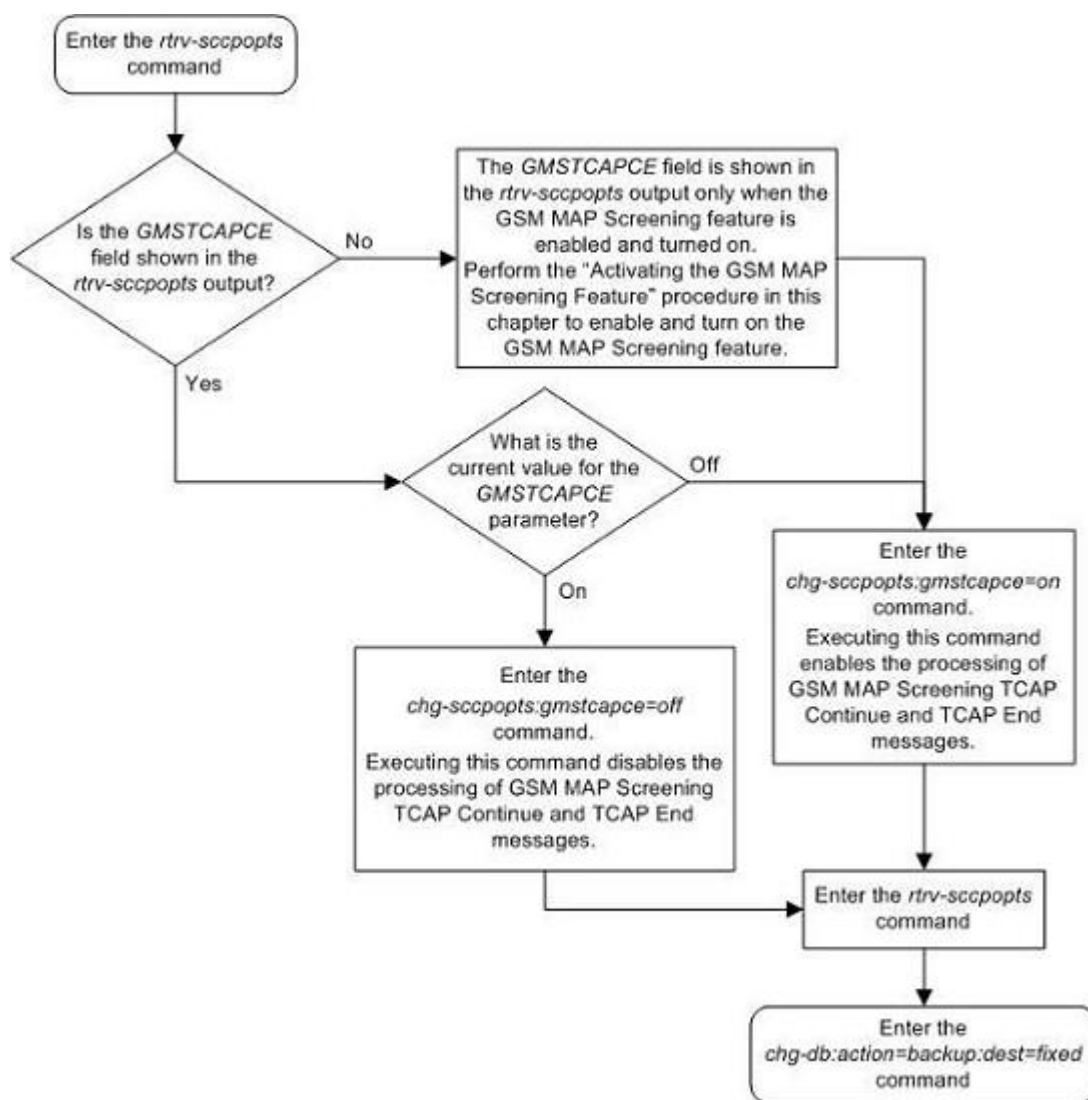
Note:

The `rtv-sccopts` command output contains other fields that are not used by this procedure. If you wish to see all the fields displayed by the `rtv-sccopts` command, see the `rtv-sccopts` command description in the *Commands Manual*.

- Backup the new changes using the `chg-db:action=backup:dest=fixed` command. These messages should appear, the active Maintenance and Administration Subsystem Processor (MASP) appears first.

```
BACKUP (FIXED): MASP A - Backup starts on active MASP.
BACKUP (FIXED): MASP A - Backup on active MASP to fixed disk complete.
BACKUP (FIXED): MASP A - Backup starts on standby MASP.
BACKUP (FIXED): MASP A - Backup on standby MASP to fixed disk complete.
```

Figure 57: Changing the GSM MAP Screening TCAP Continue and End Message Processing Option



Chapter 6

EAGLE 5 Integrated Monitoring Support Configuration

Topics:

- *Introduction Page 432*
- *TCP/IP Link Provisioning Page 434*
- *Time Stamping Page 435*
- *EAGLE 5 ISS Provisioning Page 436*
- *Network Considerations Page 438*
- *Enabling the Time Slot Counter Synchronization (TSCSYNC) and EAGLE 5 Integrated Monitoring Support (E5IS) Features Page 439*
- *Configuring the EAGLE 5 Integrated Monitoring Support Options Page 442*
- *Adding a Signaling Transport Card (STC) Page 449*
- *Removing a Signaling Transport Card (STC) Page 456*

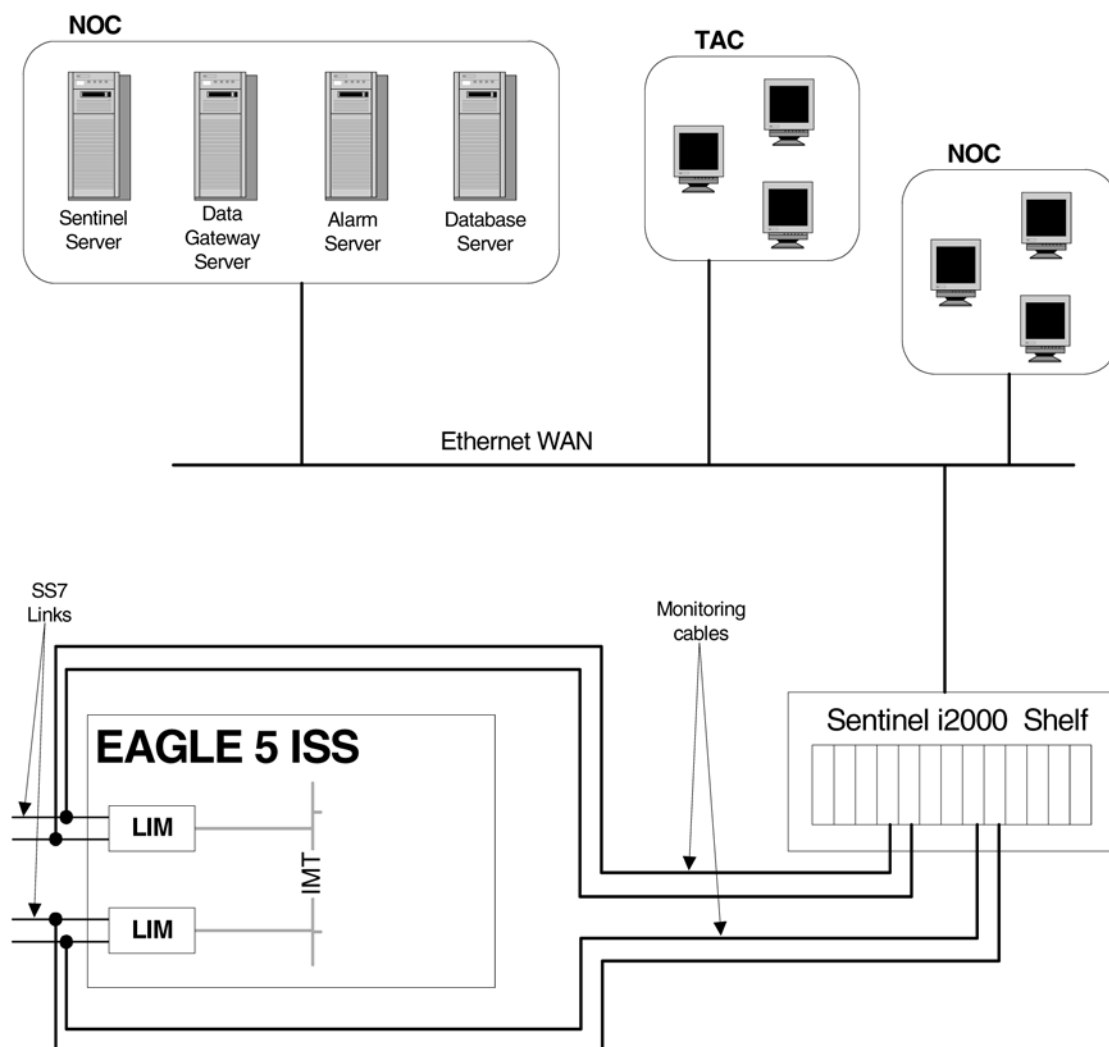
Chapter 6, EAGLE 5 Integrated Monitoring Support Configuration, describes the Eagle 5 Integrated Monitoring Support feature and the procedures necessary to configure the EAGLE 5 ISS to support this feature.

Introduction

The EAGLE 5 Integrated Monitoring Support feature allows the network traffic on the EAGLE 5 ISS's signaling links to be monitored by an ESP (extended services platform) or IMF (integrated message feeder) without additional intrusive cabling.

To monitor the network traffic on the EAGLE 5 ISS's signaling links without this feature requires physical, clamp-on connections to the EAGLE 5 ISS's SS7 signaling links (see [Figure 58: Monitoring via Hardware Connection](#) on page 432). This monitoring method involves costs for cable installation and maintenance for each SS7 link that is to be monitored.

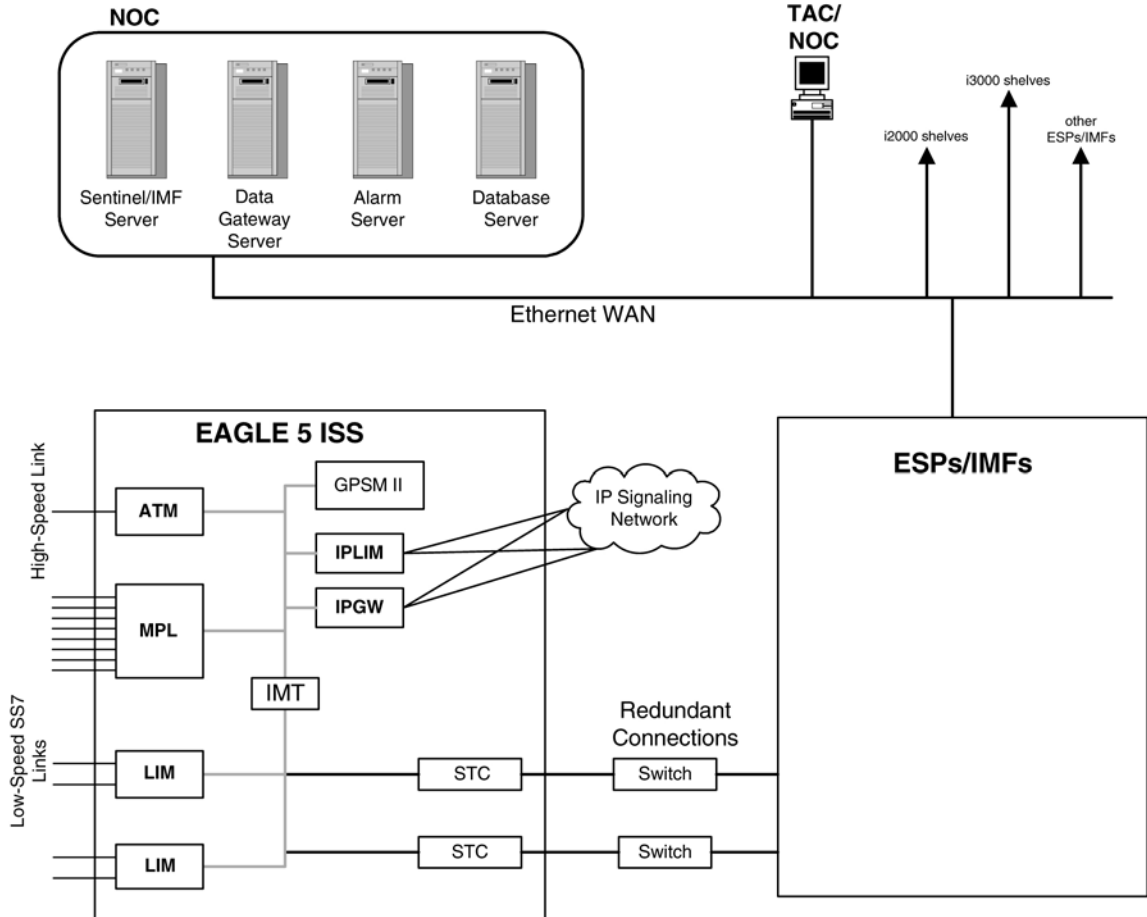
Figure 58: Monitoring via Hardware Connection



This feature eliminates the need to have intrusive hardware for each link that is to be monitored. The monitoring is performed by an Ethernet connection from an STC (Signaling Transport Card) to the ESP/IMF (see [Figure 59: EAGLE 5 Integrated Monitoring Support Network Connectivity](#) on page

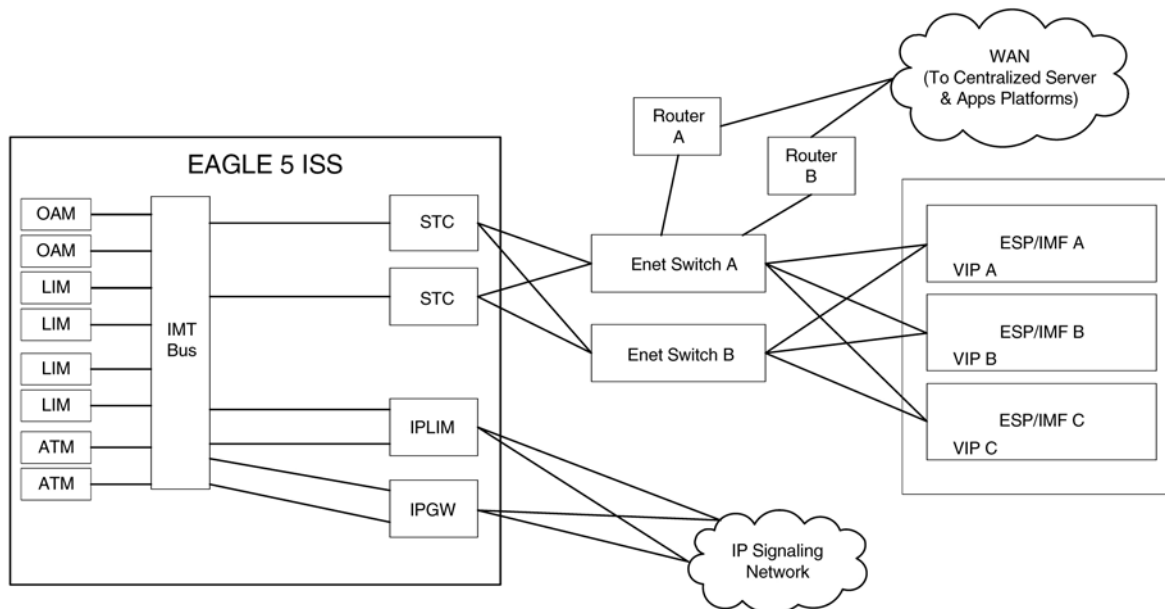
433). Message Signaling Units (MSUs), alarms, and events may be copied to the ESP/IMF subsystem over the Ethernet link to provide the network traffic monitoring.

Figure 59: EAGLE 5 Integrated Monitoring Support Network Connectivity



As can be seen in [Figure 59: EAGLE 5 Integrated Monitoring Support Network Connectivity](#) on page 433, this new method of connectivity removes the cabling and clamps from each monitored SS7 link. By incorporating a TCP/IP stack on each LIM and having the STCs serve as IP routers, the ESP/IMF subsystem may communicate directly with the SS7 LIMs. [Figure 60: ESP/IMF/EAGLE 5 ISS Network](#) on page 433 shows the logical communications pathway.

Figure 60: ESP/IMF/EAGLE 5 ISS Network



The STC communicates to the LIM by the IMT bus; the IP messages are simply encapsulated in an IMT wrapper between the cards. The STCs are provisioned in an $n+1$ configuration for redundancy. Each STC Ethernet port has a separate connection path to each Ethernet switch in order to provide an alternate path in the event of an Ethernet link failure. Note that the figure depicts a redundant network; this assures that a single network failure will not halt EAGLE 5 ISS or ESP/IMF operations. As shown in [Figure 60: ESP/IMF/EAGLE 5 ISS Network](#) on page 433, one or more ESP/IMF may be connected to a single Ethernet switch. The number of STCs required corresponds to the number of SS7 links that are to be associated with the EAGLE 5 Integrated Monitoring Support feature, plus an additional STC for redundancy.

The LIMs are assigned private network addresses. The IP message origination address specified is that of the LIM. The IP message destination address is that of the VIP (virtual IP address) contained within the ESP/IMF server. The STC serves as a router from the LIM to the ESP/IMF servers.

TCP/IP Link Provisioning

The IP communications link, used to transmit copied MSUs between the EAGLE 5 ISS and the ESP/IMF subsystem, is dynamically configured by the Sentinel/IMF. This is performed automatically as part of the operations for coming into service. A special function, part of the card's application software, is to establish communications with the ESP/IMF subsystem by sending a service request message (see [Figure 61: Ethernet Link Establishment - EMP Link Data](#) on page 434).

Figure 61: Ethernet Link Establishment - EMP Link Data

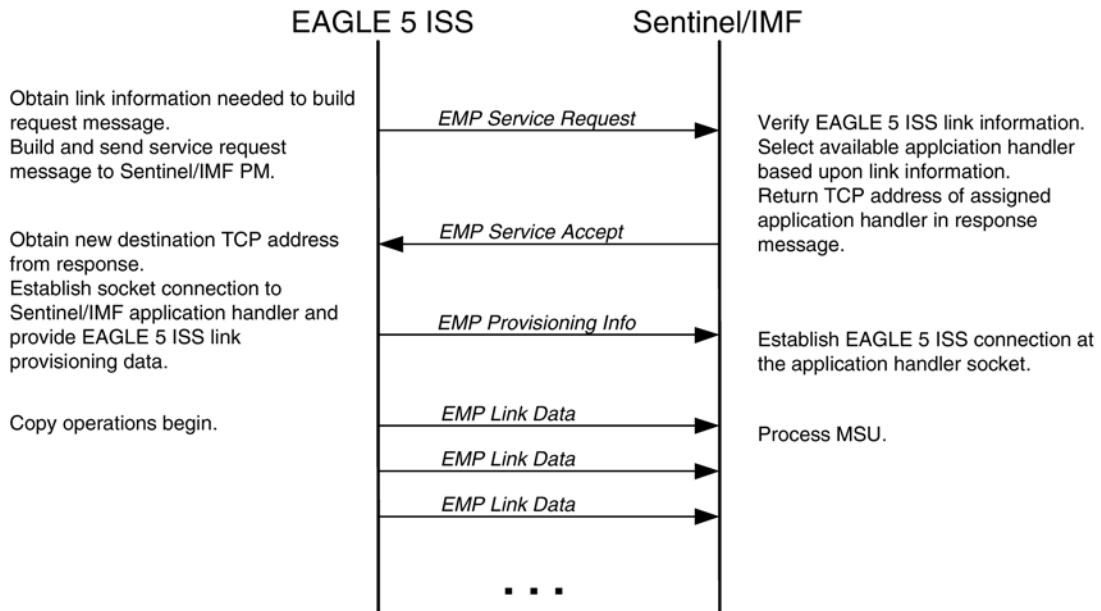


Diagram depicts example of normal link data message flow.

The LIM receiving the service accept response then opens a new socket using the specified IP address and port as the destination using standard TCP/IP socket messaging. The ESP/IMF server configured to service the port responds to the connect request and the socket is now available for normal operations. MSUs are copied from the LIM through the STC to the ESP/IMF server, then to the Sentinel/IMF.

If the LIM is unsuccessful with its initial link service request, it will reattempt link establishment with the ESP/IMF subsystem after delaying for a short period (that is, approximately 15 seconds). The LIM continuously repeats the link establishment procedure until it is successful. If the LIM ever loses its IP connection to the ESP server, the LIM will automatically begin reestablishment operations.

The STCs use DHCP (Dynamic Host Configuration Protocol) to provision themselves with IP addresses. The ESP/IMF subsystem contains a DHCP server and a DHCP client resides on the STC. The STC receives its IP address from the DHCP server in accordance with the DHCP standard.

A custom routing protocol, TRP (Tekelec Routing Protocol) manages the multiple redundant links and provides a faster network convergence than is possible with standard routing protocols.

Time Stamping

The MSU information will be delivered to the ESP/IMF subsystem with an accurate time stamp (± 5 milliseconds). This allows the Sentinel/IMF to correlate a call's messages for CDR (Call Detail Record) operations.

EAGLE 5 ISS Provisioning

To provision this feature, these items are required:

- STCs are installed in the EAGLE 5 ISS
- The TSC (Time Slot Counter) Synchronization feature is enabled in the EAGLE 5 ISS. TSC synchronization is supplied by the GPSM-II cards in card locations 1113 and 1115.
- A timing source for the low-speed signaling links and for the TSC (Time Slot Counter) synchronization feature

If the EAGLE 5 ISS does not contain LIMDS0 cards, but contains TDM part numbers 870-0774-15 or later, the clock source for any low-speed links and for the TSC (Time Slot Counter) synchronization feature used by the Sentinel/IMF can be generated from the high-speed master clock source. An external BITS clock is not required.

If an external BITS clock is connected to an EAGLE 5 ISS without LIMDS0 cards, but with TDM part numbers 870-0774-15 or later, the external BITS clock must be used as the clock source for any low-speed links and for the TSC (Time Slot Counter) synchronization feature.

If LIMDS0 cards are present in the EAGLE 5 ISS, the external BITS clock is required for timing of the DS0 signaling links and for TSC (Time Slot Counter) synchronization used by the Sentinel/IMF. If the EAGLE 5 ISS also contains TDM part numbers 870-0774-15 or later along with the LIMDS0 cards, this procedure can be used to select the source of the high-speed master clock for the high-speed links using external timing. The high-speed master clock source cannot be used to generate the clock source for any low-speed links and for the TSC (Time Slot Counter) synchronization feature.

- A Network Time Protocol (NTP) timing source from the ESP/IMF server
- The EAGLE 5 ISS shelves can contain HMUX or HIPR cards. Shelves containing IPLIMx or IPGWx cards that are being monitored must contain HIPR cards.

An "n + 1" STC configuration is required to provide redundancy for this feature.

The connection from the EAGLE 5 ISS to the ESP is an Ethernet connection with a minimum bandwidth of 10 Mbps. The dual-slot STC contains two 10 Mbps Ethernet ports. The single-slot STC contains two 100 Mbps Ethernet ports.

Refer to the *Hardware Manual - EAGLE 5 ISS* for more information about the GPSM-II and STCs.

The *n+1* STC configuration requires that a minimum of two STCs must be provisioned in the database. If single-slot STCs are being provisioned in the database, a minimum of two single-slot STCs must be provisioned.

[Table 30: Monitored Card Types](#) on page 437 shows the signaling links on these cards can be monitored by this feature.

Table 30: Monitored Card Types

Card Application (APPL Value Used by the ent-card Command)	Card Type (TYPE Value Used by the ent-card Command)	Card Name
SS7ANSI, CCS7ITU	LIMDS0	LIM-DS0, EILA, ILA, MPL
	LIMOCU	LIM-OCU, EILA, ILA, MPL
	LIMV35	LIM-V.35, EILA, ILA, MPL
	LIME1	E1/T1 MIM, LIM-E1, HC MIM, E5-E1T1 card
	LIMT1	E1/T1 MIM, HC MIM, E5-E1T1 card
	LIMCH	E1/T1 MIM, LIM-E1
ATMANSI	LIMATM	LIM-ATM , E5-ATM
ATMITU	LIME1ATM	E1-ATM , E5-ATM
IPLIM	DCM	Single-Slot EDCM, E5-ENET card
IPLIMI	DCM	Single-Slot EDCM, E5-ENET card
SS7IPGW	DCM	Single-Slot EDCM, E5-ENET card
IPGWI	DCM	Single-Slot EDCM, E5-ENET card
<p>Notes:</p> <p>Only signaling links assigned to M2PA associations can be monitored on the cards running the IPLIM and IPLIMI applications. This can be verified by entering the <code>rtrv-assoc:adapter=m2pa</code> command.</p> <p>Only signaling links assigned to M3UA associations can be monitored on the cards running the SS7IPGW and IPGWI applications. This can be verified by entering the <code>rtrv-assoc:adapter=m3ua</code> command.</p>		

Card Application (APPL Value Used by the ent-card Command)	Card Type (TYPE Value Used by the ent-card Command)	Card Name
Monitoring can be performed on single-slot EDCMs, E5-E1T1 cards, and E5-ENET cards using only the IMF.		
Monitoring can be performed on channelized E1 signaling links and unchannelized E1 signaling links (assigned to the LIME1 card type). A channelized E1 signaling link is a signaling link that is assigned to a channelized E1 port, shown by the entry CHAN in the LINKCLASS field in the rtrv-e1 output. An unchannelized E1 signaling link is a signaling link that is assigned to an unchannelized E1 port, shown by the entry UNCHAN in the LINKCLASS field in the rtrv-e1 output.		

The signaling links assigned to the cards running either the `ss7ansi` or `ccs7itu` applications are low-speed signaling links transmitting at either 56 kbps or 64 kbps. Signaling links assigned to the `atmansi` and `atmitu` applications are high-speed signaling links transmitting at 1.544 Mbps (`atmansi`) or 2.048 Mbps (`atmitu`). Signaling links assigned to the `iplim`, `iplimi`, `ss7ipgw`, and `ipgwi` applications are IP signaling links.

Because the performance of a single-slot STC is higher than a dual-slot STC, a dual-slot STC cannot replace a single-slot STC. If a single-slot STC replaces a dual-slot STC, and it is the only single-slot STC in the EAGLE 5 ISS, another single-slot STC must be added to the EAGLE 5 ISS. To add the additional single-slot STC, go to [Adding a Signaling Transport Card \(STC\)](#) on page 449.

In order to perform the necessary IP routing within the EAGLE 5 ISS switch, a private virtual network (PVN) is incorporated; the PVN represents the internal IP addressing scheme for every card within the EAGLE 5 ISS switch. Each card has an auto-assigned, default, Class B private IP address (for example, 172.28.60.16).

Note: The EAGLE 5 ISS uses a default value of 172.20.48.0 for the PVN address. You may change the default value by specifying a new network portion of an IP address and a network mask; the host portion is auto-configured. The EAGLE 5 ISS requires use of the lower 10 bits of address space for auto-configuration of internal networking schemes. The entered mask value may be up to 255.255.252.0

Network Considerations

There are three networks used to connect the EAGLE 5 ISS to the ESP/IMF subsystem (see [Figure 60: ESP/IMF/EAGLE 5 ISS Network](#) on page 433):

- The EAGLE 5 ISS containing the STCs
- The two Ethernet switches
- The ESP/IMF servers

The monitored information is sent from the EAGLE 5 ISS to the ESP/IMF servers through the Ethernet switches, then forwarded to the Sentine/IMF by the isolation routers. Each router will have one Ethernet port designated as the physical demarcation point between the customer network and the ESP/IMF subsystem.

IP Address Provisioning

The ESP/IMF subsystem requires IP addresses for these items:

- ESP/IMF external network:
 - Three IP addresses on the customer network for the ESP/IMF isolation routers, one IP address for HSRP, one IP address for each router (two total)
 - One netmask
 - One IP address for the default router.
- ESP/IMF internal network – Contiguous IP block routed within their network (last octet range 1-67 for 17 servers). The Sentinel/IMF considers each ESP/IMF server a separate processing element, therefore each ESP/IMF server needs its own IP address.
- Routes to their network to route to the VIP network already defined within ESP/IMF subsystem.



CAUTION: These IP addresses can be changed, as well as the PVN IP address in the EAGLE 5 ISS, contact the Customer Care Center (refer to [Customer Care Center](#) on page 4 for the contact information) before changing these IP addresses.

Route Configuration

No explicit routing tables are provisioned in the ESP/IMF subsystem. Use of the single customer provided default router address is assumed for outgoing traffic. All incoming traffic will use the HSRP address provided by the isolation routers.

Network Limitations

The maximum length of the network cables between the ESP/IMF server frame and the STC cards is limited to 328 feet (100 meters). This limitation is the maximum length that any 10/100BaseT cable can be run.

Enabling the Time Slot Counter Synchronization (TSCSYNC) and EAGLE 5 Integrated Monitoring Support (E5IS) Features

The EAGLE 5 Integrated Monitoring Support feature requires that the Time Slot Counter Synchronization (TSCSYNC) and EAGLE 5 Integrated Monitoring Support (E5IS) features are enabled with the `chg-feat` command using the `tscsync` and `e5is` parameters. This procedure is used to enable these features.

Note: Once the Time Slot Counter Synchronization and EAGLE 5 Integrated Monitoring Support features are turned on with the `chg-feat` command, they cannot be turned off.

The Time Slot Counter Synchronization and EAGLE 5 Integrated Monitoring Support features must be purchased before turning on these features. If you are not sure whether you have purchased the Time Slot Counter Synchronization or EAGLE 5 Integrated Monitoring Support features, contact your Tekelec Sales Representative or Account Representative.

1. Verify that the EAGLE 5 Integrated Monitoring Support feature and Time Slot Counter Synchronization features are on, by entering the `rtvr-feat` command.

If the EAGLE 5 Integrated Monitoring Support feature is on, the E5IS field should be set to on. If the Time Slot Counter Synchronization feature is on, the TSCSYNC field should be set to on.

Note: The `rtrv-feat` command output contains other fields that are not used by this procedure. If you wish to see all the fields displayed by the `rtrv-feat` command, see the `rtrv-feat` command description in the *Commands Manual*.

Note: If both the EAGLE 5 Integrated Monitoring Support feature and Time Slot Counter Synchronization features are on, then no further action is necessary. If you wish to change the EISCOPY or PVN IP address options, go to [Configuring the EAGLE 5 Integrated Monitoring Support Options](#) on page 442 procedure. If you wish to add STCs to the database, go to [Adding a Signaling Transport Card \(STC\)](#) on page 449.

Note: If the Time Slot Counter Synchronization feature is on, go to step 2.

2. Turn the Time Slot Counter Synchronization and EAGLE 5 Integrated Monitoring Support features on by entering one of these commands, depending on whether or not the `rtrv-feat` output in step 1 shows that the Time Slot Counter Synchronization feature is on.

If the Time Slot Counter Synchronization feature is not on, enter this command.

```
chg-feat:tscsync=on:e5is=on
```

If the Time Slot Counter Synchronization feature is on, enter this command.

```
chg-feat:e5is=on
```

Note: Once the Time Slot Counter Synchronization and EAGLE 5 Integrated Monitoring Support features are turned on with the `chg-feat` command, they cannot be turned off.

The Time Slot Counter Synchronization and EAGLE 5 Integrated Monitoring Support features must be purchased before turning on these features. If you are not sure whether you have purchased the Time Slot Counter Synchronization or EAGLE 5 Integrated Monitoring Support features, contact your Tekelec Sales Representative or Account Representative.

When the `chg-feat` has successfully completed, this message should appear.

```
rlghncxa03w 06-10-20 21:18:37 GMT EAGLE5 36.0.0  
CHG-FEAT: MASP A - COMPLTD
```

3. Back up the new changes using the `chg-db:action=backup:dest=fixed` command. These messages should appear, the active Maintenance and Administration Subsystem Processor (MASP) appears first.

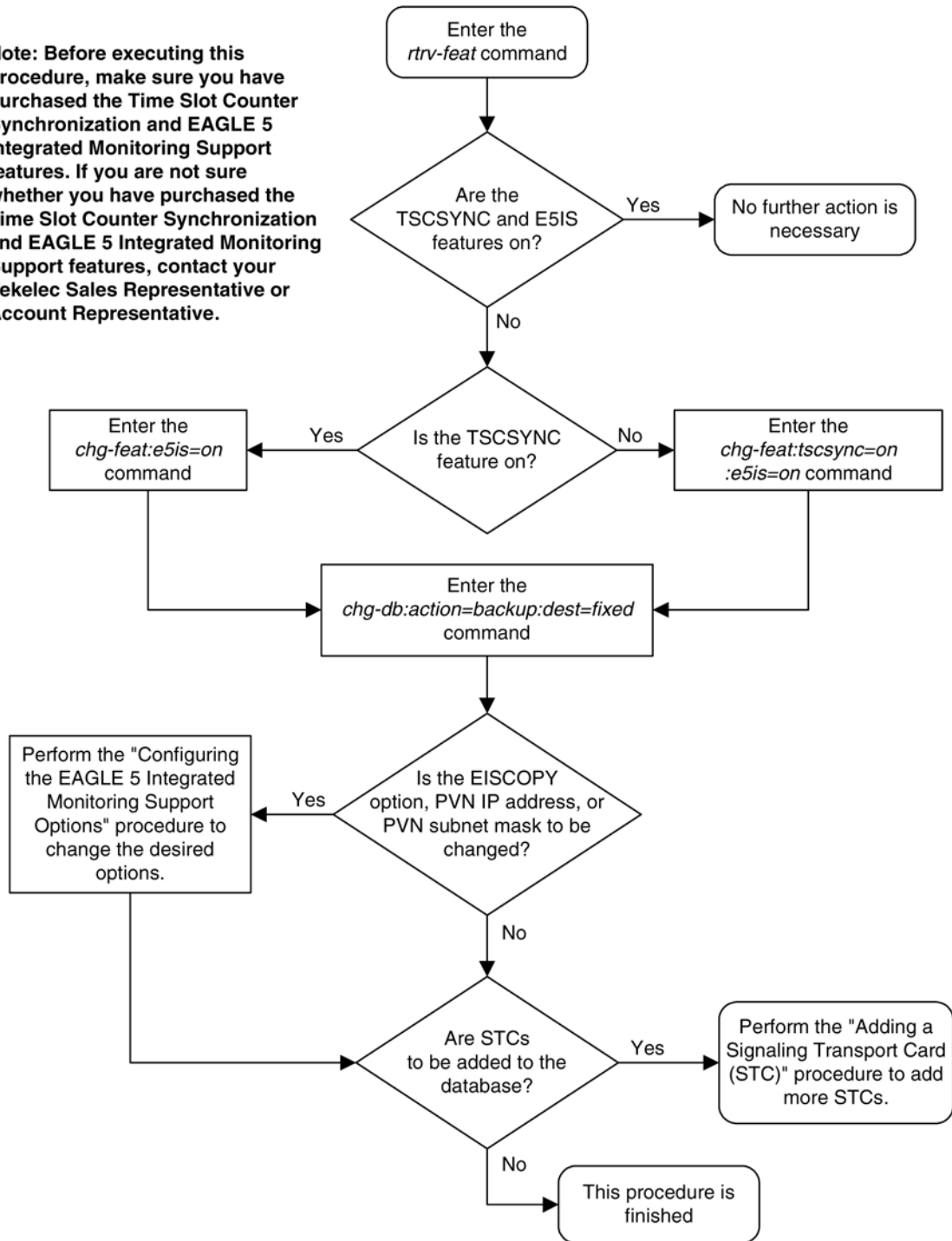
```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.  
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk complete.  
BACKUP (FIXED) : MASP A - Backup starts on standby MASP.  
BACKUP (FIXED) : MASP A - Backup on standby MASP to fixed disk complete.
```

4. If the EISCOPY or PVN IP address options are to be changed, go to [Configuring the EAGLE 5 Integrated Monitoring Support Options](#) on page 442.

If STCs are to be added to the database, Go to [Adding a Signaling Transport Card \(STC\)](#) on page 449 to provision the EAGLE 5 ISS with the required number of STCs.

Figure 62: Enabling the TSCSYNC and E5IS Features

Note: Before executing this procedure, make sure you have purchased the Time Slot Counter Synchronization and EAGLE 5 Integrated Monitoring Support features. If you are not sure whether you have purchased the Time Slot Counter Synchronization and EAGLE 5 Integrated Monitoring Support features, contact your Tekelec Sales Representative or Account Representative.



Configuring the EAGLE 5 Integrated Monitoring Support Options

This procedure is used to configure the EISCOPY option and the PVN IP address options for the EAGLE 5 Integrated Monitoring Support feature.

To set the EISCOPY function for the EAGLE 5 Integrated Monitoring Support feature, the `eiscopy` parameter is specified with the `chg-eisopts` command. The `eiscopy=on` parameter enables the EISCOPY function for the EAGLE 5 Integrated Monitoring Support feature. The `eiscopy=off` parameter turns off the EISCOPY function for the EAGLE 5 Integrated Monitoring Support feature. The EISCOPY function allows the EAGLE 5 ISS to copy MSUs to the ESP/IMF subsystem. The default value for the `eiscopy` parameter is `off`.

The IP communications link, used to transmit copied MSUs between the EAGLE 5 ISS and the ESP/IMF subsystem, is dynamically configured by the Sentinel/IMF. The LIMs are assigned Class B private network IP addresses (for example, 172.28.60.16), creating a PVN). The IP message origination address is the address of the LIM. The IP message destination address is that of the VIP (virtual IP address) contained within the ESP/IMF server. private virtual network (

The EAGLE 5 ISS uses a default value of 172.20.48.0 for the PVN address (`pvn` parameter). The default value may be changed by specifying a new network portion of an IP address and a network mask. The host portion of these PVN addresses are configured automatically. The default value for the `pvnmask` parameter is 255.255.252.0.

To change the network portion of the PVN address and the PVN submask used by the PVN addresses within the EAGLE 5 ISS, enter the `chg-netopts` command with the `pvn` and `pvnmask` parameters. The EISCOPY function must be disabled (`eiscopy=off`) in order to make these changes.

The subnet address that results from the `pvn` and `pvnmask` parameter values cannot be the same as the subnet address resulting from the `ipaddr` and `submask` parameter values of the `chg-ip-lnk` command, or the `dest` and `submask` parameter values of the `ent-ip-rte` command. This interaction applies only if the `ipaddr` or `dest` parameter values are Class B IP addresses. The `ipaddr`, `dest`, and `submask` parameter values can be verified by entering the `rtrv-ip-lnk` and `rtrv-ip-rte` commands. Choose `pvn` and `pvnmask` parameter values whose resulting subnet address is not be the same as the subnet address resulting from the `ipaddr` and `submask` parameter values of the `chg-ip-lnk` command, or the `dest` and `submask` parameter values of the `ent-ip-rte` command.

To change either the EISCOPY option or the PVN IP address options, the EAGLE 5 Integrated Monitoring Support feature (E5IS) must be enabled.



CAUTION

CAUTION: Contact the Customer Care Center (refer to [Customer Care Center](#) on page 4 for the contact information) before performing this procedure.

1. Verify that the EAGLE 5 Integrated Monitoring Support feature is on, by entering the `rtrv-feat` command.

If the EAGLE 5 Integrated Monitoring Support feature is on, the E5IS field should be set to on.

Note: The `rtrv-feat` command output contains other fields that are not used by this procedure. If you wish to see all the fields displayed by the `rtrv-feat` command, see the `rtrv-feat` command description in the *Commands Manual*.

Note: If the EAGLE 5 Integrated Monitoring Support feature is not on, go to the and enable the EAGLE 5 Integrated Monitoring Support feature.

2. Display the EISCOPY option by entering the `rtrv-eisopts` command.

Note: If the PVN IP address of the EAGLE 5 ISS and the PVN subnet mask are not being changed, skip steps 2 through 10, and go to step 11.

Note: If the PVN IP address of the EAGLE 5 ISS, PVN subnet mask, or EISCOPY option are not being changed, this procedure cannot be performed.

This is an example of the possible output.

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0
EIS OPTIONS
-----
EISCOPY = ON
```

3. To change the PVN IP address of the EAGLE 5 ISS and the PVN subnet mask, the EISCOPY option must be OFF.

Note: If the EISCOPY option value shown in step 2 is OFF, skip step 3 and go to step 4.

Turn the EISCOPY option off by entering this command.

```
chg-eisopts:eiscopy=off
```



CAUTION: The EAGLE 5 Integrated Monitoring Support feature will be disabled if the EISCOPY option is turned off.

CAUTION

When the `chg-eisopts` has successfully completed, this message should appear.

```
rlghncxa03w 06-10-20 21:18:37 GMT EAGLE5 36.0.0
CHG-EISOPTS: MASP A - COMPLTD
```

4. Display the PVN IP address of the EAGLE 5 ISS and the PVN subnet mask by entering the `rtrv-netopts` command.

This is an example of the possible output.

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0
NET OPTIONS          STATUS
-----
PVN                  172.20.50.0
PVNMASK              255.255.252.0
```

5. Display the current link parameters associated with the IP card in the database by entering the `rtrv-ip-lnk` command.

The following is an example of the possible output.

```
rlghncxa03w 06-10-28 21:14:37 GMT EAGLE5 36.0.0
LOC  PORT  IPADDR          SUBMASK          DUPLEX  SPEED  MACTYPE  AUTO  MCAST
1201 A    192.1.1.1      255.255.255.128 HALF          10     802.3    NO    NO
```

1203	A	192.1.1.12	255.255.255.0	----	---	DIX	YES	NO
1205	A	192.1.1.14	255.255.255.0	FULL	100	DIX	NO	NO

- Display the IP routes in the database with the `rtrv-ip-rte` command.

This is an example of the possible output.

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0
LOC  DEST          SUBMASK          GTWY
1301 128.252.10.5     255.255.255.255 140.188.13.33
1301 128.252.0.0      255.255.0.0     140.188.13.34
1301 150.10.1.1       255.255.255.255 140.190.15.3
1303 192.168.10.1     255.255.255.255 150.190.15.23
1303 192.168.0.0      255.255.255.0   150.190.15.24

IP Route table is (5 of 1024) 1% full
```

- The subnet address that results from the `pvn` and `pvnmask` parameter values cannot be the same as the subnet address resulting from the `ipaddr` and `submask` parameter values of the `chg-ip-lnk` command, or the `dest` and `submask` parameter values of the `ent-ip-rte` command.

This interaction applies only if the `ipaddr` or `dest` parameter values are Class B IP addresses. The `ipaddr`, `dest`, and `submask` parameter values can be verified by entering the `rtrv-ip-lnk` and `rtrv-ip-rte` commands. If no Class B IP addresses are not shown in `rtrv-ip-lnk` and `rtrv-ip-rte` outputs in steps 5 and 6, go to step 8. If no Class B IP addresses are shown in `rtrv-ip-lnk` and `rtrv-ip-rte` outputs in steps 5 and 6, choose `pvn` and `pvnmask` parameter values for the `chg-netopts` command whose resulting subnet address is not be the same as the subnet address resulting from the `ipaddr` and `submask` values shown in the `rtrv-ip-lnk` command in step 5, or the `dest` and `submask` values of the `rtrv-ip-rte` command in step 6. Go to step 8.

- Change the PVN IP address of the EAGLE 5 ISS and the PVN subnet mask by entering the `chg-netopts` command with the `pvn` and `pvnmask` parameters.

For this example, enter this

command. `chg-netopts:pvn=158.30.75.133:pvnmask=255.255.252.0` When the `chg-netopts` has successfully completed, this message should appear.

```
rlghncxa03w 06-10-20 21:18:37 GMT EAGLE5 36.0.0
CHG-NETOPTS: MASP A - COMPLTD
```

- Verify the changes using the `rtrv-netopts` command.

This is an example of the possible output.

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0
NET  OPTIONS          STATUS
-----
PVN      158.30.75.133
PVNMASK  255.255.252.0
```

- Back up the new changes using the `chg-db:action=backup:dest=fixed` command.

These messages should appear, the active Maintenance and Administration Subsystem Processor (MASP) appears first.

```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk complete.
```

```
BACKUP (FIXED) : MASP A - Backup starts on standby MASP.
BACKUP (FIXED) : MASP A - Backup on standby MASP to fixed disk complete.
```

11. Display the EISCOPY option by entering the `rtrv-eisopts` command.

Note: If the EISCOPY option value is not being changed, skip steps 11 through 16, and go to step 17.

Note: If the EISCOPY option value was changed in step 3, skips step 11 through 13, and go to step 14.

This is an example of the possible output.

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0
EIS OPTIONS
-----
EISCOPY = OFF
```

12. Display the STC cards in the database using the `rept-stat-eroute` command.

Note: If the EISCOPY option value shown in step 11 is ON, skip steps 12 and 13, and go to step 14.

This is an example of the possible output.

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0
EROUTE SUBSYSTEM REPORT IS-NR          Busy          -----
STC Cards Configured= 8  Cards IS-NR= 8
EISCOPY BIT = ON
System Threshold = 80% Total Capacity
System Peak EROUTE Load:          8000 Buffers/Sec
System Total EROUTE Capacity:     9600 Buffers/Sec
SYSTEM ALARM STATUS = No Alarms
```

CARD	VERSION	PST	SST	AST	TVG USAGE	CPU USAGE
1205	126-002-000	IS-NR	Active	-----	22%	33%
1211	126-002-000	IS-NR	Active	-----	22%	33%
1303	126-002-000	IS-NR	Active	-----	22%	33%
1311	126-002-000	IS-NR	Active	-----	22%	33%
1313	126-002-000	IS-NR	Active	-----	22%	33%
2211	126-002-000	IS-NR	Active	-----	22%	33%
2213	126-002-000	IS-NR	Active	-----	22%	33%
1105	126-002-000	IS-NR	Active	-----	22%	33%

```
EROUTE Service Average TVG Capacity = 22% Average CPU Capacity = 33%
Command Completed.
```

At least two STCs must be shown in the `rept-stat-eroute` output. The primary state (PST value) of at least two STCs must be IS-NR. If two or more STCs are shown in the `rept-stat-eroute` output and the primary state of at least two of these STCs is IS-NR, skip step 13 and go to step 14. If only one STC, or no STCs are shown in the `rept-stat-eroute` output, add the necessary STCs by perform the [Adding a Signaling Transport Card \(STC\)](#) on page 449 procedure. After the STCs have been added, skip step 13 and go to step 14. If two or more STCs are shown in the `rept-stat-eroute` output and the primary state of only one STC, or no STCs is IS-NR, go to step 13.

13. Put at least one or two STCs, as required in step 12, shown in step 12 whose primary state is not IS-NR into service using the `rst-card` command specifying the card location shown in step 12.

For this example, enter this command.`rst-card:loc=1205 rst-card:loc=1211`When this command has successfully completed, this message should appear.

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0
Card has been allowed.
```

14. Change the EISCOPY option by entering one of these commands.

To turn the EISCOPY option on, enter this command.`chg-eisopts:eiscopy=on`To turn the EISCOPY option off, enter this command.`chg-eisopts:eiscopy=off`.



CAUTION: The EAGLE 5 Integrated Monitoring Support feature will be disabled if the EISCOPY option is turned off.

CAUTION

When the `chg-eisopts` has successfully completed, this message should appear.

```
rlghncxa03w 06-10-20 21:18:37 GMT EAGLE5 36.0.0
CHG-EISOPTS: MASP A - COMPLTD
```

15. Verify the changes to the EISCOPY option by entering the `rtrv-eisopts` command.

This is an example of the possible output.

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0
EIS OPTIONS
-----
EISCOPY = ON
```

16. Back up the new changes using the `chg-db:action=backup:dest=fixed` command.

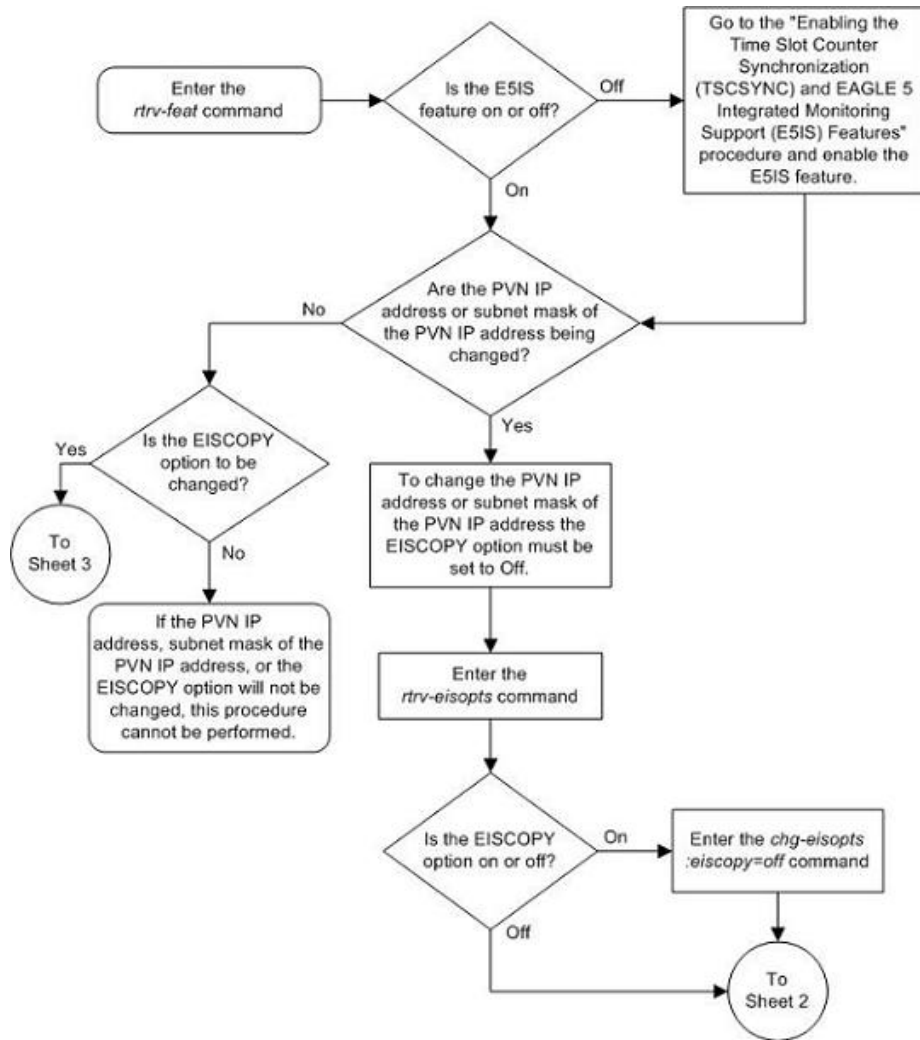
These messages should appear, the active Maintenance and Administration Subsystem Processor (MASP) appears first.

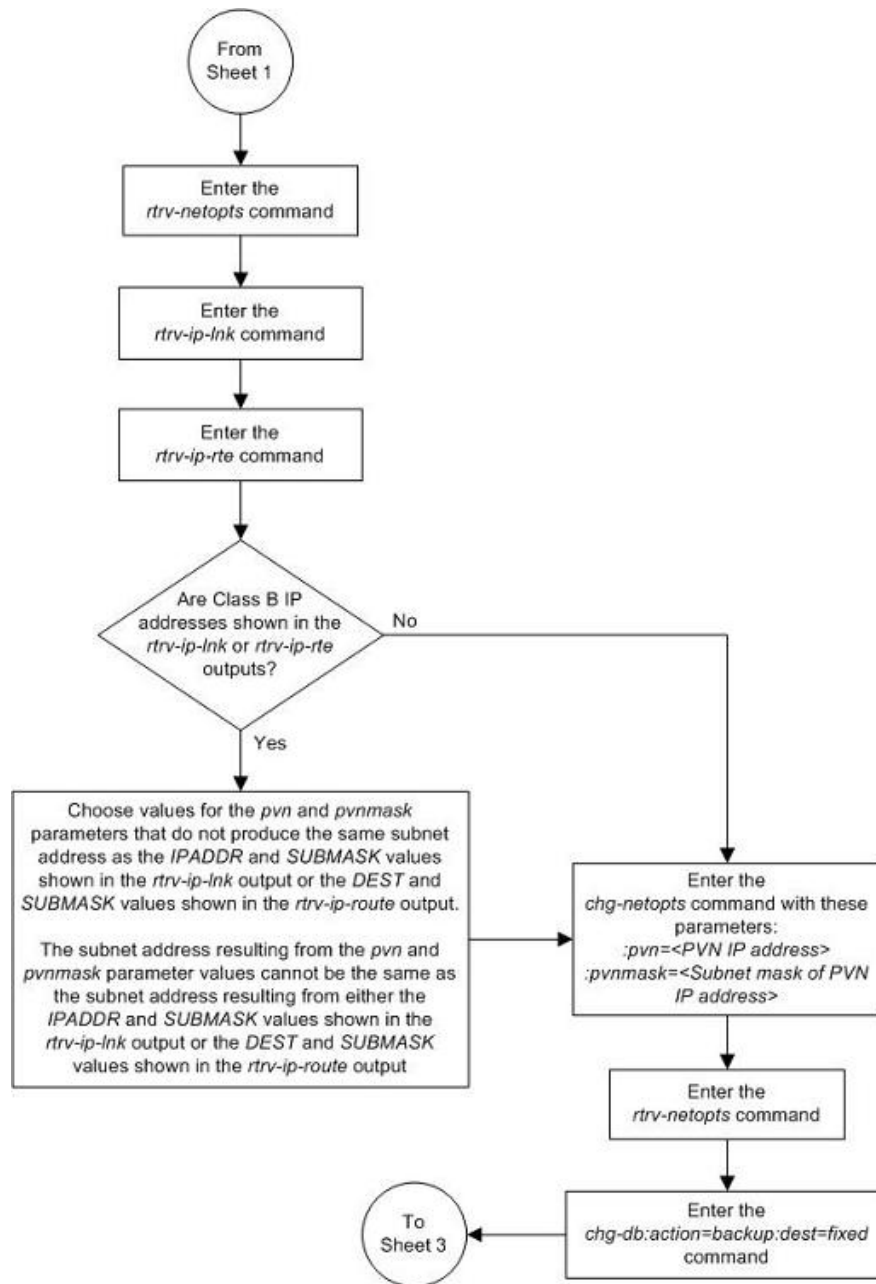
```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk complete.
BACKUP (FIXED) : MASP A - Backup starts on standby MASP.
BACKUP (FIXED) : MASP A - Backup on standby MASP to fixed disk complete.
```

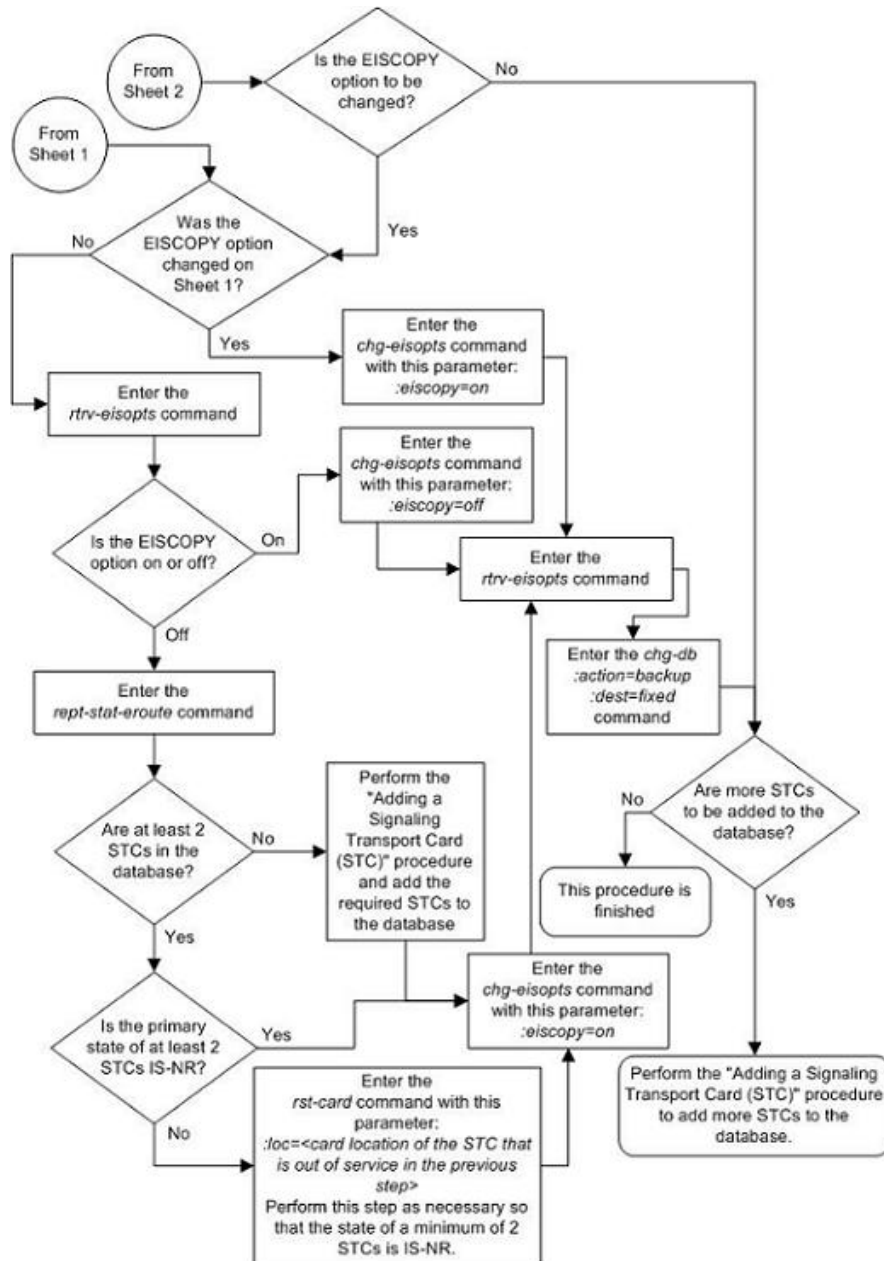
17. If more STCs are not being added to the database, this procedure is finished.

If more STCs are to be added to the database, go to [Adding a Signaling Transport Card \(STC\)](#) on page 449 to provision the EAGLE 5 ISS with the increased number of STCs.

Figure 63: Configuring the EAGLE 5 Integrated Monitoring Support Options







Adding a Signaling Transport Card (STC)

This procedure is used to add an STC (Signaling Transport Card) to the database using the `ent-card` command. The STC provides an interface between the EAGLE 5 ISS and the ESP (EAGLE 5 Integrated Monitoring Support feature). The STC allows the ESP subsystem to monitor the EAGLE 5 ISS's signaling links without additional intrusive cabling.

The `ent-card` command uses these parameters.

- :loc – The location of the card being added to the database.
- :type – The type of card being added to the database. For this procedure, the value of this parameter is stc.
- :app1 – The application software or GPL that is assigned to the card. For this procedure, the value of this parameter is eroute.
- :force – Allow the LIM to be added to the database even if there are not enough service modules to support the number of LIMs in the EAGLE 5 ISS. This parameter is obsolete and is no longer used.

The STC can be either a single-slot STC, a dual-slot STC, or an E5-STC card as shown in [Table 31: STC Part Numbers](#) on page 450.

Table 31: STC Part Numbers

Card Type	Card Name (as shown on the card Label)	Part Number
Dual-Slot STC	DCM	870-1945-XX 870-1984-01
	EDCM-A	870-2508-XX
Single-Slot STC	DCM	870-2372-01
	EDCM-A	870-2508-XX
E5-STC	E5-ENET	870-2212-02

The dual-slot STC can be inserted only in the odd numbered card slots of the extension shelf. Slot 9 of each shelf contains the HMUX card or HIPR card, thus the dual-slot STC cannot be inserted in slot 09. The dual-slot STC can be inserted in the control shelf, but only in slots 1101, 1103, 1105, 1107, and 1111. Slots 1113, 1115 and 1117 are reserved for MASPs A and B and the MDAL card. The dual-slot STC occupies two card slots, so the even numbered card slot must be empty and not provisioned in the database, as shown in [Table 32: Dual-Slot STC Locations](#) on page 450. The dual-slot STC is connected to the network through the odd numbered card slot connector.

Table 32: Dual-Slot STC Locations

Location of the STC	Empty Card Location	Location of the STC	Empty Card Location
Slot 01	Slot 02	Slot 11	Slot 12
Slot 03	Slot 04	Slot 13	Slot 14
Slot 05	Slot 06	Slot 15	Slot 16
Slot 07	Slot 08	Slot 17	Slot 18

The single-slot STC can be inserted into any card slot, except an even numbered card slot adjacent to a dual-slot card, shown in [Table 32: Dual-Slot STC Locations](#) on page 450, slots 9 and 10 in each shelf, and slots 1113 through 1118.

The shelf to which the card is to be added, must already be in the database. This can be verified with the `rtrv-shlf` command. If the shelf is not in the database, see the “Adding a Shelf” procedure in the *Database Administration Manual - System Management*.

In order to enable the EISCOPY option, with the `chg-eisopts` command, and to comply with the $n+1$ STC configuration requirement, a minimum of two STCs must be provisioned in the database. A minimum of two STCs must be provisioned.

The number of SS7 signaling links that can be monitored by an STC varies depending the following criteria:

- Whether the STC is a dual-slot STC or single-slot STC
- The type of signaling link (defined by the application running on the card the signaling link is assigned to)
- The amount of traffic and the size of the MSUs being handled by the EAGLE 5 ISS

Note: Verify the temperature threshold settings for the E5-STC card by performing the “Changing the High-Capacity Card Temperature Alarm Thresholds” procedure in the *Database Administration Manual-SS7*.

STC Provisioning

The following rules apply to provisioning STCs:

- A minimum of two STCs must be provisioned in an EAGLE 5 ISS.
- The maximum number of STCs that can be provisioned in an EAGLE 5 ISS is 32.
- For shelves containing HMUX cards, the following rules apply to provisioning STCs.
 - If the shelf containing the STCs (only single/double slot STCs but not E5-STC) has HMUX cards installed in card slots 9 and 10, the shelf can contain a maximum of three STCs.
 - The STCs should be provisioned in shelves adjacent to the shelf containing the cards being monitored - half of the STCs should be provisioned in the next shelf and the other half of the STCs should be provisioned in the previous shelf. For example, if the shelf containing the cards being monitored is shelf 2100, half of the STCs monitoring shelf 2100 should be provisioned in shelf 1300 and the other half of the STCs monitoring shelf 2100 should be provisioned in shelf 2200.
- STCs should be provisioned in the same shelf containing the cards being monitored if that shelf has HIPR cards installed in card slots 9 and 10.
- If the shelf being monitored has HIPR cards installed in card slots 9 and 10, more than three STCs can be provisioned in the shelf, depending on the number of empty card slots that shelf has.
- If the IP signaling links assigned to single-slot EDCMs or E5-ENET cards are being monitored, HIPR cards must be installed in card slots 9 and 10 of the shelf containing the single-slot EDCMs or E5-ENET cards.
- If E1 or T1 signaling links assigned to HC MIMs or E5-E1T1 cards are being monitored, HIPR cards must be installed in card locations 9 and 10 of the shelf that the HC MIM or E5-E1T1 will occupy.
- If IP signaling links are being monitored, the EAGLE 5 ISS can have only single-slot STCs provisioned and installed. Dual-slot STCs cannot be installed or provisioned.
- The E5-STC requires that HIPR cards are installed in the card locations 9 and 10 in the shelf that will contain the E5-STC. There is no limit on the number of E5-STCs that can be provisioned on shelves containing HIPR cards.

Note: Contact your Tekelec Sales Representative or Account Representative to determine the number of STCs that must be provisioned in your EAGLE 5 ISS, and to determine where in the EAGLE 5 ISS these STCs must be provisioned before performing this procedure.

The examples in this procedure are used to add an STC in these card locations: 1303, 2101, and 2102.

1. Display the cards in the database using the `rtrv-card` command. This is an example of the possible output.

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0
CARD   TYPE     APPL      LSET NAME      LINK SLC LSET NAME      LINK SLC
1102   TSM        GLS
1113   GPMS       EOAM
1114   TDM-A
1115   GPMS       EOAM
1116   TDM-B
1117   MDAL
1201   LIMDS0    SS7ANSI   sp2             A    0    sp1            B    0
1203   LIMDS0    SS7ANSI   sp3             A    0
1204   LIMDS0    SS7ANSI   sp3             A    1
1206   LIMDS0    SS7ANSI   nsp3           A    1    nsp4          B    1
1207   LIMV35    SS7GX25   nsp1           A    0
1208   LIMV35    SS7GX25   nsp1           A    1
1216   ACMENET   STPLAN
1301   TSM        SCCP
1308   LIMDS0    SS7ANSI   sp6             A    1    sp7            B    0
1314   LIMDS0    SS7ANSI   sp7             A    1    sp5            B    1
1317   ACMENET   STPLAN
```

The cards should be distributed throughout the EAGLE 5 ISS for proper power distribution. Refer to the *Installation Manual - EAGLE 5 ISS* for the shelf power distribution.

2. Verify that the EAGLE 5 Integrated Monitoring Support feature is on, by entering the `rtrv-feat` command. If the EAGLE 5 Integrated Monitoring Support feature is on, the `E5IS` field should be set to on.

Note: The `rtrv-feat` command output contains other fields that are not used by this procedure. If you wish to see all the fields displayed by the `rtrv-feat` command, see the `rtrv-feat` command description in the *Commands Manual*.

Note: If the EAGLE 5 Integrated Monitoring Support feature is not on, go to the [Enabling the Time Slot Counter Synchronization \(TSCSYNC\) and EAGLE 5 Integrated Monitoring Support \(E5IS\) Features](#) on page 439 procedure and enable the EAGLE 5 Integrated Monitoring Support feature.

Note: If HIPR cards are not required for provisioning STC cards, refer to the "STC Provisioning" section, skip step 3 and go to step 4.

3. Verify that the HIPR cards are installed in card locations 9 and 10 in the shelf before adding the STCs cards in this procedure. Enter this command.

```
rept-stat-gpl:gpl=hipr
```

This is an example of the possible output.

```
rlghncxa03w 07-02-01 11:40:26 GMT EAGLE5 37.0.0
GPL     CARD      RUNNING      APPROVED      TRIAL
HIPR    1109      126-002-000 126-002-000 126-003-000
HIPR    1110      126-002-000 126-002-000 126-003-000
HIPR    1209      126-002-000 126-002-000 126-003-000
HIPR    1210      126-002-000 126-002-000 126-003-000
HIPR    1309      126-002-000 126-002-000 126-003-000
HIPR    1310      126-002-000 126-002-000 126-003-000
HIPR    2109      126-002-000 126-002-000 126-003-000
HIPR    2110      126-002-000 126-002-000 126-003-000
Command Completed
```

If HIPR cards are installed in the shelf containing STC cards go to step 4.

If HIPR cards are not installed on the shelf containing the STC cards go to the *Installation Manual - EAGLE 5 ISS* and install the HIPR cards. Once the HIPR cards have been installed, go to step 4.

4. Add the STC using the `ent-card` command. Refer to the “STC Provisioning” section for the rules for provisioning STC cards. A dual-slot STC can be inserted only in an odd numbered slot and the adjacent even card slot must be empty, as shown in [Table 32: Dual-Slot STC Locations](#) on page 450. A single-slot STC can be inserted into any card slot except an even numbered card slot adjacent to a dual-slot card, slots 09 and 10 in each shelf, and slots 1113 through 1118. For this example, enter these commands.

```
ent-card:loc=1303:type=stc:appl=eroute
```

```
ent-card:loc=2101:type=stc:appl=eroute
```

```
ent-card:loc=2102:type=stc:appl=eroute
```

When this command has successfully completed, this message should appear.

```
rlghncxa03w 06-10-12 09:12:36 GMT EAGLE5 36.0.0
ENT-CARD: MASP A - COMPLTD
```

5. Verify the changes using the `rtrv-card` command with the card location specified in step 4. For this example, enter these commands.

```
rtrv-card:loc=1303
```

This is an example of the possible output.

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0
CARD  TYPE      APPL      LSET NAME      LINK SLC LSET NAME      LINK SLC
1303  STC          EROUTE
```

```
rtrv-card:loc=2101
```

This is an example of the possible output.

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0
CARD  TYPE      APPL      LSET NAME      LINK SLC LSET NAME      LINK SLC
2101  STC          EROUTE
```

```
rtrv-card:loc=2102
```

This is an example of the possible output.

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0
CARD  TYPE      APPL      LSET NAME      LINK SLC LSET NAME      LINK SLC
2102  STC          EROUTE
```

6. Verify that the card to be entered has been physically installed into the card location specified in step 4.



CAUTION

CAUTION: If the version of the flash GPLs on the STC does not match the flash GPL versions in the database when the STC is inserted into the card slot, UAM 0002 is generated indicating that these GPL versions do not match. If UAM 0002 has been generated, perform the alarm clearing procedure for UAM 0002 in the *Unsolicited Alarm and Information Messages Manual* before proceeding with this procedure.

7. Put the STC added in step 4 into service using the `alw-card` command specifying the card location specified in step 4. For this example, enter these commands.

```
alw-card:loc=1303  
alw-card:loc=2101  
alw-card:loc=2102
```

When the `alw-card` command has successfully completed, this message should appear.

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0  
Card has been allowed.
```

8. Back up the new changes using the `chg-db:action=backup:dest=fixed` command. These messages should appear, the active Maintenance and Administration Subsystem Processor (MASP) appears first.

```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.  
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk complete.  
BACKUP (FIXED) : MASP A - Backup starts on standby MASP.  
BACKUP (FIXED) : MASP A - Backup on standby MASP to fixed disk complete.
```

Figure 64: Adding a Signaling Transport Card (STC)

Removing a Signaling Transport Card (STC)

This procedure is used to remove an STC from the database using the `dlt-card` command.



CAUTION: If the STC is the last STC in service, removing this card from the database will disable the EAGLE 5 Integrated Monitoring Support feature.



CAUTION: If removing the STC reduces the quantity of STCs in the EAGLE 5 ISS below number of STCs required by the ESP subsystem, the performance of the EAGLE 5 Integrated Monitoring Support feature will be degraded.

The examples in this procedure are used to remove the STC in card location 1303.

Canceling the `REPT-STAT-CARD` Command

Because the `rept-stat-card` command used in this procedure can output information for a long period of time, the `rept-stat-card` command can be canceled and the output to the terminal stopped. There are three ways that the `rept-stat-card` command can be canceled.

- Press the F9 function key on the keyboard at the terminal where the `rept-stat-card` command was entered.
- Enter the `canc-cmd` without the `trm` parameter at the terminal where the `rept-stat-card` command was entered.
- Enter the `canc-cmd:trm=<xx>`, where `<xx>` is the terminal where the `rept-stat-card` command was entered, from another terminal other than the terminal where the `rept-stat-card` command was entered. To enter the `canc-cmd:trm=<xx>` command, the terminal must allow Security Administration commands to be entered from it and the user must be allowed to enter Security Administration commands. The terminal's permissions can be verified with the `rtrv-secu-trm` command. The user's permissions can be verified with the `rtrv-user` or `rtrv-secu-user` commands.

For more information about the `canc-cmd` command, go to the *Commands Manual*.

1. Display the cards in the database using the `rtrv-card` command. This is an example of the possible output.

```
rlghncxa03w 06-08-28 09:12:36 GMT EAGLE5 37.0.0
CARD  TYPE      APPL      LSET NAME      LINK SLC  LSET NAME      LINK SLC
1101  TSM          SCCP
1103  DCM          STPLAN
1113  GPST         EOAM
1114  TDM-A
1115  GPST         EOAM
1116  TDM-B
1117  MDAL
1201  LIMDS0      SS7ANSI    sp2             A      0      sp1             B      0
1202  LIMDS0      SS7ANSI    sp2             A      1      nsp3            B      0
1202  LIMV35      SS7GX25    lsngrwy        A      0
1203  LIMDS0      SS7ANSI    sp3             A      0
1204  LIMDS0      SS7ANSI    sp3             A      1
1205  LIMOCU      CCS7ITU    itu1            A      0
```


1206	LIMDS0	SS7ANSI	nsp3	A	1	nsp4	B	0
1207	LIMV35	SS7GX25	nsp1	A	0			
1208	LIMV35	SS7GX25	nsp1	A	1			
1212	TSM	SCCP						
1214	TSM	GLS						
1215	DCM	STPLAN						
1301	LIMATM	ATMANSI	lsnatm1	A	0			
1303	STC	EROUTE						
1305	DCM	STPLAN						
1308	LIMDS0	SS7ANSI	sp6	A	0	sp7	B	0
1311	LIMDS0	SS7ANSI	sp2	A	2	sp1	B	1
			sp7	A1	1	sp3	B1	2
1315	LIMDS0	SS7ANSI	sp7	A	2	sp5	B	0
1318	LIMATM	ATMANSI	lsnatm1	A	1			
2101	STC	EROUTE						
2102	STC	EROUTE						
2105	STC	EROUTE						

An STC is identified by the entries STC in the TYPE field and EROUTE in the APPL field.

2. Display the status of the STC being removed with the `rept-stat-card` command with the location of the STC. For this example, enter this command.

```
rept-stat-card:loc=1303
```

This is an example of the possible output.

```
rlghncxa03w 06-08-27 16:43:42 GMT EAGLE5 37.0.0
CARD   VERSION      TYPE      GPL      PST      SST      AST
1303   113-003-000    STC      EROUTE   IS-NR    Active   -----
ALARM STATUS      = No Alarms.
BP GPL version = 002-108-000
IMT BUS A         = Conn
IMT BUS B         = Conn
EROUTE % OCCUP    = 50%
NTP broadcast = VALID

STC IP PORT A:           IS-NR      Active   -----
ALARM STATUS = No Alarms.
STC IP PORT B:           IS-NR      Active   -----
ALARM STATUS = No Alarms.
Command Completed.
```

3. Inhibit the card using the `rmv-card` command, specifying the card location. For this example, enter this command.

```
rmv-card:loc=1303
```

When this command has successfully completed, this message should appear.

```
rlghncxa03w 06-08-12 09:12:36 GMT EAGLE5 37.0.0
Card has been inhibited.
```

4. Remove the card using the `dlt-card` command. The `dlt-card` command has only one parameter, `loc`, which is the location of the card. For this example, enter this command.

```
dlt-card:loc=1303
```

When this command has successfully completed, this message should appear.

```
rlghncxa03w 06-08-12 09:12:36 GMT EAGLE5 37.0.0
DLT-CARD: MASP A - COMPLTD
```

5. Verify the changes using the `rtrv-card` command specifying the card that was removed in step 4. For this example, enter this command.

```
rtrv-card:loc=1303
```

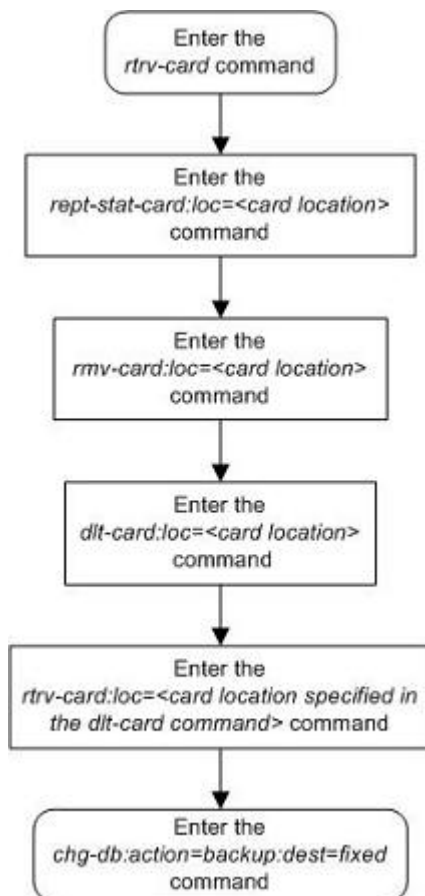
When this command has successfully completed, this message should appear.

```
E2144 Cmd Rej: Location invalid for hardware configuration
```

6. Back up the new changes using the `chg-db:action=backup:dest=fixed` command. These messages should appear, the active Maintenance and Administration Subsystem Processor (MASP) appears first.

```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk complete.
BACKUP (FIXED) : MASP A - Backup starts on standby MASP.
BACKUP (FIXED) : MASP A - Backup on standby MASP to fixed disk complete.
```

Figure 65: Removing a Signaling Transport Card (STC)



Glossary

A

ACM	<p>Application Communications Module</p> <p>A card in the EAGLE 5 ISS that provides a communications interface to a remote host across an Ethernet LAN.</p>
ACT	<p>Activate</p>
AFTPC	<p>Affected Point Code</p> <p>The point code in subsystem-prohibited (SSP), subsystem-status-test (SST), and subsystem-allowed (SSA) SCCP management messages used by gateway screening to determine if the messages containing these point codes are allowed in to the network. This point code is in the SCMG Data (SCCP Management) portion of the signaling information field in the MSU.</p>
AINF	<p>Application Interface Appliqué</p> <p>An integrated appliqué that supports the DS0A, DSCS and V.35 interfaces on the same appliqué. The AINF appliqué can be configured as either a DS0A, OCU, or V.35 interface from the user terminal.</p>
Allowed Affected Destination Field	<p>The gateway screening entity that identifies the point code in the affected destination field (the concerned signaling point code) of incoming MTP network management messages from another network that are allowed</p>

A

into the EAGLE 5 ISS. Messages containing the specified point code are allowed into the network.

Allowed DPC

The gateway screening entity that identifies the destination point codes that are allowed to receive SS7 messages from the EAGLE 5 ISS. Messages containing the specified destination point codes go on to the next step in the gateway screening process, or are allowed into the network if the gateway screening process stops with this entity.

Allowed ISUP

The gateway screening entity that identifies the ISUP or TUP message types that are allowed into the network.

Allowed OPC

The gateway screening entity that identifies the originating point codes that are allowed to send SS7 messages into the network. Messages containing the specified originating point codes go on to the next step in the gateway screening process, or are allowed into the network if the gateway screening process stops with this entity.

Allowed SIO

The gateway screening entity that identifies the type of MSUs (ISUP, TUP, TCAP, and so forth) that are allowed into the network. The message type is determined by the network indicator code (NIC), priority (PRI), and service indicator (SI) fields of the signaling information octet (SIO) field in the MSU, and the H0 and H1 heading codes of the signaling information field of the MSU. Messages

A

containing the specified message type go on to the next step in the gateway screening process, or are allowed into the network if the gateway screening process stops with this entity.

ANSI

American National Standards Institute

An organization that administers and coordinates the U.S. voluntary standardization and conformity assessment system. ANSI develops and publishes standards. ANSI is a non-commercial, non-government organization which is funded by more than 1000 corporations, professional bodies, and enterprises.

APC

Adjacent Point Code

The point code that identifies a node adjacent to the EAGLE 5 ISS. This term is used in link sets and routes.

API

Application Interface

ARP

Address Resolution Protocol

ATI

Any Time Interrogation

An ATI message allows an external server to interrogate an HLR and obtain information about the location and/or state of a GSM subscriber.

ATM

Asynchronous Transfer Mode

A packet-oriented transfer mode that uses an asynchronous time

A

division multiplexing technique to multiplex information flow in fixed blocks, called cells.

A high-bandwidth, low-delay switching, and multiplexing technology to support applications that include high-speed data, local area network interconnection, multimedia application and imaging, and residential applications such as video telephony and other information-based services.

ATMANSI

The application used for high-speed ANSI ATM signaling links.

ATMITU

The application used for high-speed E1 ATM signaling links.

B

BITS

Building Integrated Timing System

The Building Integrated Timing System (BITS) clocks come directly from the central office BITS clock source or indirectly from an optional holdover clock installed in the system.

BLKDPC

Blocked Destination Point Code

The point code that the gateway screening uses to keep MSUs bound for a specific point code out of the network where the EAGLE 5 ISS is located. This point code is in the routing label portion of the signaling information field in the MSU. Messages that do not contain the specified destination point code go on to the next step in the gateway screening process, or are allowed into the network if the

B

gateway screening process stops with this entity.

BLKOPC

Blocked Originating Point Code

The point code that gateway screening uses to keep MSUs coming from a specific point code out of the network where the EAGLE 5 ISS is located. This point code is in the routing label portion of the signaling information field in the MSU. Messages that do not contain the specified originating point code go on to the next step in the gateway screening process, or are allowed into the network if the gateway screening process stops with this entity.

BPS

Bits per Second

The transmission rate of the signaling links on the EAGLE 5 ISS expressed in bits per second.

C

CCS7ITU

The generic program load and application for the ITU SS7 signaling links that is used with card types `limds0`, `limch`, `limocu`, `limv35`, `lime1`, and `limt1`.

CdPA

Called Party Address

The portion of the MSU that contains the additional addressing information of the destination of the MSU. Gateway screening uses this additional information to determine if MSUs that contain the DPC in the routing label and the subsystem number in the called party address portion of the MSU are allowed in the network where the EAGLE 5 ISS is located.

C

CDR

Call Detail Record

This refers to the recording of all connections in a database to permit activities such as billing connection charges or network analysis. CDR files are used in public switched networks, IP networks, for IP telephony, and mobile communications networks.

CgPA

Calling Party Address

The point code and subsystem number that originated the MSU. This point code and subsystem number are contained in the calling party address portion of the signaling information field of the MSU. Gateway screening uses this information to determine if MSUs that contain this point code and subsystem number area allowed in the network where the EAGLE 5 ISS is located.

CLLI

Common Language Location Identifier

The CLLI uniquely identifies the STP in terms of its physical location. It is usually comprised of a combination of identifiers for the STP's city (or locality), state (or province), building, and traffic unit identity. The format of the CLLI is:

The first four characters identify the city, town, or locality.

The first character of the CLLI must be an alphabetical character.

The fifth and sixth characters identify state or province.

The seventh and eighth characters identify the building.

C

The last three characters identify the traffic unit.

Cluster

A group of signaling points whose point codes have identical values for the network and cluster fields of the point codes. A cluster entry in the routing table is shown as an asterisk (*) in the member field of the point code, for example, 111-011-*. Cluster entries can be provisioned only as ANSI destination point codes.

CPC

Capability Point Code

A capability point code used by the SS7 protocol to identify a group of functionally related STPs in the signaling network.

CSR

Customer Service Request

D

Database

All data that can be administered by the user, including cards, destination point codes, gateway screening tables, global title translation tables, links, LNP services, LNP service providers, location routing numbers, routes, shelves, subsystem applications, and 10 digit telephone numbers.

DCE

Data Communication Equipment

The data communication equipment associated with the transmission of data from one device to another. Examples of data communication equipment are modems, remote terminals, and communications processors.

D

DCM	Database Communication Module The DCM provides IP connectivity for applications. Connection to a host is achieved through an ethernet LAN using the TCP/IP protocol.
DESTFLD	The point code in the affected destination field (the concerned signaling point code) of incoming MTP network management messages from another network that are allowed into the EAGLE 5 ISS.
Destination	The node to which the signaling link traffic is routed. This destination is identified by a point code, either a full point code or a cluster point code.
DHCP	Dynamic Host Configuration Protocol
DPC	Destination Point Code DPC refers to the scheme in SS7 signaling to identify the receiving signaling point. In the SS7 network, the point codes are numeric addresses which uniquely identify each signaling point. This point code can be adjacent to the EAGLE 5 ISS, but does not have to be.
DPCA	Destination Point Code ANSI
DPCI	Destination Point Code International
DPCN	Destination Point Code National

D

DS0	Digital Signal Level-0 (64 Kbits/sec or 56 Kbits/sec) A basic digital signaling rate of 64 Kbits/sec, corresponding to the capacity of one voice-frequency-equivalent channel.
DS0A	Digital Signal Level - 0 The interface used with the LIMDS0 card.
DSM	Database Service Module. The DSM provides large capacity SCCP/database functionality. The DSM is an application card that supports network specific functions such as EAGLE Provisioning Application Processor (EPAP), Global System for Mobile Communications (GSM), EAGLE Local Number Portability (ELAP), and interface to Local Service Management System (LSMS).
DTA	Database Transport Access A feature in the EAGLE 5 ISS that encapsulates specific MSUs into the data portion of SCCP within a new SS7 MSU and sends the new MSU to the destination using global title translation. The EAGLE 5 ISS uses gateway screening to determine which MSUs are used by the DTA feature.
DTE	Data Terminal Equipment The equipment associated with the entering and retrieving data from a computer system or a data communications system. A video display terminal is an example of data terminal equipment.

E

E1	The European equivalent of T1 that transmits digital data over a telephone network at 2.048 Mbps.
E5-E1T1	<p>EPM-based E1/T1 Multi-Channel Interface Module</p> <p>An EPM-based card that provides E1 and T1 connectivity. The E5 indicates the card is for existing EAGLE 5 control and extension shelves. E1T1 is an abbreviation for the ITU E1 and ANSI T1 interfaces. Thus the nomenclature defines the shelves where the card can be used and the physical interface that it provides.</p>
E5-ENET	<p>EPM-based Ethernet card</p> <p>A high capacity single-slot IP signaling card (EPM card plus Gig Ethernet PMC cards).</p>
E5IS	<p>EAGLE 5 Integrated Monitoring Support</p> <p>The EAGLE 5 Integrated Monitoring Support feature allows the network traffic on the EAGLE 5 ISS's signaling links to be monitored by an ESP (extended services platform) or IMP (integrated message feeder) without additional intrusive cabling. Message Signaling Units (MSUs), alarms, and events are copied to the Sentinel/IMF to provide the network traffic monitoring. The monitored traffic is delivered to the Sentinel/IMF using the EAGLE'S STCs (Signaling Transport Cards) which are connected to the ESP/IMF subsystem by Ethernet links. The ESP/IMF subsystem delivers the</p>

E

monitored traffic to the
Sentinel/IMF.

EDCM

Enhanced Database
Communication Module

EILA

Enhanced Integrated LIM
Appiqué

ENET

Can refer to a generic hardware
type that supports one or more
Ethernet interfaces.

ESP

Expanded Services Platform

The Sentinel system with the
hardware and software platform
that provides the interface to the
Integrated EAGLE and Sentinel
monitoring system. The ESP
hardware and software platform
runs on the model 120 server.

F

FTP

File Transfer Protocol

A client-server protocol that allows
a user on one computer to transfer
files to and from another computer
over a TCP/IP network.

G

GLS

Generic Loading Services

An application that is used by the
TSM cards for downloading
gateway screening to LIM cards.

GPL

Generic Program Load

Software that allows the various
features in the system to work.
GPLs and applications are not the
same software.

G

GPSM-II	<p>General Purpose Service Module</p> <p>Contains the communications processor and applications processor and provides connections to the Interprocessor Message Transport (IMT) bus. The GPSM-II card can run on the OAM, IPS, or MCP applications.</p>
GRT	Gateway Routing Table
GSM	Global System for Mobile Communications
GSMSCRN	<p>GSM MAP Screening.</p> <p>A feature that allows the user to provision which MAP subsystem numbers are affected, which MAP operations codes to screen, which origination points are allowed, and which error messages to use.</p>
GT	Global Title Routing Indicator
GTA	Global Title Address
GTI	Global Title Indicator
GTT	<p>Global Title Translation</p> <p>A feature of the signaling connection control part (SCCP) of the SS7 protocol that the EAGLE 5 ISS uses to determine which service database to send the query message when an MSU enters the EAGLE 5 ISS and more information is needed to route the MSU. These service databases also verify calling card numbers and credit card numbers. The service</p>

G

databases are identified in the SS7 network by a point code and a subsystem number.

GWS

Gateway Screening

Used at gateway STPs to limit access into the network to authorized users. A gateway STP performs inter-network routing and gateway screening functions. GWS controls access to nonhome SS7 networks. Only an MSU that matches predefined criteria in the EAGLE 5 ISS's database is allowed to enter the EAGLE 5 ISS.

GWSA

Gateway Screening Action

Gateway Screening Application

GWSD

Gateway Screening Message Discard

H

HC-MIM

High Capacity Multi-Channel Interface Module

A card that provides access to eight E1/T1 ports residing on backplane connectors A and B. Each data stream consists of 24 T1 or 31 E1 DS0 signaling links assigned in a time-division multiplex (TDM) manner. Each channel occupies a unique timeslot in the data stream and can be selected as a local signaling link on the interface card. Each card has 8 E1 or 8 T1 port interfaces with a maximum of 64 signaling links provisioned among the 8 E1/T1 ports.

HIPR

High-Speed IMT Packet Router

H

A card that provides increased system throughput and traffic capacity. HIPR moves EAGLE from an intra-shelf ring topology to an intra-shelf switch topology. HIPR acts as a gateway between the intra-shelf IMT BUS, running at 125Mbps, and the inter-shelf operating at 1.0625Gbps. The HIPR card will seat in the same slot as an HMUX card (slots xx09 & xx10 of each shelf).

HLR Home Location Register

HMUX High-Speed Multiplexer

A card that supports the requirements for up to 1500 links, allowing communication on IMT buses between cards, shelves and frames. HMUX cards interface to 16 serial links, creating a ring from a series of point to point links. Each HMUX card provides a bypass multiplexer to maintain the ring's integrity as cards are removed and inserted into an operational shelf.

High-Speed IMT Multiplexer, a replacement card for the IPMX.

HSL High-Speed Link

I

ICMP Internet Control Message Protocol

ID Identity, identifier

ILA Integrated LIM Appliqué

IMF Integrated Message Feeder

I

The IMF sits on the EAGLE and replicates the signaling data that is processed through the EAGLE to send to an off-board processor (the IXP in the case of IAS). Because it replicates the data (and doesn't introduce a new element in the path) it does not introduce any delay to the signaling and it does not create a separate footprint for a "probe" system.

IMT

Inter-Module-Transport

The communication software that operates the inter-module-transport bus on all cards except the LIMATM, DCM, DSM, and HMUX.

IP

Internet Protocol

IP specifies the format of packets, also called datagrams, and the addressing scheme. The network layer for the TCP/IP protocol suite widely used on Ethernet networks, defined in STD 5, RFC 791. IP is a connectionless, best-effort packet switching protocol. It provides packet routing, fragmentation and re-assembly through the data link layer.

IP Address

The location of a device on a TCP/IP network. The IP Address is a number in dotted decimal notation which looks something like [192.168.1.1].

IPGWI

An application that is used by the SSED/CM/E5-ENET card for IP point-to-multi-point connectivity within an ITU-I or ITU-N network. The system allows a maximum of

I

64 cards to be assigned the IPGWI application.

IPGWx

Point-to-multipoint MTP-User signaling (e.g. ISUP, TCAP) over IP capability. Typically used for A link connectivity which require routing keys. Far End not required to support MTP3. The IPGWx GPL (IPGWI, SS7IPGW) run on the SSEDCEM/E5-ENET hardware.

IPLIM

The application used by the SSEDCEM/E5-ENET card for IP point-to-point connectivity for ANSI point codes.

IPLIMI

The application used by the SSEDCEM/E5-ENET card for IP point-to-point connectivity for ITU point codes.

IPLIMx

Point-to-point MTP3 and MTP3-User signaling over IP capability. Typically used for B-C-D links but can be used for A links but does not have routing key functionality. Far End required to support MTP3. The IPLIMx GPL (IPLIMI, IPLIM) run on the SSEDCEM/E5-ENET hardware.

IS

Information Services

IS-NR

In Service - Normal

ISS

Integrated Signaling System

ISUP

ISDN User Part

I

ITU

International Telecommunications
Union

L

LAN

Local Area Network

A private data network in which serial transmission is used for direct data communication among data stations located in the same proximate location. LAN uses coax cable, twisted pair, or multimode fiber.

See also STP LAN.

LC

Logical Channel

A virtual circuit or a connection used by the X.25 network. There are two types of logical channels used in the X.25 network, PVCs (permanent virtual circuits) and SVCs (switched virtual circuits). A PVC is a direct connection to an X.25 node. The EAGLE 5 ISS uses two types of SVCs, an automatic switched virtual circuit (SVCA) and a remote switched virtual circuit (SVCR). An SVCA is a connection to an X.25 node established by the EAGLE 5 ISS as soon as the X.25 LIM (a LIM that is running the ss7gx25 application assigned to it) initializes. An SVCR is a connection to an X.25 node established by the far end X.25 user.

LC2NM

Logical Channel to Network
Management

A function of the SS7/X.25 gateway feature that allows SS7 network management to reroute traffic destined for failed X.25 logical channels to an alternate

L

route, and reroutes traffic back to the original X.25 logical channels when the X.25 logical channels are back in service.

LIM

Link Interface Module

Provides access to remote SS7, X.25, IP and other network elements, such as a Signaling Control Point (SCP) through a variety of signaling interfaces (V.35, OCU, DS0, MPL, E1/T1 MIM, LIM-ATM, E1-ATM, IPLIMx, IPGWx). The LIMs consist of a main assembly and possibly, an interface appliqué board. These appliqués provide level one and some level two functionality on SS7 signaling links.

LIM-AINF

A link interface module (LIM) with the AINF interface.

LIM-DS0

A link interface module (LIM) with the DS0A Appliqué.

LIM-OCU

A link interface module (LIM) with the OCU Appliqué.

LIM-OCU

LIM-Office Channel Unit
Applique

Link

Signaling Link

Load Sharing

A type of routing used by global title translation to route MSUs This type of routing is used when a second point code and subsystem is defined for the primary point code and subsystem. Traffic is shared equally between the

L

replicated point codes and subsystems.

LSL Low-speed Link

LSN Link Set Name
The name of the link set.

LST Link Set Type

M

M2PA SS7 MTP2-User Peer-to-Peer Adaptation Layer

M3UA SS7 MTP3-User Adaptation Layer

MAP Mobile Application Part

MASP Maintenance and Administration Subsystem Processor

The Maintenance and Administration Subsystem Processor (MASP) function is a logical pairing of the GPSM-II card and the TDM card. The GPSM-II card is connected to the TDM card by means of an Extended Bus Interface (EBI) local bus.

The MDAL card contains the removable cartridge drive and alarm logic. There is only one MDAL card in the Maintenance and Administration Subsystem (MAS) and it is shared between the two MASPs.

Mated Application The point codes and subsystem numbers of the service databases that messages are routed to for global title translation.

M

MAU	Media Access Unit An industry standard single port Ethernet transceiver that connects the ACM to the Ethernet.
MDAL	Maintenance Disk and Alarm Card Provides Alarming and cartridge-based loading of software. It contains a 2.3 Gbyte removable cartridge drive and alarm logic. There is only one MDAL card in the maintenance and administration subsystem and it is shared between the two MASPs.
MIM	Multi-Channel Interface Module
MPL	Multi-port LIM
MRN	Message Reference Number An unsolicited numbered message (alarm or information) that is displayed in response to an alarm condition detected by the system or in response to an event that has occurred in the system. Mated Relay Node A mated relay node (MRN) group is provisioned in the database to identify the nodes that the traffic is load shared with, and the type of routing, either dominant, load sharing, or combined dominant/load sharing.
MSC	Mobile Switching Center
MSU	Message Signaling Unit

M

The SS7 message that is sent between signaling points in the SS7 network with the necessary information to get the message to its destination and allow the signaling points in the network to set up either a voice or data connection between themselves. The message contains the following information:

- The forward and backward sequence numbers assigned to the message which indicate the position of the message in the traffic stream in relation to the other messages.
- The length indicator which indicates the number of bytes the message contains.
- The type of message and the priority of the message in the signaling information octet of the message.
- The routing information for the message, shown in the routing label of the message, with the identification of the node that sent message (originating point code), the identification of the node receiving the message (destination point code), and the signaling link selector which the EAGLE 5 ISS uses to pick which link set and signaling link to use to route the message.

MTP

The levels 1, 2, and 3 of the SS7 protocol that control all the functions necessary to route an SS7 MSU through the network.

MTP2

Message Transfer Part, Level 2

N

N

NAI	Nature of Address Indicator Standard method of identifying users who request access to a network.
NAIV	NAI Value
NIC	Network Identifier Code Network Information Center
NP	Number Plan
NPV	Numbering Plan Value
NSR	Next Screening Reference
NTP	Network Time Protocol

O

OCU	Office Channel Unit The interface used with the LIMOCU card.
OOS-MT	Out of Service - Maintenance The entity is out of service and is not available to perform its normal service function. The maintenance system is actively working to restore the entity to service.
OOS-MT-DSBLD	Out of Service - Maintenance Disabled The entity is out of service and the maintenance system is preventing the entity from performing its normal service function.

O

OPC

Originating Point Code

P

PC

Point Code

The identifier of a signaling point or service control point in a network. The format of the point code can be one of the following types:

- ANSI point codes in the format network indicator-network cluster-network cluster member (**ni-nc-ncm**).
- Non-ANSI domestic point codes in the format network indicator-network cluster-network cluster member (**ni-nc-ncm**).
- Cluster point codes in the format network indicator-network cluster-* or network indicator-*-*.
- ITU international point codes in the format **zone-area-id**.
- ITU national point codes in the format of a 5-digit number (**nnnnn**), or 2, 3, or 4 numbers (members) separated by dashes (**m1-m2-m3-m4**) as defined by the Flexible Point Code system option. A group code is required (**m1-m2-m3-m4-gc**) when the ITUDUPPC feature is turned on.
- 24-bit ITU national point codes in the format main signaling area-subsignaling area-service point (**msa-ssa-sp**).

The EAGLE 5 ISS LNP uses only the ANSI point codes and Non-ANSI domestic point codes.

PCA

Point Code ANSI

P

PCI	Peripheral Component Interface Point Code International Protocol Control Information Peripheral Component Interconnect
PCN	Point Code National Product Change Notice
PCR	A method of error correction used for the SS7 protocol. PCR is an error correction method that keeps a copy of each message signal unit transmitted on a signaling link in a retransmission buffer. If the receiving end of the signaling link receives the MSU with no errors, positive acknowledgment message is sent to the transmitting end of the signaling link. The MSU is then discarded from the retransmission buffer. If the transmitting end of the signaling link does not receive positive acknowledgment from the receiving end of the signaling link, the MSU is retransmitted until positive acknowledgment is received. The PCR error correction method is assigned to SS7 signaling links using the <code>ent-slk</code> command. The PCR method of error correction cannot be assigned to X.25 signaling links.
PDN	Public Data Network A data network that uses the X.25 protocol to provide the connectivity.
PVC	Permanent Virtual Circuit A direct connection to an X.25 node that is configured in the EAGLE 5

P

ISS's database and can only be changed through database administration.

PVN

Private Virtual Network

Private Virtual Network represents the internal IP addressing scheme for every card within the EAGLE 5 ISS switch. Each card has an auto-assigned, default, Class B private IP address.

R

RFC

Request for Comment

Route

A path to another signaling point.

S

SCCP

Signaling Connection Control Part

SCP

Service Control Point

Screen Set

A gateway screening table containing a list of rules, or screening references. The screening references indicate the screening action that is to be performed on a message in a specific linkset.

SCRN

Screen Set Name

SE-HSL

Synchronous E1 High Speed Link

Format for E1 high-speed signaling links where time-slot 0 is used for framing and error control. The remainder of bandwidth, equivalent to 31 channels of 64Kbps data, is used as a single data link yielding a total capacity

S

	of 1.984 Mbps. Also known as Unchannelized E1.
SEAS	<p>Signaling Engineering and Administration System</p> <p>An interface defined by Bellcore and used by the Regional Bell Operating Companies (RBOCs), as well as other Bellcore Client Companies (BCCs), to remotely administer and monitor the signaling points in their network from a central location.</p>
SI	Service Indicator
Signaling Link	<p>The transmission path connecting the EAGLE 5 ISS to other signaling points in the network and providing access to ANSI SS7, ITU SS7, and X.25 network elements. The signaling link is connected to the EAGLE 5 ISS at the link interface module (LIM).</p> <p>A generic program load application that is loaded on the LIM to allow the LIM to access a particular network element.</p>
SIO	<p>Service Information Octet.</p> <p>The network indicator code (NIC), priority (PRI), and service indicator (SI) in the SIO field in the message signaling unit (MSU). This information identifies the type of MSU (ISUP, TCAP, and so forth) that is allowed in the network where the EAGLE 5 ISS is located.</p>
SLAN	Signaling Transfer Point Local Area Network

S

A feature in the EAGLE 5 ISS that copies MSUs selected through the gateway screening process and sends these MSUs over the Ethernet to an external host computer for further processing.

SLC	Signaling Link Code
SLS	Signaling Link Selector
SLTA	Signaling Link Test Acknowledgment
SLTM	Signal Link Test Message
SMS	Short Message Service
SRI	Send_Route_Information Message
SS7	Signaling System #7
SS7ANSI	SS7 ANSI An application used by the LIM cards and the E1/T1 MIM card for the MTP functionality.
SS7IPGW	SS7 IP Gateway An application used by the DCM/SSEDCM card for IP point-to-multipoint capability within an ANSI network.
SSEDCM	Single Slot Enhanced Data Communications Module
SSN	Subsystem Number

S

STC

Signaling Transport Card

The Signaling Transport Card (STC) is a member of the DCM card family with an "eroute" generic program load (GPL) installed. The STCs provide the IP interface between the LIM cards on the IMT bus and the Signaling Extended Services Platform (ESP) subassembly. The STC is used for sending MSU data to the ESP/IMF.

STP

Signal Transfer Point

STPs are ultra-reliable, high speed packet switches at the heart of SS7 networks, which terminate all link types except F-links. STPs are nearly always deployed in mated pairs for reliability reasons. Their primary functions are to provide access to SS7 networks and to provide routing of signaling messages within and among signaling networks.

STPLAN

Signaling Transfer Point Local Area Network

The generic program load and application used by the ACM card to support the STP LAN application. This GPL does not support 24-bit ITU-N point codes.

SVC

Switched Virtual Circuit

A temporary virtual circuit that is set up and used only as long as data is being transmitted. Once the communication between the two hosts is complete, the SVC disappears. In contrast, a permanent virtual circuit (PVC) remains available at all times.

S

SVCA Automatic Switched Virtual Circuit
A connection to an X.25 node established by the EAGLE 5 ISS as soon as the X.25 LIM (a LIM that has the *ss7gx25* application assigned to it) initializes.

SVCR Remote Switched Virtual Circuit
A connection to an X.25 node established by the far end X.25 user.

T

T1 Transmission Level 1
A T1 interface terminates or distributes T1 facility signals for the purpose of processing the SS7 signaling links carried by the E1 carrier.

A leased-line connection capable of carrying data at 1,544,000 bits-per-second.

TC Table Copy
Transaction Capabilities

TCAP Transaction Capabilities
Application Part

TCP Transfer Control Protocol

TCP/IP Transmission Control
Protocol/Internet Protocol

TDM Terminal Disk Module
The MAS card that contains the fixed disk drive (hard disk storage), the terminal processor for the 16 serial I/O ports, and an

T

interface to the MDAL
(maintenance disk and alarm) card,
which contains the removable
cartridge drive and alarm logic.

Time Division Multiplexing

TFA

TransFer Allowed (Msg)

TFP

TransFer Prohibited (Msg)

A procedure included in the
signaling route management
(functionality) used to inform a
signaling point of the
unavailability of a signaling
route.

TPS

Transactions Per Second

TSC

Time Slot Counter

TSCSYNC

Time Slot Counter Synchronization

The Time Slot Counter (TSC)
Synchronization feature allows the
system's A (Active) and B
(Standby) internal clocks to be
synchronized by the standby OAM
GPSM-II card.

TSM

Translation Services Module

Provides SCCP functionality or
GLS functionality for Local
Number Portability (LNP)/SCCP
(GTT). The SCCP software allows
the TSM to be used as a memory
board for Global Title Translation
(GTT).

TT

Translation Type.

T

Resides in the Called Party Address (CdPA) field of the MSU and determines which service database is to receive query messages. The translation type indicates which Global Title Translation table determines the routing to a particular service database.

TX Transmit

U

UAM Unsolicited Alarm Message.

UDP User Datagram Protocol

UDT Unit Data Transfer

UDTS Unit Data Transfer Service

UIM Unsolicited Information Message

V

V.35 ITU Interface Recommendation, V.35
The interface used with the LIMV35 card.

VIP Virtual IP Address

VSCCP VxWorks Signaling Connection Control Part
The application used by the Service Module card to support the G-Flex, G-Port, INP, AINPQ, EIR, A-Port, IGM, V-Flex, and LNP features. If the G-Flex, G-Port, INP, AINPQ,

V

EIR, A-Port, IGM, V-Flex, or LNP feature is not turned on, and a Service Module card is present, the VSCCP GPL processes normal GTT traffic.

VXWSLAN

An application used by the DCM card to support the STP LAN application. This GPL does not support 24-bit ITU-N point codes.

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