# Oracle® Communications EAGLE

# Database Administration - Features User's Guide

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Oracle Communications EAGLE Database Administration - Features User's Guide, Release 46.8

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# 1 Introduction

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

*Database Administration – Features User's Guide* describes the procedures used configure the Oracle Communications EAGLE and its database to implement these features:

- SIP Number Portability
- E5-OAM SNMP
- **STPLAN**
- **Database Transport Access**
- **GSMMAP** Screening
- EAGLE 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 Oracle Communications 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 *Commands User's Guide* 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.

Throughout this manual, these terms are used to refer to either the original card or the EPM-B version or other replacement version of the card unless one of the card types is specifically required.

- E5-ENET - the original E5-ENET or the E5-ENET-B card
- E5-E1T1 - the original E5-E1T1 or the E5-E1T1-B card
- E5-ATM - the original E5-ATM or the E5-ATM-B card

- E5-IPSM - the original E5-IPSM or the E5-ENET-B card that is running the IPSHC GPL
- E5-SM4G - the original E5-SM4G or the E5-SM8G-B card (not an EPM-B card)
- MCPM - the original MCPM or the E5-MCPM-B card

### SIP Number Portability

The SIP NP feature provides SIP-based Number Portability using EAGLE's RxDB (RTDB/RIDB). This feature adds a SIP interface to allow SIP NP requests to be received by an EAGLE card, processed by the EAGLE's RxDB, and a response transmitted back to the requestor.

The feature runs on E5-SM8G-B and SLIC card(s).

### E5-OAM SNMP

The E5-OAM (SNMP) feature allows the EAGLE to directly communicate with a Network Management System (NMS), sending SNMP traps northbound to up to two NMSs. The NMSs receive UAM/UIM data in the form of SNMP traps when alarms are raised and cleared.

### 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** 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 **E5-SLAN** card running the `stplan` application.

### Database Transport Access

The **Database Transport Access** (**DTA**) feature provides a mechanism for the redirection of specific Message signaling units (**MSU**s) to a customized database. The **EAGLE** uses gateway screening to qualify incoming **MSU**s 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 Integrated Monitoring Support

The Integrated Monitoring Support feature allows the network traffic on the **EAGLE**'s signaling links to be monitored by an **IMF** (integrated message feeder) without additional intrusive cabling. Message Signaling Units (**MSU**s), 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 **STC**s (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 ESP** (extended services platform)/

# Scope and Audience

This manual is intended for database administration personnel or translations personnel responsible for configuring the **EAGLE** and its database to implement the features shown in the Overview section.

# 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 1-1 Admonishments**

| Icon | Description |
|---|---|
|  | Danger:<br>(This icon and text indicate the possibility of *personal injury*.) |
|  | Warning:<br>(This icon and text indicate the possibility of *equipment damage*.) |
|  | Caution:<br>(This icon and text indicate the possibility of *service interruption*.) |
|  | Topple:<br>(This icon and text indicate the possibility of *personal injury* and *equipment damage*.) |

# 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 (**GPL**s).

This document is organized into the following sections.

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

SIP Number Portability Configuration describes the SIP-based Number Portability feature and the procedures necessary to configure the EAGLE to support this feature.

E5-OAM SNMP Configuration describes support for SNMP V2 traps on the E5-OAM feature and the procedures necessary to configure the EAGLE to support this feature.

STPLAN Configuration describes the **STPLAN** feature and the procedures necessary to configure the **EAGLE** to support this feature.

Database Transport Access (DTA) Configuration describes the Database Transport Access (**DTA**) feature and the procedures necessary to configure the **EAGLE** to support this feature.

GSM MAP Screening Configuration describes the **GSMMAP** Screening feature and the procedures necessary to configure the **EAGLE** to support this feature.

EAGLE 5 Integrated Monitoring Support Configuration describes the Eagle 5 Integrated Monitoring Support feature and the procedures necessary to configure the **EAGLE** to support this feature.

Reference Information describes the procedure for configuring the EAGLE to support the Message Flow Control (MFC) option.

# My Oracle Support (MOS)

MOS (https://support.oracle.com) is your initial point of contact for all product support and training needs. A representative at Customer Access Support (CAS) can assist you with MOS registration.

Call the CAS main number at 1-800-223-1711 (toll-free in the US), or call the Oracle Support hotline for your local country from the list at http://www.oracle.com/us/support/contact/index.html. When calling, make the selections in the sequence shown below on the Support telephone menu:

1. Select `2` for New Service Request
2. Select `3` for Hardware, Networking and Solaris Operating System Support
3. Select one of the following options:
   - For Technical issues such as creating a new Service Request (SR), Select `1`
   - For Non-technical issues such as registration or assistance with MOS, Select `2`

You will be connected to a live agent who can assist you with MOS registration and opening a support ticket.

MOS is available 24 hours a day, 7 days a week, 365 days a year.

# Emergency Response

In the event of a critical service situation, emergency response is offered by the Customer Access Support (CAS) main number at 1-800-223-1711 (toll-free in the US), or by calling the Oracle Support hotline for your local country from the list at http://www.oracle.com/us/support/contact/index.html. 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 the installed equipment that severely affects service, traffic, or maintenance capabilities, and requires immediate corrective action. Critical situations affect service and/or system operation resulting in one or several of these situations:

- 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 Oracle.

# Related Publications

For information about additional publications related to this document, refer to the Oracle Help Center site. See Locate Product Documentation on the Oracle Help Center Site for more information on related product publications.

# Customer Training

Oracle University offers training for service providers and enterprises. Visit our web site to view, and register for, Oracle Communications training:

http://education.oracle.com/communication

To obtain contact phone numbers for countries or regions, visit the Oracle University Education web site:

www.oracle.com/education/contacts

# Locate Product Documentation on the Oracle Help Center Site

Oracle Communications customer documentation is available on the web at the Oracle Help Center (OHC) site, http://docs.oracle.com. You do not have to register to access these documents. Viewing these files requires Adobe Acrobat Reader, which can be downloaded at http://www.adobe.com.

1. Access the Oracle Help Center site at http://docs.oracle.com.
2. Click `Industries`.
3. Under the Oracle Communications subheading, click the `Oracle Communications documentation` link.

   The Communications Documentation page appears. Most products covered by these documentation sets will appear under the headings "Network Session Delivery and Control Infrastructure" or "Platforms."
4. Click on your Product and then the Release Number.

   A list of the entire documentation set for the selected product and release appears.
5. To download a file to your location, right-click the `PDF` link, select `Save target as` (or similar command based on your browser), and save to a local folder.

# Maintenance and Administration Subsystem

The Maintenance and Administration Subsystem (MAS) is the central management point for the EAGLE. The **MAS** provides user interface, maintenance communication, peripheral services, alarm processing, system disk interface, and measurements. Management and redundancy are provided by use of two separate subsystem processors.

The MAS resides on two separate sets of Maintenance and Administration Subsystem Processor (**MASP**) cards and a Maintenance Disk and Alarm card (collectively referred to as **control cards**). The control cards are located in slots 1113 through 1118 of the EAGLE control shelf. The control cards must be E5-based cards.

### E5-based Control Cards

The E5-based set of EAGLE control cards consists of the following cards:

- Two Maintenance and Administration Subsystem Processor cards (E5-MASP) cards. Each dual-slot **E5-MASP card** is made up of the following two modules:
  - Maintenance Communication Application Processor (E5-MCAP) card
  - Terminal Disk Module (E5-TDM) card
- One Maintenance Disk and Alarm card (E5-MDAL card)

### Maintenance Communication Application Processor (E5-MCAP) Card

The **E5-MCAP card** contains the Communications Processor and Applications Processor and provides connections to the IMT bus. The card controls the maintenance and database administration activity and performs both application and communication processing. E5-MCAP cards are located in slots 1113 and 1115 of the control shelf.

Each E5-MCAP card contains two **USB port**s. One **latched USB port** is used with removable flash media (“thumb drives”), and one **flush-mounted USB port** is used with a plug-in flash drive. The **removable media** drive in the latched USB port is used to install and back up customer data. The flush-mounted USB port is used for upgrade and could be used for disaster recovery.

### Terminal Disk Module (E5-TDM) Card

The **E5-TDM card** provides the Terminal Processor for the 16 I/O ports, and interfaces to the Maintenance Disk and Alarm (E5-MDAL) card and fixed disk storage. The E5-TDM card also distributes Composite Clocks and High Speed Master clocks throughout the EAGLE, and distributes Shelf ID to the EAGLE. Each E5-TDM card contains one fixed SATA drive that is used to store primary and backup system databases, measurements, and Generic Program Loads (GPLs). E5-TDM cards are located in slots 1114 and 1116 of the control shelf.

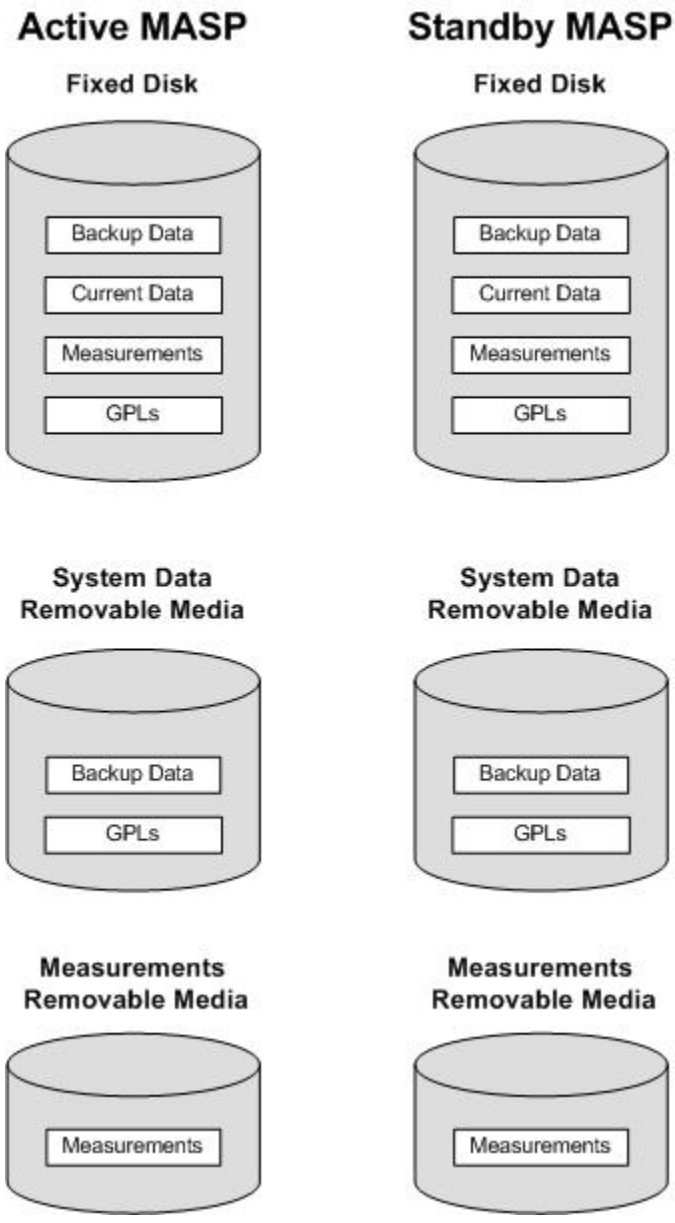
### Maintenance Disk and Alarm (E5-MDAL) Card

The **E5-MDAL card** processes alarm requests and provides fan control. There is only one E5-MDAL card in a control card set. Critical, major, and minor system alarms are provided for up to 6 individual frames. In addition to the 3 system alarms, the E5-MDAL card provides the system audible alarm. The E5-MDAL card provides control of fans on a per-frame basis, and allows for each fan relay to be set individually. The E5-MDAL card is located in slots 1117 and 1118 of the control shelf.

# EAGLE Database Partitions

The data that the **EAGLE** uses to perform its functions are stored in two separate areas: the fixed disk drives, and the removable media. The following sections describe these areas and data that is stored on them. These areas and their partitions are shown in Figure 1-1.

**Figure 1-1 EAGLE Database Partitions (E5-Based Control Cards)**




**Fixed Disk Drive**

There are two fixed disk drives on the **EAGLE**. The fixed disk drives contain the "master" set of data and programs for the **EAGLE**. The two fixed disk drives are located on the terminal disk modules (**E5-TDM**s). Both disks have the same files. The data stored on the fixed disks is

partially replicated on the various cards in the **EAGLE**. 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 (**GPL**s) 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 affect 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 **GPL**s 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 **GPL**s are downloaded to the **EAGLE** cards. The **GPL** provides each card with its functionality. For example, the `ss7ansi` **GPL** provides **MTP** functionality for link interface modules (**LIM**s).

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

**Removable Media**

The removable media is used with the E5-MCAP card portion of the E5-MASP in card locations 1113 and 1115.

The removable media is used for two purposes.

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

Because of the size of the data stored on the fixed disk drives on the **E5-TDMs**, a single removable media cannot store all of the data in the database, **GPL** and measurements partitions.

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

Additional and preformatted removable media are available from the My Oracle Support (MOS).

# 2
# SIP Number Portability Configuration

Chapter 2, SIP Number Portability Configuration, describes the SIP-based Number Portability feature and the procedures necessary to configure the EAGLE to support this feature.

## SIP Number Portability Feature Overview

The Session Initiation Protocol Number Portability (SIP NP) feature provides SIP-based Number Portability using EAGLE's RxDB (RTDB/RIDB). This feature adds a SIP interface to allow SIP NP requests to be received by an EAGLE card, processed by the EAGLE's RxDB, and a response transmitted back to the requestor.

The SIPHC GPL supporting a SIP stack over TCP is used and runs on the E5-SM8G-B and SLIC cards.

**SIP NP Architecture**

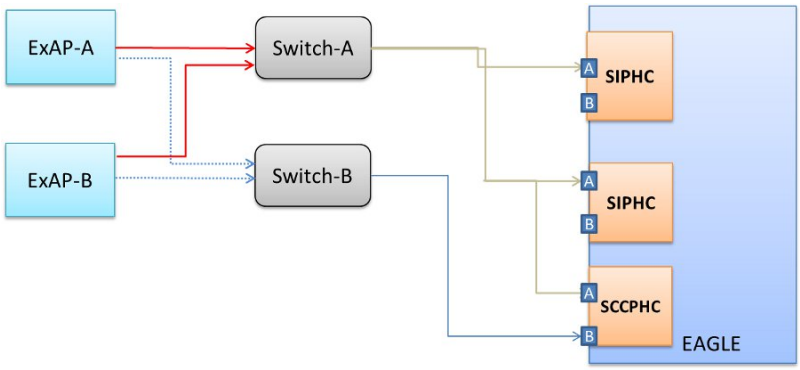
- The SIP64 GPL for SIP NP solution
- The SIP NP feature runs on E5-SM8G-B or SLIC cards
- The SIP64 GPL communicates with OAMHC cards and MCP cards over the IMT bus
- The E5-SM8G-B SIP card connects to ExAP using port A
- The E5-SM8G-B SIP card connects to SIP signaling network using port B
- The SLIC card running the SIP application connects to ExAP using ports A and D
- The SLIC card running the SIP application connects to the SIP signaling network using ports B and C

**ExAP Interface**

The SIP card connects to ExAP using port A. The RxDB data is downloaded on the SIP card in same manner as on other Service Module cards.

The SIP NP feature performs lookup RxDB using Normalized DN. For RTDB, lookup is performed first on individual entries, and if no match is found, then on range DNs. See Figure 2-1.

**Figure 2-1 SIP Card Interface with ExAP**




- If the connection between the ExAP and a SIP card goes down, the SIP card will continue to receive and process the SIP messages using the stale RxDB.
- If the connection between the ExAP and a SIP card goes down, in order to process SIP messages using an up-to-date RxDB, the user needs to manually change the cable to make an ExAP connection with another SIP card or ExAP switch. Alternatively, the SIP card can be inhibited to force SIP messages to be processed by other SIP cards in the system.

**Performance**

- The SIP card supports Server Mode only. Transport is TCP with up to 16 connections per local host.
- The supported rate is 4000 TPS per E5-SM8G or SLIC card. Sending unsupported SIP messages and network conditions, (as in, RTT), may degrade this rate.
- A customer provided load balancer may be required, in front of the EAGLE STP SIP cards, in order to load-share the traffic between the cards and the sites. For more information on load sharing, see SIP Redundancy.
- Card Protection/Traffic Protection is not guaranteed and may have unpredictable results if the traffic exceeds 500 TPS.
- **Note:**

  A UIM will alarm if SIP card reaches or exceeds 100% of capacity.

**Capacity**

A maximum of 100 phone contexts plus a default phone context can be provisioned. A maximum of 50 unique prefixes per phone context with a maximum of 500 prefixes in the NPBYPASS list is permitted. The same prefix can be present with another phone context. There is a maximum of 18 connections allowed per SIP card.

# Hardware Requirements

The hardware requirements and configuration include these items:

- The SIP64 GPL runs on the E5-SM8G-B and SLIC cards.
- A maximum of 16 SIP cards can be configured per EAGLE:

> **Note:**
>
> The Ethernet port used for SNMP connects to the corresponding E5-OAM MASP backplane (either 850-0330-06/07 or 7333412) connector.

> **Note:**
>
> See the next section for Front Panel LED Operation.

Refer to *Hardware Reference* for more information about the **E5-SM8G-B** and SLIC cards.

# Front Panel LED Operation

This section describes the front panel LED operation for the E5-SM8G-B and SLIC cards when running the SIP application:

On the SM8G-B card, the Ethernet Interface **A** is used for ExAP (EPAP/ELAP) connectivity and the Ethernet Interface **B** is used for the Signaling Network:

**Table 2-1 E5-SM8G-B Front Faceplate IP Interface/Logical Link Status LED Operation for Port A**

| IP Interface Status | ExAP Connection | | |
|---|---|---|---|
| | ExAP Connections Status | PORT A LED | ACT A LED |
| IP Port not configured<br>Card Inhibited | N/A | Off | Off |
| Cable removed and/or not synced | N/A | Red | Red |
| Sync and/or `act-ip-lnk` | IP Connection Down | Green (100 Mbps)/ Amber (1Gbps) | Red |
| | IP Connection UP | Green (100 Mbps)/ Amber (1Gbps) | Green |
| `dact-ip-lnk` | N/A | Green | Red |

**Table 2-2 E5-SM8G-B Front Faceplate IP Interface/Logical Link Status LED Operation for Port B**

| IP Interface Status | Signaling Connection | | |
|---|---|---|---|
| | Link/Connections Status | PORT A LED | ACT A LED |
| IP Port not configured<br>Card Inhibited | N/A | Off | Off |
| Cable removed and/or not synced | N/A | Red | Red |
| Sync | Not Configured | Green | Red |

**Table 2-2 (Cont.) E5-SM8G-B Front Faceplate IP Interface/Logical Link Status LED Operation for Port B**

| IP Interface Status | Signaling Connection | | |
|---|---|---|---|
| | **Link/Connections Status** | **PORT A LED** | **ACT A LED** |
| Sync and/or `act-ip-lnk` | All are OOS-MT-DISABLED or OOS-MT | Green | Red |
| | At least one or more connections is down (OOS-MT-DISABLED or OOS-MT) | Green | Red |
| | All configured connections are Active | Green | Green |
| `dact-ip-lnk` | N/A | Green | Red |

On the SLIC card, the Ethernet Interfaces **1** and **4** (mapped to ports **A** and **D**, respectively, are used for ExAP connectivity and Ethernet Interfaces **2** and **3** (mapped to ports **B** and **C**, respectively) are used for the Signaling Network. As shown in Figure 2-2, backplane DB26 ports **A** and **B** are labeled on the backplane for each slot of the shelf (that is, **Port <*slot number*> A** and **Port <*slot number*> B**). Backplane adaptors (part number 830-1102-03) are attached to backplane ports **A** and **B**. The adaptor connected to backplane port **A** supports the port **A** Ethernet interface through adaptor port P3, and the adaptor connected to backplane port **B** supports the port **B** Ethernet interface through adaptor port P3.

**Figure 2-2 SLIC SIP Card - Ethernet Interface Connections and Status LEDs**

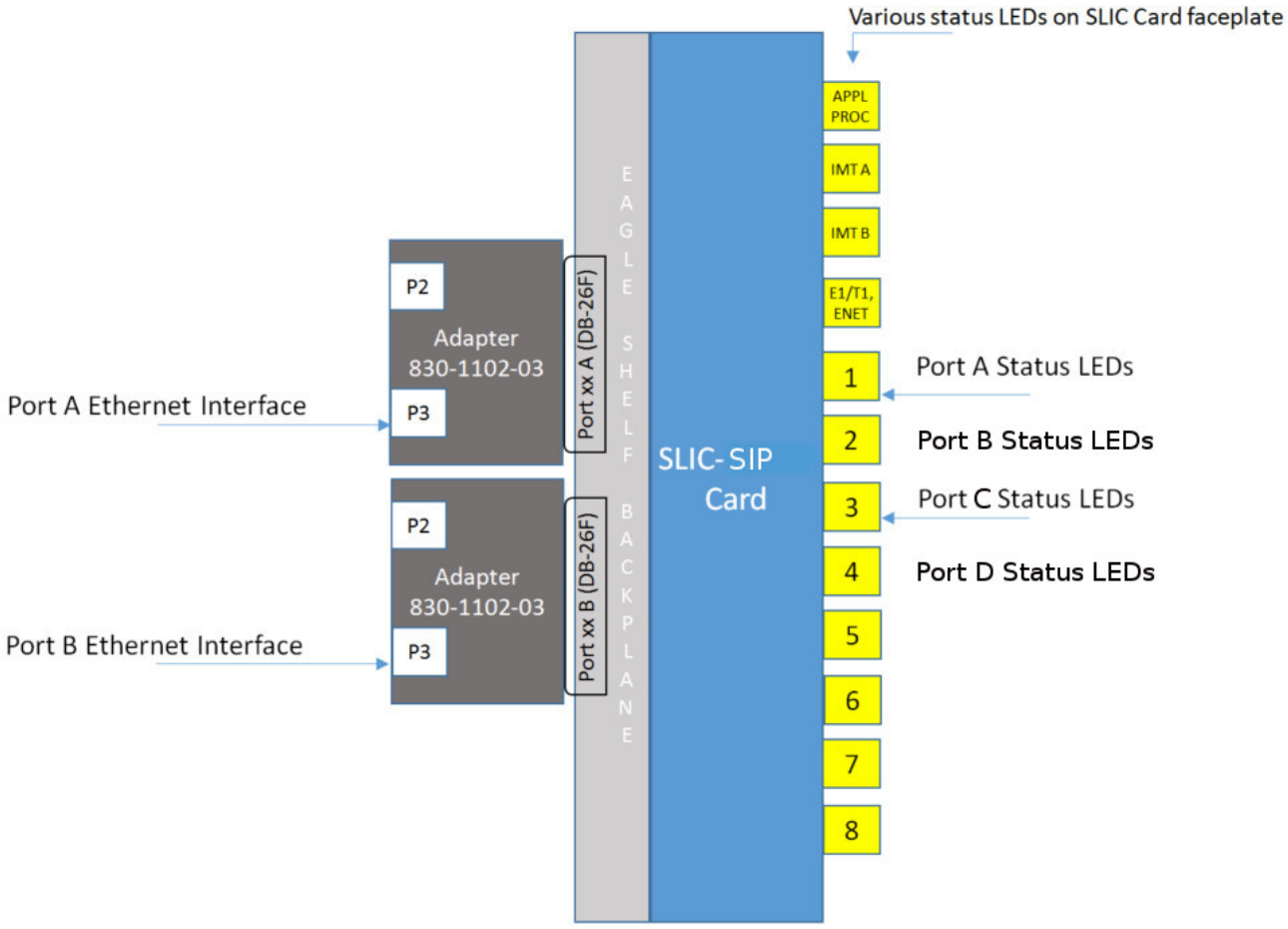



Figure 2-2 also shows the status LEDs **1** and **3** that are on the SLIC faceplate, and their associations with the **A** and **B** Ethernet interface ports. The status LEDs on the SLIC faceplate are pictured in Figure 2-3.

**Figure 2-3 SLIC Faceplate Status LEDs**

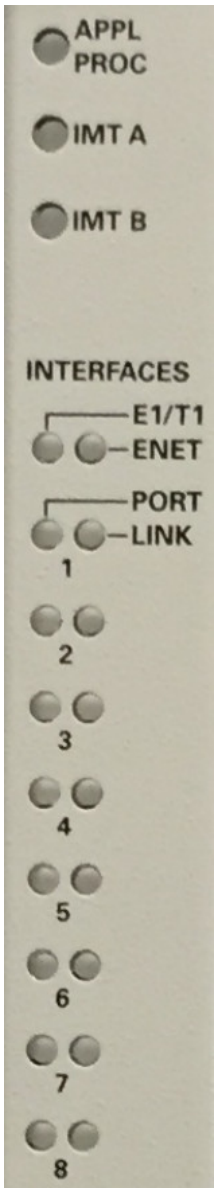



Table 2-3 and Table 2-4 describe LED operations for the Ethernet Interfaces on SLIC cards.

**Table 2-3 SLIC Front Faceplate IP Interface/Logical Link Status LED Operation for Ports A and D (represented by LED 1 and 4)**

| IP Interface Status | ExAP Connection | | |
|---|---|---|---|
| | ExAP Connections Status | PORT LED | LINK LED |
| IP Port not configured<br>Card Inhibited | N/A | Off | Off |
| Cable removed and/or not synced | N/A | Red | Red |

**Table 2-3 (Cont.) SLIC Front Faceplate IP Interface/Logical Link Status LED Operation for Ports A and D (represented by LED 1 and 4)**

| IP Interface Status | ExAP Connection | | |
|---|---|---|---|
| | ExAP Connections Status | PORT LED | LINK LED |
| Sync and/or `act-ip-lnk` | IP Connection Down | Green (100 Mbps)/ Amber (1Gbps) | Red |
| | IP Connection UP | Green (100 Mbps)/ Amber (1Gbps) | Green |
| `dact-ip-lnk` | N/A | Green | Red |

**Table 2-4 SLIC Front Faceplate IP Interface/Logical Link Status LED Operation for Ports B and C (represented by LED 2 and 3)**

| IP Interface Status | Signaling Connection | | |
|---|---|---|---|
| | Link/Connections Status | PORT LED | LINK LED |
| IP Port not configured<br>Card Inhibited | N/A | Off | Off |
| Cable removed and/or not synced | N/A | Red | Red |
| Sync | Not Configured | Green | Red |
| Sync and/or `act-ip-lnk` | All are OOS-MT-DISABLED or OOS-MT | Green | Red |
| | At least one or more connections is down (OOS-MT-DISABLED or OOS-MT) | Green | Red |
| | All configured connections are Active | Green | Green |
| `dact-ip-lnk` | N/A | Green | Red |

# SIP Redundancy

Redundancy is divided into the signaling network side redundancy and private network side redundancy on either the E5-SM8G-B or SLIC.

### E5-SM8G-B Signaling Network Redundancy

Signaling side redundancy is provided using an External IP Load Balancer. The External IP Load balancer will provide both scalability and load sharing.

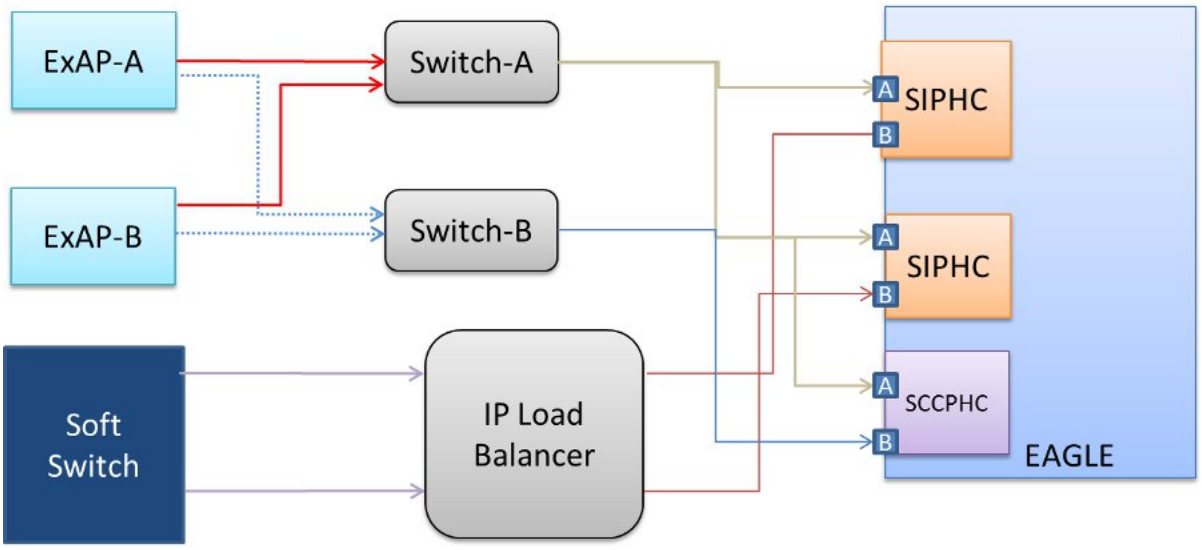
EAGLE supports multiple SIP Application cards. Each card has separate IP addresses and operates independently.

The IP load balancer will make connections with all SIP cards and load share the traffic. If one SIP card goes down, traffic currently being handled by that card will get lost. SIP Load Balancer will not use that card for load sharing traffic until the card is ready to handle traffic again.

### E5-SM8G-B Private Network Redundancy

The SIP Card connects to ExAP using a Private Network. Port A on the SIP card will be reserved for ExAP connection. There is no ExAP redundancy. If the connection to ExAP goes down, the SIP card continues to operate with the existing RxDB. Figure 2-4 shows signaling network and private network side redundancy.

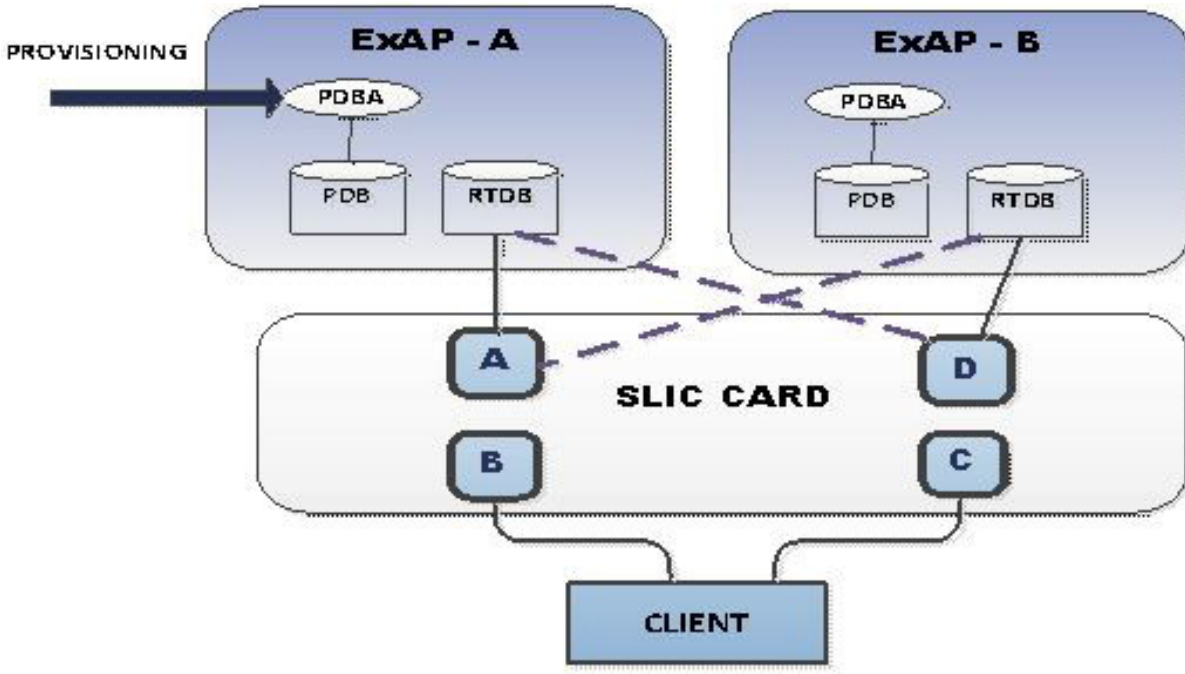
**Figure 2-4 SIP Redundancy**




### SLIC Network Redundancy

Four (4) network interfaces are supported for SIP NP: Two (2) interfaces for ExAP communication and two (2) interfaces for signaling. One SLIC card with the SIP application can connect to two (2) ExAPs and two (2) signaling networks at the same time. Interface A/D will be used for ExAP connectivity, while interface B/C used for the signaling network.

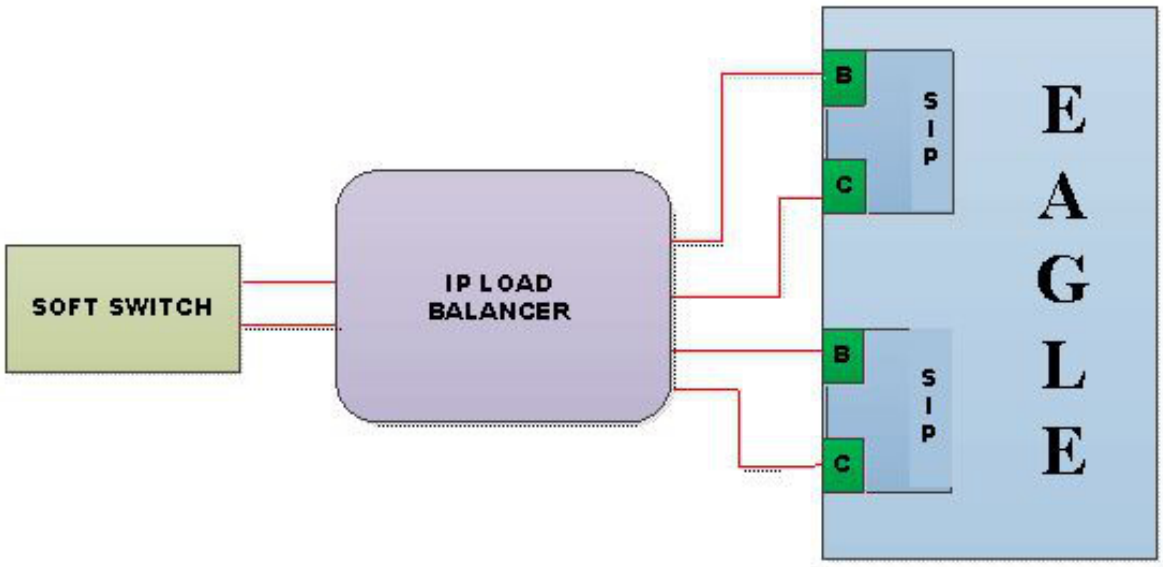
**Figure 2-5 SLIC Network Redundancy Model**




### SLIC Signaling Network Redundancy

To achieve signaling network redundancy with the SIP application, operators need to configure parallel TCP/UDP connections on both interfaces. One UDP connection per interface will be possible with a SLIC card running the SIP application. If one interface/switch goes down, the operator needs to switch the traffic to another port/switch.

**Figure 2-6 SLIC Card Signaling Network Redundancy**



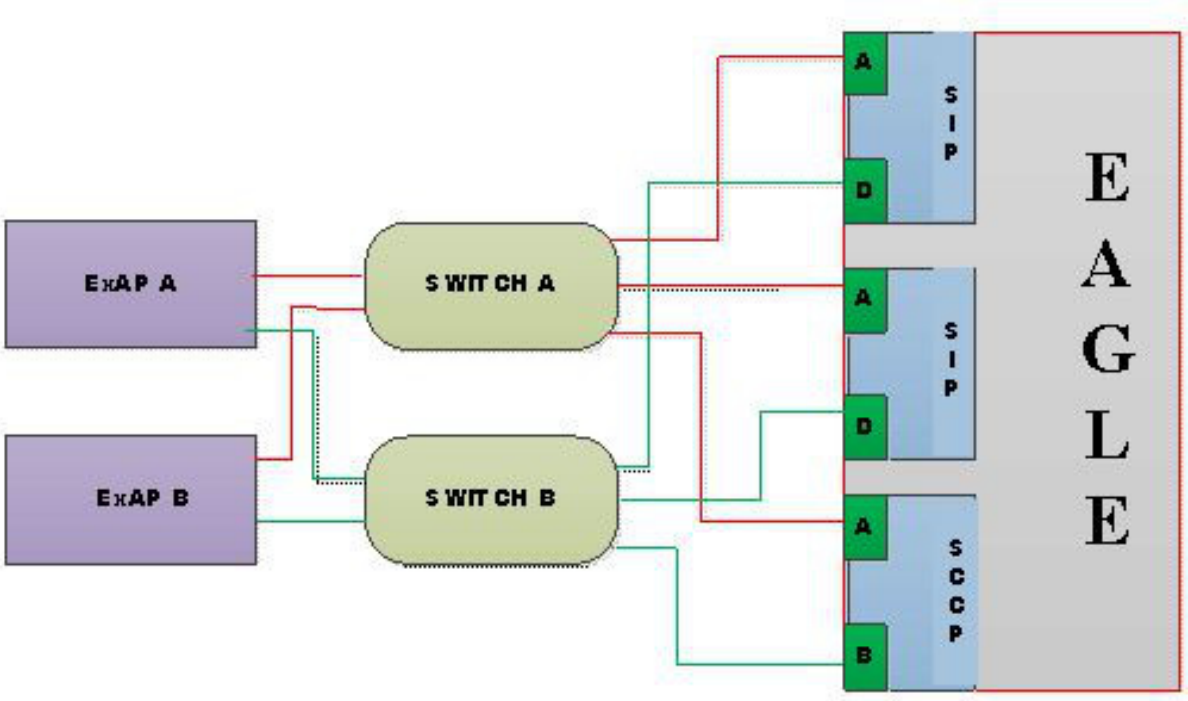
### SLIC Private Network Redundancy

A SLIC card running the SIP application will connect to ExAP using ports A and D to support redundancy. The RTDB data will be downloaded in the same manner as on E5-SM8G-B cards.

The difference between the ExAP connectivity on a SLIC card and E5-SM8G-B card is that, upon the failure of one switch or port, the SLIC card starts data download via another switch or port in the same manner as data downloads for the SCCP application.

> **Note:**
>
> Failure of a port on a single SLIC card (out of many) will not cause the card to download via another port until all the cables are disconnected from the active EPAP.

**Figure 2-7 SLIC Card Private Network Redundancy**




# SIP Transports Layer Protocol

With the SLIC card, two (2) local hosts can be provisioned per card for SIP Signaling. The SIP application with SLIC supports a maximum of two (2) UDP connection and 16 TCP connections per card, but only one (1) UDP socket is allowed per interface (port).

TCP connections are distributed among two (2) interfaces per operator discretion.

# System Prerequisites

Before any feature that is described in this manual can be enabled, the prerequisites listed in Table 2-5 are required in the system.

**Table 2-5 System Prerequisites**

| Prerequisite | Verification and Provisioning |
|---|---|
| The system serial number must be correct and locked.<br>For new installations, the system is shipped with an unlocked serial number. The serial number can be changed if necessary and must be locked after the system is on-site.<br>For systems that are being upgraded, the serial number is usually already verified and locked. | **Note:** The serial number cannot be changed after it is entered and locked in the system.<br>Locate the serial number for the system on a label affixed to the control shelf (1100).<br>Enter the `rtrv-serial-num` command to display the serial number and its locked status.<br>Verify that the displayed serial number is correct for the system.<br>If no serial number is displayed, enter the `ent-serial-num` command (without the lock parameter) to provision the serial number that appears on the control shelf label. Enter the `rtrv-serial-num` command and verify that the serial number was entered correctly.<br>Enter the `ent-serial-num` command with the `lock=yes` parameter to lock the serial number in the system.<br>Enter the `chg-stpopts:on=mfc` command to turn on the mfc feature option. |

# SIP NP Feature Prerequisites

Before the SIP NP feature can be enabled, the following prerequisites are required in the system:

- The EAGLE must be configured with ELAP or EPAP or both
- SM cards must be E5-SM8G-B or SLIC cards

# SIP Configuration Procedure

The EAGLE configuration of the SIP NP feature consists of the following steps. The steps contain links and references to detailed procedures and information needed to complete each step.

1. Verify, and provision if needed, the system prerequisites. See System Prerequisites.

2. Verify, and provision if needed, the feature prerequisites. See SIP NP Feature Prerequisites.
3. Enable the SIP NP feature, set system STP options, and turn on the SIP NP feature. See Enabling SIP NP, Setting STP Options, and Turning On SIP NP.
4. Provision SIP NP options. See Provisioning the SIP NP Options.
5. Provision SIP Cards. See Provisioning SIP Cards.
6. Provision IP Hosts and IP Links. See Provisioning IP Hosts and IP Links.
7. Provision SIP Connections . See Provisioning SIP Connections.
8. Provision Common Screening List (CSL) for SIP NP. See Provisioning Common Screening List (CSL) for SIP NP.
9. Provision SIP Connection Information. See Provisioning SIP Connection Information.
10. Configure the Measurements Platform if measurements are to be collected for SIP NP. See Configuring the Measurements Platform.

    Refer to the procedures in *Database Administration - System Management User's Guide* for configuring the Measurements Platform feature and the EAGLE OA&M IP Security feature in the EAGLE.

    The EAGLE can collect daily and 30-minute measurements for the SIP NP local subsystem. SIP NP measurements are collected only by the EAGLE Measurements Platform. UI measurements reports are not available for SIP NP.
11. Verify, and provision if needed, SIP NP Maintenance. See SIP NP Maintenance.

# Enabling SIP NP, Setting STP Options, and Turning On SIP NP

This procedure is used to enable the SIP NP feature, set the system STP options, and turn on the SIP NP feature in the EAGLE.

The SIP NP feature must be enabled using the SIP NP feature part number 893040601.

> **Note:**
>
> Controlled features are optional and you must be entitled to use them in your system. If you are not sure whether you are entitled to use a specific feature, contact your Oracle Sales or Account Representative.

When the SIP NP feature is enabled, it is permanently enabled. The SIP NP feature cannot be temporarily enabled. After the SIP NP feature is enabled and turned on, the SIP NP feature cannot be turned off.

After the SIP NP feature has been enabled, the STP option for the default country code must be set to an appropriate value for SIP NP. The `chg-stpopts` and `rtrv-stpopts` commands support setting the `defcc` parameter for the SIP NP feature.

1. Display the status of the features that are controlled with feature access keys. Enter the `rtrv-ctrl-feat` command. The output lists the enabled features in the system and shows the on/off status for each feature.

```
    rlghncxa03w 12-10-29 16:40:40 EST  EAGLE5 45.0.0
    The following features have been permanently enabled:
    Feature Name              Partnum    Status  Quantity
    HC-MIM SLK Capacity       893012707  on            64
;
```

If the SIPNP entry appears in the `rtrv-ctrl-feat` output with status `on`, performing this procedure is not necessary.

2. Verify the `defcc` STP option parameter value. Enter the `rtrv-stpopts` command.
   - If the parameter value is not NONE, continue with 3.
   - If the parameter value is NONE, use the `chg-stpopts` command to change the value. Then continue with 3.
3. Enable the SIP NP feature by entering the `enable-ctrl-feat` command.

   `enable-ctrl-feat:partnum=893040601`
   When the feature is enabled, the SIPNP entry appears in the output of the `rtrv-ctrl-feat` command.

```
    rlghncxa03w 12-10-29 16:40:40 EST  EAGLE5 46.8.0
    The following features have been permanently enabled:
    Feature Name              Partnum    Status  Quantity
    HC-MIM SLK Capacity       893012707  on            64
    SIPNP                     893040601  off          ----
;
```

4. Turn on the SIP NP feature, by entering the `chg-ctrl-feat` command.

   `chg-ctrl-feat:partnum=893040601:status=on`
   When the feature is turned on, the status changes to ON in the `rtrv-ctrl-feat` command output.

```
    rlghncxa03w 12-10-29 16:40:40 EST  EAGLE5 45.0.0
    The following features have been permanently enabled:
    Feature Name              Partnum    Status  Quantity
    HC-MIM SLK Capacity       893012707  on            64
    SIPNP                     893040601  on           ----
;
```

5. Back up the database changes, by entering the following command.

   `chg-db:action=backup:dest=fixed`
   The following messages 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.
```

# Provisioning the SIP NP Options

The SIP NP feature must be turned on before this procedure can be completed. See Enabling SIP NP, Setting STP Options, and Turning On SIP NP.

The SIP NP options indicate the contents and formatting of SIP response messages.

**Table 2-6 SIPOPTS Parameters**

| Name | Constraints | Comment |
|---|---|---|
| INCLUDERN | ON or OFF<br>Default: ON | Specifies whether RN parameter needs to be included or not included in the SIP 302 response. |
| INCLUDENPDI | ON or OFF<br>Default: ON | Specifies whether NPDI parameter needs to be included or not included in the SIP 302 response. |
| NPLKUPFAIL | 302, 404<br>Default: 404 | SIP Response type that needs to be sent when the DN is not found in RxDB, or, in case of ELAP, if the TN is not found or lookup is being performed on TN, which is not of length 10. |
| RNCONTEXT | String<br>Default: NULL | rn-context is to be included in response. If the rn-context is present, the RN found during RxDB lookup is considered LOCAL. If rn-context is set to NULL, the RN found during RxDB lookup is considered GLOBAL. |
| RNFMT | RN (Routing Number (RN) only (i.e. without CC or ASD or DN))<br>RNASD (Routing Number (RN) + ASD, if present (i.e., without DN))<br>GRNASD (Global RN + ASD)<br>RNGRNDN (Routing Number + Global RN + DN)<br>Default: RN | Format of the RN parameter in the 302 Response. If `includeRN=on`, then rn parameter will be encoded, as per RNFMT, and the contact URI will be encoded as a DN. |
| NPRSPFMT | RN (Routing Number (RN) only (i.e., without CC or ASD or DN))<br>RNDN (Routing Number (RN) + DN (on which RTDB lookup was performed))<br>CCRNDN (Country Code (CC) + Routing Number (RN) + DN (without DEFCC))<br>RNASDDN (Routing Number (RN) + ASD + DN (on which RTDB lookup was performed))<br>RNASD (Routing Number (RN) + ASD)<br>GRNASD (Global RN + ASD)<br>RNGRNDN (Routing Number + Global RN + DN) | Format of the Contact Header in the Response.<br>If `includeRN=off`, the rn parameter will not be encoded and NPRSPFMT will define the format of the contact URI. |

1. Verify that the SIP NP feature is enabled and turned on, by entering the `rtrv-ctrl-feat` command. If the SIP NP feature is enabled and turned on, the status of the `SIPNP` entry is `on`.

```
    rlghncxa03w 12-10-29 16:40:40 EST  EAGLE5 45.0.0
    The following features have been permanently enabled:
    Feature Name              Partnum    Status  Quantity
    HC-MIM SLK Capacity       893012707  on            64
    SIPNP                     893040601  on          ----
;
```

- If the SIP NP feature is not enabled or turned on, go to Enabling SIP NP, Setting STP Options, and Turning On SIP NP to enable and turn on the SIP NP feature. Then continue with 2.
- If the SIP NP feature is enabled and turned on, continue with 2.

2. Display the status of the SIP NP options, using the `rtrv-sipopts` command.
3. Change the SIP NP options to the desired settings, by entering the `chg-sipopts` command with at least one of the SIP NP option parameters specified. Example:

   ```
   CHG-SIPOPTS:ON=INCLUDENPDI,INCLUDERN:RNCONTEXT=TEKELEC.COM
   CHG-SIPOPTS:RNFMT=RNASD
   ```

4. Verify the changes, by entering the `rtrv-sipopts` command.
5. Back up the changes, using the `chg-db:action=backup:dest=fixed` command.

   These messages 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.
   ```

   Refer to *Commands Manual* for a complete description of the `chg-sipopts` and `rtrv-sipopts` commands.

# Provisioning SIP Cards

Provision the SIP-EPAP and SIP-ELAP cards. For example:

1. Enter `ent-card:loc=<SM card location>:type=dsm:appl=siphc:data=epap` command to provision the SIP card for EPAP.
2. Enter `ent-card:loc=<SM card location>:type=dsm:appl=siphc:data=elap` command to provision the SIP card for ELAP.

# Provisioning IP Hosts and IP Links

SIP Connections must be set up before the SIP NP feature is available:
**CHG-IP-LNK / RTRV-IP-LNK**

The `chg-ip-lnk` command is used to provision the IP link table. The `chg-ip-lnk` command assigns an IP address to a port on the EAGLE card. The `rtrv-ip-lnk` command is used to display the configuration. Use these commands to configure and display the IP address for each SIP card. For example:

1. `chg-ip-lnk:port=a:submask=255.255.255.0:mcast=yes:ipaddr=192.168.120.11:loc=1101:duplex=full:speed=100`
2. `chg-ip-lnk:port=b:submask=255.255.255.0:mcast=yes:ipaddr=10.248.13.11:loc=1101:duplex=full:speed=100`

**ENT-IP-HOST / DLT-IP-HOST / RTRV-IP-HOST**

The `ent-ip-host`, `dlt-ip-host` and `rtrv-ip-host` commands are used to define, delete and retrieve local and remote host names for IP addresses. Use these commands to define local and remote host names for the IP address. For example:

1. `ent-ip-host:host=sip1101:ipaddr=10.248.13.11:type=local`
2. `ent-ip-host:host=tklc:ipaddr=10.248.13.9:type=remote`
3. `ent-ip-host:host=tklc3:ipaddr=10.248.13.3:type=remote`

**ENT-IP-RTE**

The `ent-ip-rte` command must be used to enter the static route for the private network. For example:

```
ENT-IP-RTE:LOC=1301:DEST=128.252.10.5:SUBMASK=255.255.255.255:GTWY=140.188.13.33
```

**CHG-IP-CARD**

The `chg-ip-card` command must be used to enter the default gateway. This default route is on the signaling network, not the private network. For example:

```
CHG-IP-CARD:LOC=1211:DNSA=150.1.1.1:DOMAIN=NC.TEKELEC.COM:DEFROUTER=150.1.1.105
```

Refer to *Commands User's Guide* for a complete description of these commands.

# Provisioning SIP Connections

**ENT-IP-CONN**

The `ent-ip-conn` command is used to enter SIP transport information. The input to the `ent-ip-conn` command is listed in Table 2-7.

The IPCONN table supports the provisioning information related to the transport. The IPCONN table is provisioned with the following fields:

**Table 2-7 SIP Transport Input Parameters**

| Name | Constraints | Comment |
|---|---|---|
| Lhost - Local Hostname | String<br>Mandatory | Domain name of the EAGLE SIP card |
| Lport - Local Port | Integer<br>Mandatory | IP port on EAGLE SIP cards |
| Rhost - Remote Hostname | String<br>Optional | Domain name of the remote end. Remote HOST is mandatory for TCP. |

**Table 2-7 (Cont.) SIP Transport Input Parameters**

| Name | Constraints | Comment |
|---|---|---|
| Rport - Remote Port | Integer<br>Optional | IP port of remote end. Remote PORT is mandatory for TCP. |
| Prot - Protocol | TCP<br>Optional<br>Default - TCP | Underlying protocol |
| Cname - Connection name | Alphanumeric string<br>Mandatory | Name identifying a connection |
| Open | Yes, No<br>Optional<br>Default - No | Connection state. Open for traffic or not open for traffic. |

For example:

1. `ent-ip-conn:rhost=tklc3:prot=tcp:lhost=sip1101:lport=1111:rport=5551:cname=tcp1101`

**CHG-IP-CONN**

The `chg-ip-conn` command is used to enable or disable a particular SIP connection to receive SIP traffic. The input to CHG-IP-CONN command is cname and status. For example:

1. `chg-ip-conn:cname=tcp1101:open=yes`

Refer to *Commands Manual* for a complete description of the `ent-ip-conn` and `chg-ip-conn` commands, including the related `dlt-ip-conn` and `rtrv-ip-conn` commands.

# Provisioning Common Screening List (CSL) for SIP NP

The CSL command set (ent/chg/dlt/rtrv-csl) provisions prefixes for the SIP NP feature. The CSL for SIP NP is NPBYPASS. A maximum of 500 entries are supported in the CSL table NPBYPASS list.

**ENT-CSL**

`ent-csl` command is used to provision the prefix part number in the NPBYPASS list of the CSL table. The input to `ent-csl` command is the part number or the feature name of the SIP NP, list type (list=NPBYPASS), prefix digit string (ds), and the value of pfxstrip (yes or no). The default value for pfxstrip is no. For example:

1. `ent-csl:feature="sip number portability":list=npbypass:ds=0000000056:pfxstrip=no`
2. `ent-csl:pn=893040601:list=npbypass:ds=22331:pfxstrip=yes`

Refer to *Commands Manual* for a complete description of the `ent-csl` command, including the related `chg-csl`, `dlt-csl`, and `rtrv-csl`commands.

# Provisioning SIP Connection Information

The following command is used to add SIP Number Normalization rules. This command is also referred to as SIP Number Pre-processing (SIP-NPP).

The number normalization rules in Table 2-8 have the following fields:

**Table 2-8 SIP Number Normalization Parameters**

| Name | Constraint | Comment |
|---|---|---|
| Phone Context (PHCTXT) | - Mandatory<br>- String, (0-9, A-Z, '+','*',' #', '@',' .') or DFLT. | If the phone-context is matched, then the prefix configured against the phone-context will be looked up. |
| Prefix (PFX) | - 1 to 15 digits<br>- Valid characters are Hex digits [0-9], [a-f]<br>'+', '*', '#','-'. | If the prefix matches, the digit string will be normalized by deleting the digits, as per NPDD, and by adding NPDS. |
| Number of digits to be deleted (NPDD) | Range 0-15<br>[default: 0] | The NPDD specifies the number of digits that need to be deleted from the incoming digit string. |
| New prefix to be substituted (NPDS) | - 1 to 15 digits or None<br>- Valid characters are Hex digits [0-9], [a-f] or None.<br>[default: None] | The NPDS specifies new prefix digits that need to be added to digit string after deleting the NPDD. |

### ENT-SIP-NPP

The `ent-sip-npp` command is used to provision the number normalization rules. The input to the `ent-sip-npp` command is phone-context, prefix, NPDD and NPDS. Use these commands to configure the number normalization rules. For example:

1. `ent-sip-npp:phctxt=abc@.com:npdd=1:npds=2:pfc=*6-7-2`

Refer to *Commands Manual* for a complete description of the `ent-sip-npp` command, including the related `chg-sip-npp`, `dlt-sip-npp`, and `rtrv-sip-npp`commands.

# Configuring the Measurements Platform

The EAGLE can collect daily and 30-minute measurements for the SIP NP service. SIP NP measurements are collected only by the EAGLE Measurements Platform. Only `rept-meas` reports are available for SIP NP.

See SIP NP Measurements and refer to *Measurements Reference* for information about measurements for SIP NP.

Refer to the procedures in the *Database Administration - System Management User's Guide* for configuring the Measurements Platform feature in the EAGLE.

### SIP NP Measurements

The SIP NP feature supports the following measurements pegs on a per SYSTEM basis. All pegs will be pegged per 30 minutes and on daily basis:

- Total number of SIP *INVITE* received (including re-transmits)
- Number of SIP Transactions Canceled
- Number of 100 Responses sent
- Number of 200 Responses sent
- Number of 302 Responses sent
- Number of 4xx Responses sent (total of 400 to 499 sent)
- Number of 5xx Responses sent (total of 500 to 599 sent)
- Number of SIP *INVITE* messages for which RxDB lookup was successfully performed and RN was found
- Number of SIP *INVITE* messages for which RxDB lookup was not performed
- Number of SIP *INVITE* messages for which RxDB lookup returned "DN not found"
- Number of SIP *INVITE* messages for which RxDB lookup returned "RN not found"

EAGLE will add the following registers for the previously listed pegs. MTCD-SIP and SYSTOT-SIP reports will also be added:

**Table 2-9 SIP Measurement Registers**

| Register | Description |
|---|---|
| INVITERCVD | Total number of SIP INVITE received (including re-transmits) |
| CANCRCVD | Number of CANCEL received |
| PROVRSPSENT | Number of 1xx Responses sent |
| OKRSPSENT | Number of 2xx Responses sent |
| RDRCTSENT | Number of 302 Responses sent |
| CLNFAILSENT | Number of 4xx Responses sent |
| SRVERRSENT | Number of 5xx Responses sent |
| NPSUCC | Number of SIP INVITE messages for which RxDB lookup was successfully performed and RN/ASD was found |
| NPBYPASSSUC | Number of SIP INVITE messages for which RxDB lookup was not performed |
| INVALIDDN | Number of SIP INVITE messages for which RxDB lookup returned "DN not found" |
| NPRNNF | Number of SIP INVITE messages for which RxDB lookup returned "RN not found" |

# SIP NP Maintenance

**REPT-STAT-SIP**

This command is used to display the overall status of the SIP service on the EAGLE.

The `rept-stat-sip` command is either given without a parameter or with a LOC parameter. The PEAKRESET parameter is supported to reset peak values to the current TPS. For example:

```
REPT-STAT-SIP
REPT-STAT-SIP:LOC=XXXX
REPT-STAT-SIP:PEAKRESET=YES
```

`rept-stat-sip` command displays the following pegs in the following conditions:

| PEGS | Condition |
|---|---|
| SUCCESS | 302 sent for any case except SIP NP Prefix Screening Successful |
| WARNING | RN-more is than 25 digits |
| | Tel- is more than 30 digits |
| ERROR | 4xx sent |
| | 5xx sent |
| BYPASS | SIP NP Prefix Screening Successful (rn/npdi present in INVITE or CSL lookup successful) |

**REPT-STAT-IPCONN**

The `rept-stat-ipconn` command used to display the dynamic status of SIP transport. No input parameter is needed with REPT-STAT-IPCONN. For example:

```
REPT-STAT-IPCONN
```

**Timers**

**SEND-MSG Command**

Two function IDs send messages for setting and displaying the T1 and Timer-G values. The following describes the default values and the use of the two timers:

| Timer | Default Value | Meaning |
|---|---|---|
| T1 | 500 ms | Round-trip time (RTT) estimate |
| Timer G | initially T1 | INVITE response retransmission interval |

Timer-G can be increased in case the RTT is high in the network. In cases where RTT is high, the response interval will be bigger. To avoid re-transmissions, Timer G or T1 can be increased.

To set timer values, use `send-msg:loc=xxxx:ds=x:da=h'08:f=h'18:d0=h'xx:d1=h'xx:d2=h'xx:d3=h'xx:d4=h'xx:d5=h'xx:d6=h'xx:d7=h'00` command, where:

- d0, d1, d2 and d3 is the value of timer T1
- d4,d5,d6 & d7 will be the value of timer G

To display the timers' values, enter `send-msg:loc=xxxx:ds=x:da=h'08:f=h'19` command.

# Supported SIP Messages

SIP messages are classified as requests or responses. Following incoming SIP requests, messages are processed by the EAGLE. The SIP NP feature discards all other SIP Request messages and responds back with 400 "Bad Request."

The SIP NP feature creates the following SIP requests:

- **INVITE**: used to establish a media session between user agents.
- **ACK**: confirms reliable message exchanges.
- **CANCEL**: terminates a pending request

The SIP NP feature processes the following SIP responses:

- 100 (Trying)
- 200 (OK)
- 302 (Moved Temporarily)
- 400 (Bad Request)
- 404 (User Not Found)
- 481 (Transaction Does Not Exist)
- 500 (Server Internal Error)
- 503 (Service Unavailable)

# Functionality

**General Feature Information**

- The SIP Number Portability feature co-exists with all other **EPAP** and **ELAP** based applications, such as **G-Port**, **G-Flex** WLNPS, and LRNQT.
- The SIP card handles only SIP traffic. No **SCCP** traffic will be handled by the SIP card.

SIP functionality is divided into three categories:

- SIP INBOUND - includes processing of the incoming INVITE, ACK and CANCEL requests
- NP Lookup processing - includes RxDB download requirements for SIP card and NP Lookup
- SIP OUTBOUND - includes creating and sending appropriate SIP response messages

**RxDB Interface and Download Information**

- The SIP card starts RxDB download once SIP feature is turned ON.
- The SIP card is in IS-ANR state until RxDB download is complete.
- If the SIP card is IS-ANR, a SIP INVITE request is received, and SIP NP Prefix Screening is successful, SIP 302 response will be encoded and sent back to the originator.
- If the SIP card is IS-ANR and any SIP INVITE is received that requires NP lookup, request will be discarded with SIP 500 "Server Internal Error" response.
- If the SIP card receives a SIP INVITE request when the SIP card is in MPS_UNAVAILABLE state and NP Lookup is required, SIP 500 "Server Internal Error" response will be encoded and sent back to the originator.

**Number Normalization Logic**

If the dialed string is a Global Number, then Number Normalization is skipped and RxDB lookup is performed. "+" is removed from the dialed string before RxDB lookup.

The prefix configured only supports the following visual characters:

- +
- #
- -
- *

Any remaining visual characters in the SIP URI cannot be configured for a prefix match. If unsupported characters are present in the received digit string, the prefix match fails.

**SIP Inbound**

- The SIP NP feature supports only SIP *INVITE*, *ACK* and *CANCEL* Requests.
- If ACK is received, the SIP Application will discard it.
- If a CANCEL request is received and a corresponding INVITE request exists, the SIP card will prepare and send a SIP 200 (ok) response.
- A CANCEL request will not impact the corresponding INVITE request. The SIP card will always process the CANCEL request after handling the INVITE request.
- If a CANCEL request is received and the corresponding INVITE transaction does not exist, the SIP NP feature will discard the request and respond back with SIP 481 response.
- If a SIP request message other than INVITE/CANCEL/ACK is received, then the SIP NP feature will discard the request and send SIP 400 ("Bad Request") response back to the Originator. UIM "1300: SIP rcvd invalid msg" will also be generated.
- If any decode failure is detected, then The SIP NP feature will discard the request and send SIP 400 "Bad Request" response back to the Originator. UIM "1298: SIP msg decode failed" will also be generated. For more information, see *Unsolicited Alarm and Information Messages Reference*.
- When SIP INVITE request is received, EAGLE responds back with 100 (Trying).
- The SIP NP feature supports SIP INVITE with SIP URI with user = phone and TEL URI.
- EAGLE supports SIP NP parameters "rn", "rn-context" and "npdi" in TEL/SIP URI. Each parameter can appear only once in the URI.

**SIP NP Prefix Screening**

- The SIP Application checks for the presence of the "rn" parameter in SIP/TEL URI of the RURI. If "rn" is present, then RxDB lookup will not be performed. This is true even when the "npdi" parameter is also present.
- The SIP NP feature checks for the presence of "npdi" parameter in the SIP/TEL URI of the RURI. If "npdi" is present, then RxDB lookup will not be performed.

> **Note:**
>
> The SIP NP feature considers this as an "RN not found" scenario. It will create SIP 302 response and send it back to the originator.

- If incoming SIP Request message does not contain both "npdi" and "rn", then SIP Application will perform prefix search in NPBYPASS list.
- Before CSL lookup is performed, received digit strings will be conditioned as follows:

  - If the dialed string begins with "+", then it is stripped
  - If all visual characters are removed
  - If Default Country Code (DEFCC) is present in the dialed string, it is also stripped

  The resulting string is the Conditioned Digit String.

- The Conditioned Digit string is searched in NPBYPASS list for the longest matching prefix.

  > **Note:**
  >
  > If the stripped digit string is more than 15 digits, then only the leading 15 digits will be matched in CSL

- If NPBYPASS list lookup is successful and matching entry has PFXSTIP as yes, then the matched prefix is stripped from received dialed string for further processing.

  > **Note:**
  >
  > DEFCC and visual characters are re-added if they were removed before the CSL lookup.

  > **Note:**
  >
  > The SIP Application will consider it an "RN found" scenario. It will create SIP 302 response and send it back to the originator.

- If NPBYPASS list lookup is successful and matching entry has PFXSTIP as no, then the received dialed string is used for further processing.

  > **Note:**
  >
  > The SIP NP feature will consider it as "RN not found" scenario. It will create SIP 302 response and send it back to the originator.

- If NPBYPASS list lookup is unsuccessful, the SIP NP feature will proceed for Number Normalization using the received dialed string.

**NP Lookup Processing**

**Number Normalization**

SIP NP supports two types of numbers in a URI:

- Global Numbers - numbers in the international E.164 format (including the country code) prefixed by a "+" sign. Example: +1-919-333-5555.
- Local Numbers - if a number is not preceded by a "+" sign, it is interpreted as a Local Number. Example: 643-4520. Local Numbers must be used in conjunction with a private numbering plan schema, or some other schema (e.g., provision-able attributes) that helps to

determine the type of number. In the corresponding URI, the parameter "phone-context" must be present, giving additional information on the number.

A SIP Request-URI (RURI) containing a Global Number can be used as a fully qualified E.164 MSISDN number of a mobile subscriber that can be used (excluding the "+" prefix) to query an HLR. This is the only acceptable form allowed for TEL URIs.

**RxDB Lookup**

- The RxDB lookup is performed on Normalized digit string.
- The RTDB lookup will be performed on the individual entries first, then if the match is not found, the range DNs will be searched.
- The RIDB lookup will be performed on the NPA-NXX first, then if the match is found, TNs will be searched. The LRN associated with TN will be used as RN.

**SIP Outbound**

SIP Outbound considers three scenarios:

- If the NP Lookup Successful and RN is found
- If the NP Lookup Successful but RN not found
- If there is a Lookup Failure

**Lookup Failure**

- If the RxDB lookup fails with "DN not found" and the Number Portability Lookup Failure option is 302, then a SIP 302 response is be created and sent back to the originator with the contact header set to the following:
  - The "via," "to," "from" parameters of SIP 302 response will be encoded as in SIP INVITE
- If the RxDB lookup fails with "DN not found" and the Number Portability Lookup Failure option is 404, then the SIP NP feature prepares a 404 "Not Found" response and send it back to the originator:
  - The "via", "to", "from" parameters of SIP 404 response will be encoded as in SIP INVITE

**NP Lookup Successful but RN not found**

- If the RN is not found during NP lookup, then a SIP 302 response is created and sent back to the originator with the contact header set to the following:
  - The contact URI is set to the value of the RURI in the request.
  - The "npdi" parameter is added as an URI parameter to the contact URI indicating that the NP dip has occurred only if the system has been configured.

**NP Lookup Successful and RN is found**

- If the RN is found during NP lookup, then a SIP 302 response is created and sent back to the originator with the contact header set to the following:
  - The contact URI is set to the value of the RURI in the SIP Request.
  - The "rn" parameter is added as an URI parameter to the contact URI and its value is set to the Routing number if the system has been configured.
  - The "npdi" parameter is added as an URI parameter to the contact URI indicating that the NP dip has occurred only if the system has been configured.

# SIP Card Availability

- If SIP card(s) are configured on EAGLE but none of the SIP cards are in IS-NR state, EAGLE will raise a CRITICAL alarm "619 - SIP SYSTEM is not available." For more information, see *Unsolicited Alarm and Information Messages*.
- If the number of active SIP cards (i.e. in IS-NR state) are less than half the configured SIP cards, then EAGLE will raise a Major Alarm "625 - SIP SYSTEM normal, card(s) abnormal." This alarm will clear the CRITICAL alarm 619. For more information, see *Unsolicited Alarm and Information Messages*.
- If the number of active SIP cards (i.e., in IS-NR state) is equal to or more than half the configured SIP cards, then EAGLE will raise a Normal Alarm "620- SIP SYSTEM is available." This alarm will clear the MAJOR alarm 625. For more information, see *Unsolicited Alarm and Information Messages*.

# SIP Congestion

Congestion conditions include:

- If the SIP request queue is 60% full, then the SIP NP feature raises UAM 622 - SIP Threshold -Level1 and rejects all new SIP INVITE requests with a 503 Response.
- If the SIP request queue is 70% full and/or the CPU utilization is beyond 80%, then the SIP NP feature raises UAM 623 - SIP Threshold -Level2 and rejects all incoming messages with a 503 Response.
- If the SIP request queue comes down from above 70% full to 60% full, then the SIP NP feature clears UAM 623 with UAM 622. The SIP Application will reject all new SIP INVITE requests with 503 Response.
- If the SIP request queue comes down to 60% or below, then the SIP Application clears previous alarms and starts normal behavior. UAM 624 - SIP Threshold Condition Cleared will be raised.

# SIP Alarm and Information Messages

The following UAMs are related to the SIP Application:

**Table 2-10 Critical SIP UAMs**

| |
|---|
| 0261 - MPS unavailable |
| 0287 - RTDB Table Level 2 FAK Cap exceeded |
| 0370 - Critical Platform Failure(s) |
| 0371 - Critical Application Failure(s) |
| 0442 - RTDB database capacity is 90% full |
| 0619 - SIP SYSTEM is not available |
| 0623 - SIP Threshold Level2 |

**Table 2-11 Major SIP UAMs**

| |
|---|
| 0047 - Card type not valid for application |
| 0084 - IP connection Unavailable |

**Table 2-11 (Cont.) Major SIP UAMs**

| |
|---|
| 0043 - Incorrect feature configuration |
| 0132 - Loading failed: table not found |
| 0133 - Loading failed: data read Error |
| 0134 - Loading failed: bad checksum returned |
| 0135 - Loading failed: GPL load timeout |
| 0136 - Loading failed: data load timeout |
| 0137 - Loading failed: invalid GPL |
| 0138 - Loading failed: GPL format error |
| 0139 - Loading failed: disk read prep error |
| 0140 - Loading failed: disk read response error |
| 0141 - Loading failed: disk read failed |
| 0283 - LNP Ported LRNs approaching Feat. Cap. |
| 0285 - LNP Ported NPAs approaching Feat. Cap. |
| 0288 - RTDB Table Level 1 FAK Cap exceeded |
| 0372 - Major Platform Failure(s) |
| 0373 - Major Application Failure(s) |
| 0422 - Insufficient extended memory |
| 0441 - Incorrect MBD - CPU |
| 0443 - RTDB database is corrupted |
| 0446 - RTDB database capacity is 80% full |
| 0449 - RTDB resynchronization in progress |
| 0451 - RTDB reload is required |
| 0537 - Ethernet error threshold exceeded |
| 0539 - Ethernet Interface Down |
| 0570 - Incompatible flash image for sys rel |
| 0622 - SIP Threshold - Level1 |
| 0625 - SIP SYSTEM normal, card(s) abnormal |
| 0903 - IP Link A is down |

**Table 2-12 Minor SIP UAMs**

| |
|---|
| 0143 - System release GPL(s) not approved |
| 0144 - System release version unknown |
| 0302 - Cooling Fan Feature |
| 0374 - Minor Platform Failure(s) |
| 0375 - Minor Application Failure(s) |
| 0444 - RTDB database is inconsistent |
| 0448 - RTDB database is incoherent |

**Table 2-13 Normal SIP UAMs**

| |
|---|
| 0085 - IP connection Available |
| 0142 - System release alarm cleared |
| 0231 - ELAP Operating in Simplex Mode Cleared |
| 0250 - MPS available |

**Table 2-13 (Cont.) Normal SIP UAMs**

| |
|---|
| 0284 - LNP Ported LRNs Capacity Normal |
| 0286 - LNP Ported NPAs Capacity Normal |
| 0289 - RTDB Table FAK Capacity Normal |
| 0303 - Cooling Fans Normal |
| 0400 - Alarm cleared by deleting card |
| 0409 - Clock configuration corrected |
| 0423 - Card reload attempted |
| 0445 - RTDB database has been corrected |
| 0447 - RTDB database capacity alarm cleared |
| 0538 - Ethernet error threshold cleared |
| 0540 - Ethernet Interface Up |
| 0620 - SIP SYSTEM is available |
| 0621 - UDP port ready for listening |
| 0624 - SIP ThresholdCondition Cleared |
| 0904 - IP Link A is up |

The following UIMs are related to the SIP Application:

**Table 2-14 SIP UIMs**

| |
|---|
| 1120 - TRBL Queue is full: elements overwritten |
| 1187 - Table Checksum Mismatch |
| 1188 - DB Subset Checksum Mismatch |
| 1194 - IP connection Refures, RHOST mismatch |
| 1238 - Full database reload initiated |
| 1298 - SIP msg decode failed |
| 1299 - SIP Encode Failure |
| 1300 - SIP rcvd invalid msg |
| 1321 - Eagle RTDB Birthdate Mismatch |
| 1322 - Eagle RTDB Levels Invalid |
| 1323 - Eagle/Elap TN Quantity Mismatch |
| 1324 - Eagle/Elap NPANXX Quantity Mismatch |
| 1325 - Eagle/ELAP LRN Quantity Mismatch |
| 1326 - Eagle RTDB Depth Alert |
| 1331 - IP Route Table Entry Conflict |

Refer to *Unsolicited Alarm and Information Messages* for detailed information about SIP Alarm and Information Messages.

3

# E5-OAM SNMP Configuration

Chapter 3, E5-OAM SNMP Configuration, describes support for SNMP V2 traps on the E5-OAM feature and the procedures necessary to configure the EAGLE to support this feature.

## E5-OAM SNMP Feature Overview

The E5-OAM Simple Network Management Protocol (SNMP) feature allows the EAGLE to directly communicate with a Network Management System (NMS), sending SNMP traps northbound to up to two NMSs. The NMSs receive UAM/UIM data in the form of SNMP traps when alarms are raised and cleared.

The E5-OAM SNMP feature is a FAK controlled feature (P/N 893-0404-01) that uses Management Information Base(s) (MIB) for EAGLE Alarm Traps. Once activated and turned on, these traps are sent to an NMS or set of NMSs specified by the `ent/chg/rtrv-snmp-host` commands. It allows configured NMSs to request a resynchronization for all of the existing UAMs. Each provisioned NMS receives a heartbeatTrap at a rate determined by the NMS declaration, so the NMS will know it is connected during low periods of UAM/UIM activity.

**General Feature Information**

- An ON-OFF feature "SNMP Traps on E5OAM" with P/N 893-0404-01 is used to control the activation of the SNMP agent on the E5-OAM.
- The EAGLE only supports SNMP V2c traps, a SET for starting/stopping the resynchronization, and a limited GET to determine the status of the resynchronizations.
- Synchronization of alarm events from the EAGLE to the NMS are supported by the EAGLE.
- The EAGLE currently uses SNMPv2 to implement SNMP function, which lacks modern means to authenticate users and implement private data exchanges; therefore, operators are advised to route SNMP traffic between the EAGLE and the OCEEMS using a secure network.

**Feature Key Activation**

This SNMP implementation is a FAK controlled feature (893-0404-01) that will use MIBs for EAGLE Alarm Traps, to provide for both UAM and UIMs. This FAK can only be activated and turned "on" or "off" for E5-OAM cards. No temporary key is allowed for this feature.

**SNMP Agent Activation**

Once the SNMP FAK has been activated and turned on, alarm traps will be sent to an NMS or set of NMSs specified by the `ent/chg/rtrv-snmp-host` commands.

**NMS Provisioing**

The SNMP FAK must be enabled before any NMS hosts can be provisioned. One or two NMSs can be provisioned to receive traps and UIMs. For each NMS, a host name and IP address must be specified with the `ent-snmp-host` command. Optional parameters allow the SNMP

command and trap port numbers to be changed, as well as allow the TRAP community string to be specified for the traps sent to the NMS, and set the heartbeat interval. Once a host is provisioned, the optional parameters may be changed with the `chg-snmp-host` command.

Once the FAK is enabled, the system-wide SNMP options can be changed with the `chg-snmpopts` command. This command enables the GET and SET community strings to be changed, and enables or disables sending UIM as traps to the NMS.

# Hardware Requirements

The hardware requirements and configuration include these items:

- The SNMP feature is only supported on the E5-MASP card.
- This feature requires an Ethernet connection:

> **Note:**
>
> The Ethernet port used for SNMP connects to the corresponding E5-OAM MASP backplane (either 850-0330-06/07 or 7333412) connector.

Refer to *Hardware Reference* for more information about the **E5-MASP** card.

# E5-OAM SNMP Configuration Procedure

The EAGLE configuration of the SNMP feature consists of the following steps. The steps contain links and references to detailed procedures and information needed to complete each step:

1. Connecting the Ethernet cables. See Connecting Ethernet Cables.
2. Provisioning the IP Address and IP Host. See Provisioning IP Address and IP Host.
3. Provisioning a Default Router and Enabling the SNMP Feature. See Provisioning Default Router and Enabling SNMP Feature.
4. Provisioning V2 Traps. See Provisioning V2 Traps.
5. Provisioning the SNMP Options and turning on the SNMP Feature. See Provisioning the SNMP Options and Turning on the SNMP Feature.

# Connecting Ethernet Cables

The E5-OAM SNMP feature works with the E5-MASP inserted into the -06 (p/n 850-0330-06) or -07 (p/n 850-0330-07) backplane. The backplane adapter with p/n 830-1333-02 is also required for connection to an Ethernet hub. The connectors are labeled "ENET 2" (J17) and "ENET 1" (J19), where location 1113 uses ENET 1 and location 1115 uses ENET 2. The E5-MCAP connects to a 10/100/1000Mbps Ethernet cable.

1. Connect the Ethernet cables from network to the Port A connectors of each MASP.

# Provisioning IP Address and IP Host

An SNMP IP Address and IP Host must be set up before the SNMP feature is available: **CHG-IP-LNK / RTRV-IP-LNK**

The `chg-ip-lnk` command is used to provision the IP link table. The `chg-ip-lnk` command assigns an IP address to the MASP. The `rtrv-ip-lnk` command is used to display the configuration. Use these commands to configure and display the IP address for the SNMP feature. For example:

1. Enter the `chg-ip-lnk:loc=<card_loc>:port=a:ipaddr=<ip_addr>:submask=255.255.255.0: speed=100:mcast=yes` command to assign an IP address to the MASP. Enter this command for each MASP card.
2. Enter the `rtrv-ip-lnk` command to verify the IP assignment.

**ENT-IP-HOST / DLT-IP-HOST / RTRV-IP-HOST**

The `ent-ip-host`, `dlt-ip-host` and `rtrv-ip-host` commands are used to define, delete and retrieve the MASP host name for the IP Address. Use these commands to define the host name for the IP address. For example:

1. Enter the `ent-ip-host:host=<host_name>:ipaddr=<ip_addr>` command to configure the MASP host name and IP address. Enter this command for each MASP card.
2. Enter the `rtrv-ip-host` to verify the host name and IP address entry.

Refer to *Commands Manual* for a complete description of these commands.

# Provisioning Default Router and Enabling SNMP Feature

A Default Router must be assigned before the SNMP Feature is enabled:
**CHG-IP-CARD / RTRV-IP-CARD**

The `chg-ip-card` command is used to assign a default router to the MASP. For example:

1. Enter the `chg-ip-card:loc=<card_loc>:srchordr=local:domain=<domain_name>:defrouter=<ip_addr>` command to assign a default router to the MASP. Enter this command for each MASP card.
2. Enter the `rtrv-ip-card` to verify the IP assignment.
3. Enter the `enable-ctrl-feat:partnum=893040401:fak=yyyyyyyyyyyyy` to enable the SNMP feature.

Refer to *Commands Manual* for a complete description of these commands.

# Provisioning V2 Traps

The Network Management System (NMS) must be provisioned to receive traps:

**ENT-SNMP-HOST / CHG-SNMP-HOST / DLT-SNMP-HOST / RTRV-SNMP-HOST**

The `ent-snmp-host` command is used to provision up to two NMS hosts. The `chg-snmp-host` command is used to change the SNMP port configuration. The `rtrv-snmp-host` command is used to display the configuration. Use these commands to configure and display the NMS host information.

The default command port that the E5-OAM monitors for GET and SET requests is 161. The default trap port that the E5-OAM uses to send traps to the NMSs is 162. The default heartbeat interval is 60 seconds.

Refer to *Commands Manual* for a complete description of these commands.

1. Enter the `ent-snmp-host:host=<host>:ipaddr=<ip_addr>` command to provision an NMS to receive the traps.
2. Enter the `rtrv-snmp-host` command to verify the host entry.

# Provisioning the SNMP Options and Turning on the SNMP Feature

The SNMP Option is turned OFF by default. Configuring the SNMP Option enables the GET and SET community strings to be changed, and enables or disables sending UIMs as traps to the NMS. The SNMP Option must be configured and turned on before this procedure can be completed:

1. Display the status of the SNMP options using the `rtrv-snmpopts` command.
2. Change the SNMP options to the desired settings by entering the `chg-snmpopts` command. Example:

   Enter the `chg-snmpopts:snmpuim=on` command to enable sending UIMs as traps to the NMS.
3. Verify the changes by entering the `rtrv-snmpopts` command.
4. Enter the `chg-ctrl-feat:partnum=893040401:status=on` command to turn on the SNMP feature.
5. Back up the changes, using the `chg-db:action=backup:dest=fixed` command.

   These messages 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.
   ```

   Refer to *Commands Manual* for a complete description of the `chg-snmpopts` and `rtrv-snmpopts` commands.

# Functionality

In the Eagle SNMP configuration, one or more administrative computers, called *managers*, have the task of monitoring a group of devices on the computer network. Each managed system (i.e., STP) executes a software component called an *agent* which reports information via SNMP to the manager.

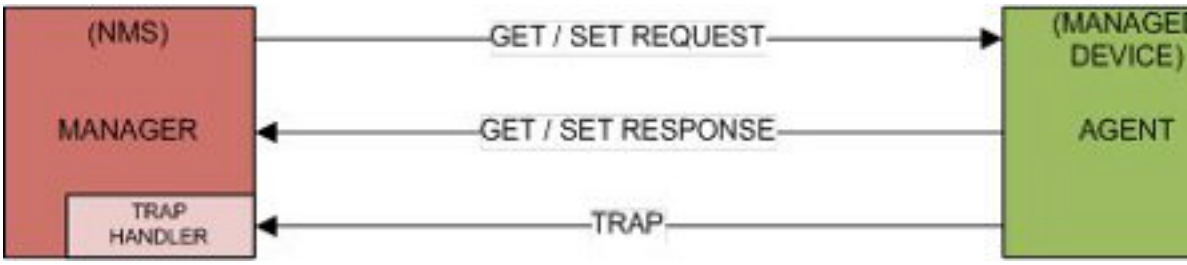
SNMP agents report management data on STPs as variables. The protocol also permits active management tasks, such as modification of certain of these variables. The variables accessible via SNMP are organized in hierarchies. These hierarchies, and other metadata (such as type and description of the variable), are described by the Management Information Bases (MIBs). These MIBs are common to both the manager and the agent.

An Eagle SNMP-managed network consists of three key components:

- A managed device (STP)
- An agent - software which runs on the managed devices
- Network management system (NMS) - software which runs on the manager

In the Eagle environment, a *managed device* is the STP itself. Each MASP implements an SNMP northbound interface that allows unidirectional (read-only) or bidirectional (read-write) access to node-specific information. The agent exchanges node-specific information with the NMSs. See Figure 3-1.

**Figure 3-1 SNMP Basic Block Diagram**




An *agent* is a network-management software module that resides on the managed device (STP). An agent has local knowledge of management information and translates that information to or from an SNMP specific form.

A *network management system* (NMS) executes applications that monitor and control managed devices. NMSs provide the bulk of the processing and memory resources required for network management. The Eagle supports connections to one or two NMSs.

An SNMP *GET Request* is a manager-to-agent request to retrieve the value of a variable or list of variables. A GET Response with current values is returned.

An SNMP *SET Request* is a manager-to-agent request to change the value of a variable or list of variables. The Eagle implementation supports the setting of the *resyncVar* variable only.

The EAGLE MIB's resyncVar, {tekelecEagleOamObjects 1}, is the variable used for resynchronization, to provide the NMS with a way to initiate an alarm resynchronization via an SNMP SET request; it has two potential states:

- Object Value = 0 is the normal default (no-resynchronization requested)
- Object Value = 1 indicates a resynchronization request

An SNMP *TRAP* is an asynchronous notification from the agent to a manager. A trap includes the time of the UAM/UIM, identification of the device being alarmed, alarm severity, text describing the alarm, a unique alarm identifier, and a unique sequence number.

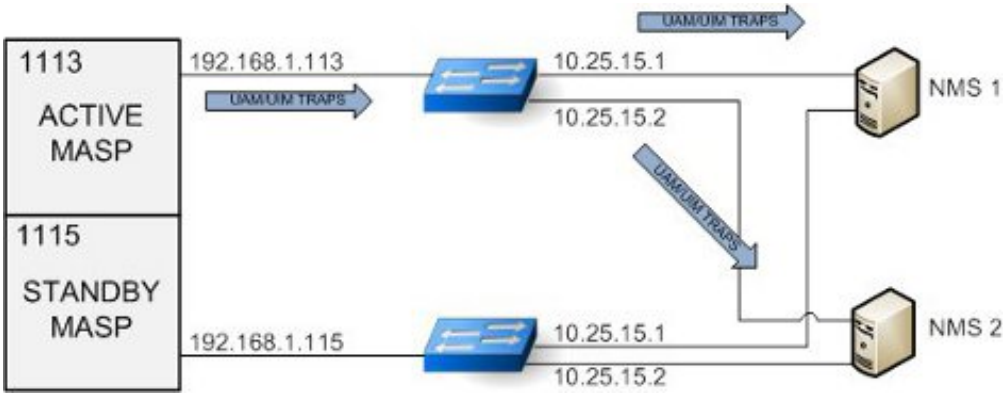
Traps are generated for UAMs and UIMs:

- UAM Traps are generated for Alarms generated on the Eagle. The device being alarmed is identified by the alarmTrap's "resource" and "sub-resource" pairings.
- UIM Traps are generated, including the "System Alive" message, and other informational messages. The device reporting the informational message is identified by the alarmTrap's "resource" and "sub-resource" pairings.

### Data Flows

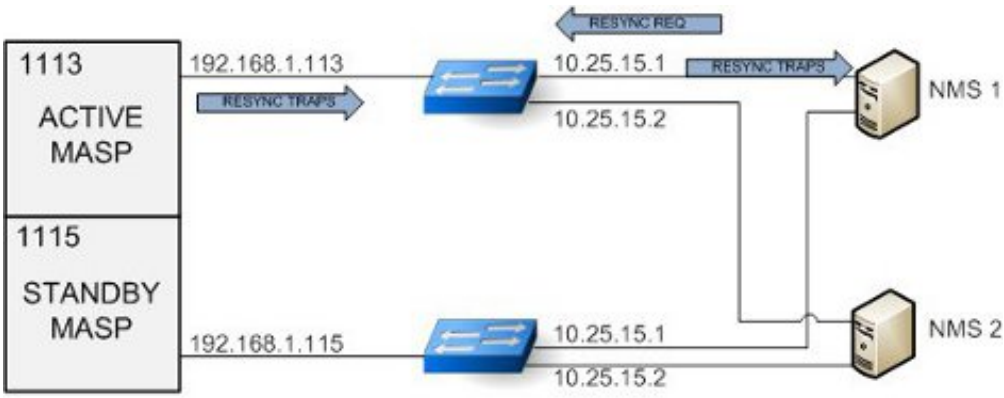
Under normal operating conditions, the Active MASP generates asynchronous traps which represent UIMs and UAMs. The traps are transmitted to one or two NMSs over the Active MASP IP link. Figure 3-2 example shows a typical network configuration for normal Eagle SNMP functions. The standby network configuration is available, so when a MASP switch of activity occurs, SNMP activity will be transmitted over its connections when the standby MASP becomes active.

**Figure 3-2 UAM/UIM Trap Flow**




When an NMS becomes out of sync with the Eagle alarm status, the NMS may issue a *SET request* to initiate a resynchronization. The *SET request* is directed to the Active MASP only. Incoming synchronous EAGLE alarms and UIMs are buffered during an active resynchronization, and transmitted to the NMS once the resynchronization is complete in the same order they were received. The resynchAlarmTrap responses will be returned from the Active MASP. See Figure 3-3.

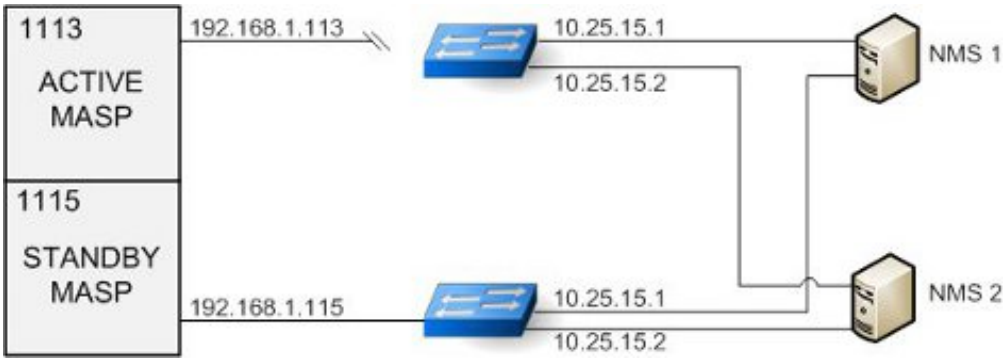
**Figure 3-3 Resynchronization Request/Trap Flow**




Note: Only one resync request is supported at a time.

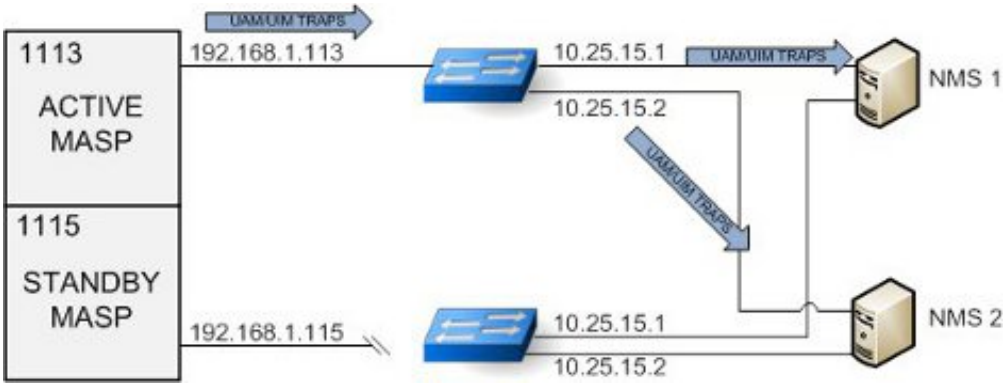
When the Active MASP IP link is inoperable, no asynchronous traps will not pass through the Standby MASP IP link, and resynchronization requests will not be handled by the Standby MASP. Because the alarm status is maintained on the Active MASP, only the Active MASP can transmit the UIM and UAM traps to the NMSs. If this situation occurs, either repair the IP link between the Active MASP and at the NMS, or switch MASP activity to the standby MASP. See Figure 3-4.

**Figure 3-4 UAM/UIM Trap Flow with Active Link Down**




Asynchronous UAM/UIM trap flows when the Standby MASP link is down are identical to the normal data flows. An inoperable link on the Standby MASP does not interfere with normal data flows. See Figure 3-5.

**Figure 3-5 UAM/UIM Trap Flow with Standby Link Down**




**Resynchronization**

- Resynchronization requests from an NMS should only be sent under the following conditions:
  - When a Heartbeat Trap has not been received within a few seconds of the time provisioned on Eagle for that NMS,
  - When the server has been restarted.
  - When a Sequence number mis-match is detected on NMS.

- A scheduled resynchronization is not recommended.
- A resyncStartTrap is sent by the Eagle to acknowledge that the Eagle is processing the resynchronization request.
- A resyncAlarmTrap is sent by the Eagle and generated to the NMS that requested the resynchronization for each active alarm.
- A resyncStopTrap is sent by the Eagle to indicate all actively alarmed devices have had traps sent for their alarms, and the resynchronization is complete.
- A resyncRequiredTrap is sent by the Eagle to the NMS to all configured NMSs to indicate that the active OAM has determined there is a need to resynchronization with all NMSs. Currently this may be due to either: an OAM reboot or during a resynchronization the buffer area holding incoming UAM/UIMs has been exceeded, and one or more of the incoming UAM/UIMs have been lost.

**Assumptions**

- It is assumed the NMS defined in the `ent-snmp-host` command will be present and monitoring the SNMP Traps sent by the Eagle.
- The NMS should be configured to potentially receive SNMP traps from 2 possible IP addresses.
- The Ethernet connection shall be configured for a speed of 100Mbps or higher (when available).
- There are alarms which have no effect of incrementing or decrementing alarm counts, such as re-notification alarms. These alarms will be trapped as "informational (2)" priority.
- All Eagle clearing alarms will have a priority of "Clear (3)".
- The following UAMs will all have a priority of "informational (2)" and not change the active alarm, nor alarm state of the device:
  - UAM # 314 - Route is allowed
  - UAM # 315 - Route is restricted
  - UAM # 316 - Route is prohibited
  - UAM # 178 - Security Log failed
  - UAM # 337 - DPC-SS status changed

**Limitations**

- If alarm inhibits are turned on for a device, alarms at the inhibited level(s) are not displayed. Since the SNMP traps use the same trigger mechanisms for their generation as the other alarms, then they are also not displayed when the alarm is inhibited. The customer who chooses to use alarm inhibits with SNMP on EAGLE does so at their own risk.
- Only the Active OAM is the source for traps.
- The NMS will receive traps from one of two EAGLE SNMP IP addresses. It will be up to the NMS to correlate these SNMP Traps and know that the information from an Eagle can be coming from one of two IP addresses.
- No filtering of UAMs will be done by EAGLE for SNMP traps.
- Resynchronization requests must be sent to the active MASP. Resynchronization requests sent to the standby MASP will not be acknowledged.

- During a resynchronization, all UAM/UIMs to all NMSs will be buffered until the resynchronization is completed irrespective of which NMS has initiated the resynchronization. Then the Buffered UAM/UIMs will be displayed on all NMSs before synchronous alarm and UIMs are displayed. During the brief interval of resynchronization there might be no UAM/UIM stream available on the NMS even if it is not the originator of resynchronization request.
- Calculations for the buffer area for incoming UIM/UAMs during a resynchronization are based on 7000 active alarms, an incoming rate of new UAM/UIMs of total 8 per second, and a trap rate of 84 traps per second. If these limits are exceeded, the buffer limit may be reached and a resyncRequiredTrap will be sent out to all NMSs. In order to avoid resynchronization loop issues, the user can do the following:
  - Clean up their network to avoid the excessive alarms and UIMs.
  - Use the `chg-snmpopts:SNMPUIM=OFF` command to halt incoming UIMs.
  - Temporarily reduce or disable a UIM or set of UIMs that are flooding out by using the `set-uim-acthresh` command.
  - Perform resynchronization only during periods of low activity.

# SNMP MIBs

The following MIBs will need to be compiled into the NMS to interface with the EAGLE. They are shown here for reference only. Text files of these three MIBs are available on the Oracle Software Delivery Cloud (OSDC) site, https://edelivery.oracle.com, in a .zip file separate from the EAGLE software download file.

### TEKELEC-TOPLEVEL-REG

```
TEKELEC-TOPLEVEL-REG DEFINITIONS ::= BEGIN
-- Copyright 2000 Tekelec Corporation
IMPORTS
enterprises FROM RFC1155-SMI;
tekelecCorp OBJECT IDENTIFIER ::= { enterprises 323 }
tekelecPrivate OBJECT IDENTIFIER ::= { tekelecCorp 1 }
tekelecRegistration OBJECT IDENTIFIER ::= { tekelecCorp 2 }
tekelecGeneric OBJECT IDENTIFIER ::= { tekelecCorp 3 }
tekelecCapabilities OBJECT IDENTIFIER ::= { tekelecCorp 4 }
tekelecProductGroups OBJECT IDENTIFIER ::= { tekelecCorp 5 }
tekelecRequirements OBJECT IDENTIFIER ::= { tekelecCorp 6 }
tekelecExperimental OBJECT IDENTIFIER ::= { tekelecCorp 7 }
tekelecCallCenterGroup OBJECT IDENTIFIER ::= {tekelecProductGroups 1 }
tekelecDiagnosticsGroup OBJECT IDENTIFIER ::= {tekelecProductGroups 2 }
tekelecSwitchingGroup OBJECT IDENTIFIER ::= {tekelecProductGroups 3 }
experimental OBJECT IDENTIFIER ::= { tekelecSwitchingGroup 1}
generic OBJECT IDENTIFIER ::= { tekelecSwitchingGroup 2 }
tekelecEAGLE OBJECT IDENTIFIER ::= { tekelecSwitchingGroup 3}
tekelecLSMS OBJECT IDENTIFIER ::= { tekelecSwitchingGroup 4}
tekelecOAP OBJECT IDENTIFIER ::= { tekelecSwitchingGroup 5 }
tekelecIP7 OBJECT IDENTIFIER ::= { tekelecSwitchingGroup 6 }
tekelecINSIGHT7 OBJECT IDENTIFIER ::= { tekelecSwitchingGroup 7}
tekelecTALON OBJECT IDENTIFIER ::= { tekelecSwitchingGroup 8}
tekelecVOX OBJECT IDENTIFIER ::= { tekelecSwitchingGroup 9 }
tekelecSCP OBJECT IDENTIFIER ::= { tekelecSwitchingGroup 10}
tekelecIVR OBJECT IDENTIFIER ::= { tekelecSwitchingGroup 11}
tekelecNetworkSwitch OBJECT IDENTIFIER ::= {tekelecSwitchingGroup 12 }
tekelecSentinel OBJECT IDENTIFIER ::= { tekelecSwitchingGroup 13}
tekelecTekServer OBJECT IDENTIFIER ::= { tekelecSwitchingGroup 14 }
```

```
tekelecIP7EDGE OBJECT IDENTIFIER ::= { tekelecSwitchingGroup 15}
tekelecTekCore OBJECT IDENTIFIER ::= { tekelecSwitchingGroup 16}
tekelecSMAC OBJECT IDENTIFIER ::= { tekelecSwitchingGroup 17}
tekelecTPD OBJECT IDENTIFIER ::= { tekelecSwitchingGroup 18}
tekelecExtensions OBJECT IDENTIFIER ::= { tekelecSwitchingGroup 19 }
tekelecEPAP OBJECT IDENTIFIER ::= { tekelecSwitchingGroup 20}
tekelecELAP OBJECT IDENTIFIER ::= { tekelecSwitchingGroup 21}
tekelec EAGLEXGServiceBroker OBJECT IDENTIFIER ::= { tekelecSwitchingGroup 22}
tekelecECAP OBJECT IDENTIFIER ::= { tekelecSwitchingGroup 23}
tekelecEAGLEEMS OBJECT IDENTIFIER ::= { tekelecSwitchingGroup 24}
tekelecEAGLEXGHlrRouter OBJECT IDENTIFIER ::= {tekelecSwitchingGroup 25 }
tekelecEAGLEXGNPQueryRouter OBJECT IDENTIFIER ::= {tekelecSwitchingGroup 26 }
tekelecIAS OBJECT IDENTIFIER ::= { tekelecSwitchingGroup 27}
tekelecEAGLEXGDSR OBJECT IDENTIFIER ::= { tekelecSwitchingGroup 28 }
tekelecPCRF OBJECT IDENTIFIER ::= { tekelecSwitchingGroup 29}
tekelecSDS OBJECT IDENTIFIER ::= { tekelecSwitchingGroup 30}
tekelecTVOE OBJECT IDENTIFIER ::= { tekelecSwitchingGroup 31}
tekelecUDR OBJECT IDENTIFIER ::= { tekelecSwitchingGroup 32}

END
```

### TEKELEC-EAGLE-COMMONOBJECTS

```
--
********************************************************************************
--
-- Copyright 2010 Tekelec Corporation
--
-- The assignments of Tekelec enterprise MIB OIDs is officially
tracked by -- Technical Reference document TR003056. Each time this MIB is
updated a -- corresponding change must be made to this document to avoid
conflicts.
--
--********************************************************************************
TEKELEC-EAGLE-COMMONOBJECTS DEFINITIONS ::= BEGIN
IMPORTS
enterprises,
OBJECT-TYPE,
MODULE-IDENTITY,
Unsigned32 FROM SNMPv2-SMI
DateAndTime,
DisplayString,
TEXTUAL-CONVENTION FROM SNMPv2-TC
tekelecEAGLE FROM TEKELEC-TOPLEVEL-REG;
tekelecEagleCommonObjects MODULE-IDENTITY
LAST-UPDATED "201206160000Z" -- June 16, 2012
ORGANIZATION "Tekelec"
CONTACT-INFO "
Postal: Tekelec
5200 Paramount Parkway
Morrisville, NC 27560
USA Tel: 919-460-5500"
DESCRIPTION "This MIB defines the Tekelec Eagle Common Objects"
-- ------------------------------------------------------
--
-- Revision History --
-- ------------------------------------------------------
REVISION "201206160000Z" -- June 16, 2012
DESCRIPTION
"Initial Version"
::= { tekelecEAGLE 1 }
```

```
-- ------------------------------------------------------
--
-- TEXTUAL CONVENTIONS
--
-- ------------------------------------------------------
EagleSeverity ::= TEXTUAL-CONVENTION
STATUS current
DESCRIPTION "The severity of Alarms in the Eagle"
SYNTAX INTEGER { informational (2),
clear (3),
minor (4),
major (5),
critical (6)
}
-- ------------------------------------------------------
--
-- ALARM OBJECTS DEFINITION --
-- ------------------------------------------------------
eagleAlarmObjects OBJECT IDENTIFIER
::= {tekelecEagleCommonObjects 1 }
eagleMRNTime OBJECT-TYPE
SYNTAX DateAndTime
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"Timestamp when MRN was produced by the Eagle."
::= { eagleAlarmObjects 1 }
eagleMRNResourceName OBJECT-TYPE
SYNTAX DisplayString
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"Unique name or identifier to identify the Eagle on the domain."
::= { eagleAlarmObjects 2 }
eagleMRNSubResourceName OBJECT-TYPE
SYNTAX DisplayString
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"Unique name or identifier to identify an alarmable object within the Eagle."
::= { eagleAlarmObjects 3 }
eagleMRNSeverity OBJECT-TYPE
SYNTAX EagleSeverity
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"The severity of MRN CLEAR|MINOR|MAJOR|CRITICAL|NONE) ."
::= { eagleAlarmObjects 4 }
eagleMRNTextMessage OBJECT-TYPE
SYNTAX DisplayString
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"Original information describing the MRN."
::= { eagleAlarmObjects 5 }
eagleMRNNumber OBJECT-TYPE
SYNTAX Unsigned32
MAX-ACCESS read-only
STA number identifying a MRN."
::= { eagleAlarmObjects 6 }
eagleMRNSequence OBJECT-TYPE
```

```
SYNTAX Unsigned32
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"Unique sequence number identifying an SNMP Alarm Trap instance."
::= { eagleAlarmObjects 7 }
TUS current
DESCRIPTION
"Unique number identifying a MRN."
::= { eagleAlarmObjects 6 }
eagleMRNSequence OBJECT-TYPE
SYNTAX Unsigned32
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"Unique sequence number identifying an SNMP Alarm Trap
instance."
::= { eagleAlarmObjects 7 }

END
```

### TEKELEC-EAGLE-MIB

```
--**************************************************************************
--
-- Copyright 2010 Tekelec Corporation
--
-- The assignments of Tekelec enterprise MIB OIDs is officially
tracked by
-- Technical Reference document TR003056. Each time this MIB is
updated a
-- corresponding change must be made to this document to avoid
conflicts.
--
--**************************************************************************
TEKELEC-EAGLE-MIB DEFINITIONS ::= BEGIN
IMPORTS
MODULE-IDENTITY,
OBJECT-TYPE,
NOTIFICATION-TYPE FROM SNMPv2-SMI
DisplayString FROM SNMPv2-TC
eagleMRNSeverity,
eagleMRNTime,
eagleMRNResourceName,
eagleMRNSubResourceName,
eagleMRNTextMessage,
eagleMRNNumber,
eagleMRNSequence FROM TEKELEC-EAGLE-COMMONOBJECTS
tekelecEAGLE FROM TEKELEC-TOPLEVEL-REG;
tekelecEagleOam MODULE-IDENTITY
LAST-UPDATED "201206160000Z" -- June 16, 2012
ORGANIZATION "Tekelec"
CONTACT-INFO
" Postal: Tekelec
5200 Paramount Parkway
Morrisville, NC 27560
USA
Tel: 919-460-5500"
DESCRIPTION
"This MIB defines the Tekelec Eagle OAM Objects"
-- ------------------------------------------------------------
```

```
--
-- Revision History
--
-- ---------------------------------------------------------
REVISION "201206160000Z" -- June 16, 2012
DESCRIPTION "Initial Version"
::= { tekelecEAGLE 2 }
-- ---------------------------------------------------------
--
-- EAGLE NBI OBJECTS DEFINITION
--
-- ---------------------------------------------------------
tekelecEagleOamObjects OBJECT IDENTIFIER ::= { tekelecEagleOam 1 }
resyncVar OBJECT-TYPE
SYNTAX INTEGER(0..1)
MAX-ACCESS read-write
STATUS current
DESCRIPTION "The object is available to be set by the NMS to
indicate a request for alarm resynchronization. Object value=0 indicates a
request to stop an ongoing
resnchronization and Object value=1 indicates a resynchronization request."
::= { tekelecEagleOamObjects 1 }
-- ---------------------------------------------------------
--
-- EAGLE TRAPS DEFINITION
--
-- ---------------------------------------------------------
tekelecEagleOamTraps OBJECT IDENTIFIER ::= { tekelecEagleOam 2 }
alarmTrap NOTIFICATION-TYPE
OBJECTS { eagleMRNTime,
eagleMRNResourceName,
eagleMRNSubResourceName,
eagleMRNSeverity,
eagleMRNTextMessage,
eagleMRNNumber,
eagleMRNSequence }
STATUS current
DESCRIPTION "The trap is sent by the EAGLE to NMS when an alarm
occurs."
::= { tekelecEagleOamTraps 1 } resyncAlarmTrap NOTIFICATION-TYPE
OBJECTS { eagleMRNTime,
eagleMRNResourceName,
eagleMRNSubResourceName,
eagleMRNSeverity,
eagleMRNTextMessage,
eagleMRNNumber,
eagleMRNSequence }
STATUS current
DESCRIPTION "The trap is sent by the EAGLE to NMS when an alarm
occurs."
::= { tekelecEagleOamTraps 2 } resyncStartTrap NOTIFICATION-TYPE
OBJECTS { eagleMRNResourceName,
eagleMRNSeverity,
eagleMRNTextMessage}
STATUS current
DESCRIPTION "The trap is sent by the EAGLE to NMS when the Eagle
is about to start resynchronization."
::= { tekelecEagleOamTraps 3 } resyncStopTrap NOTIFICATION-TYPE
OBJECTS { eagleMRNResourceName,
eagleMRNSeverity,
eagleMRNNumber,
```

```
eagleMRNTextMessage}
STATUS current
DESCRIPTION "The trap is sent by the EAGLE to NMS when
resynchronization is complete."
::= { tekelecEagleOamTraps 4 } resyncRejectTrap NOTIFICATION-TYPE
OBJECTS { eagleMRNResourceName,
eagleMRNSeverity,
eagleMRNTextMessage}
STATUS current
DESCRIPTION "The trap is sent by the EAGLE to NMS when a
resynchronization request is rejected by EAGLE"
::= { tekelecEagleOamTraps 5 } resyncRequiredTrap NOTIFICATION-TYPE
OBJECTS { eagleMRNResourceName,
eagleMRNSeverity,
eagleMRNTextMessage}
STATUS current
DESCRIPTION "The trap is sent by the EAGLE to NMS when a
resynchronization is required by EAGLE"
::= { tekelecEagleOamTraps 6 } heartbeatTrap NOTIFICATION-TYPE
OBJECTS { eagleMRNResourceName,
eagleMRNSeverity,
eagleMRNTextMessage}
STATUS current
DESCRIPTION "The trap is periodically sent by the EAGLE to NMS to indicate that
the Eagle is up"
::= { tekelecEagleOamTraps 7 }

END
```

# 4
# STPLAN Configuration

Chapter 4, STPLAN Configuration, describes the STPLAN feature and the procedures necessary to configure the EAGLE 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** can be copied and directed through the **LAN** interface to an external server or microcomputer application such as a usage measurements **EAGLE**. The gateway screening feature must be available on the **STP** in order to use the **STPLAN** feature.

The feature requires an E5-SLAN card running the `stplan` 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** 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 uses 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 **E5-SLAN** card is used as the **STPLAN** card, 10/100Mbps port data transfer rate is supported by the **EAGLE**. The ethernet interface 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** 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.

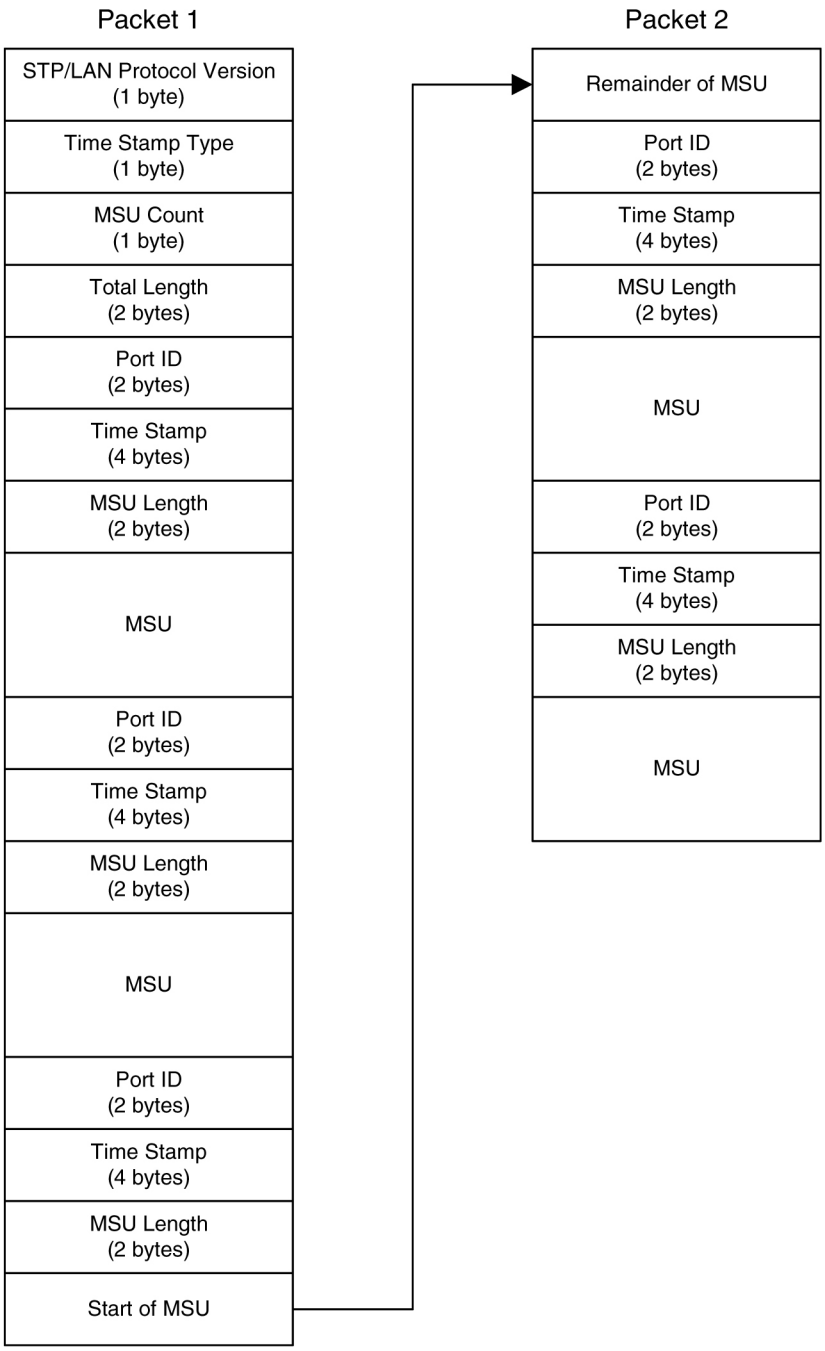
### Message Format

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 3-1 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** 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.

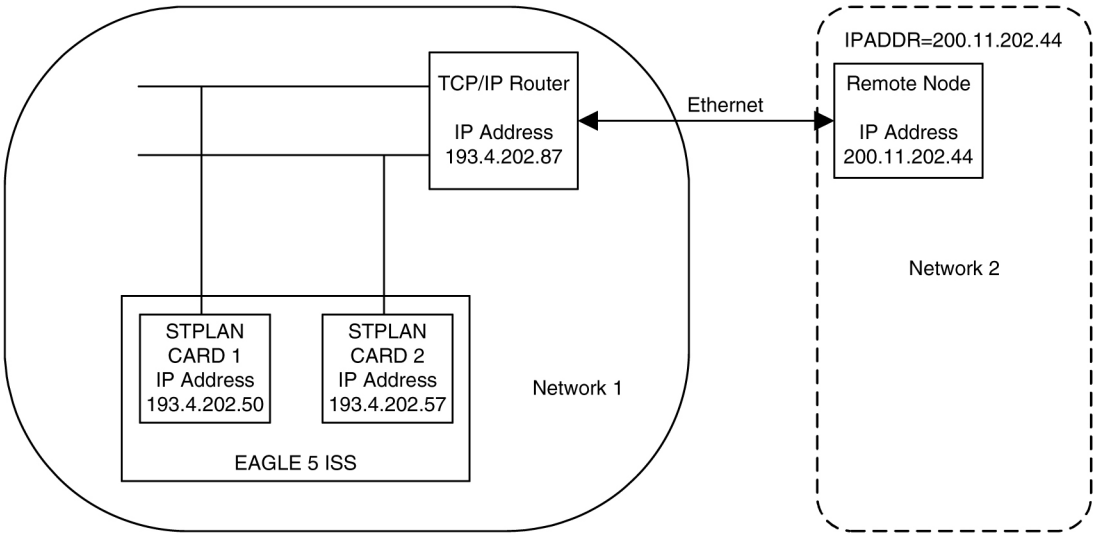
**Figure 4-1 STPLAN Messages Embedded in TCP/IP Packets**




# TCP/IP Router

A **TCP/IP** router is used to route **STPLAN** messages from the **EAGLE** to a remote host in another network or subnetwork. Figure 3-2 shows an example of the **STPLAN** feature using a **TCP/IP** router.

**Figure 4-2 STPLAN Network with a TCP/IP Router**



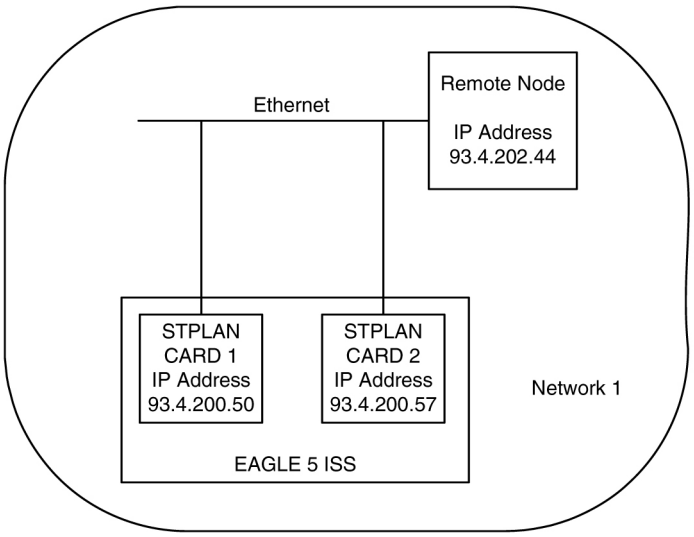

**Note:**

The term "**STPLANCard**" used in Figure 3-2 refers to **E5-SLAN** card running the `stplan` 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** can connect only to **TCP/IP** nodes that are in the same network as the **EAGLE**. To permit communication between the **STPLAN** cards and an external network, a **TCP/IP** router is placed in between the **EAGLE** and the remote host. The **TCP/IP** router is located in the same network as the **EAGLE**, 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** 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 3-3.

**Figure 4-3 STPLAN in a Large Network**

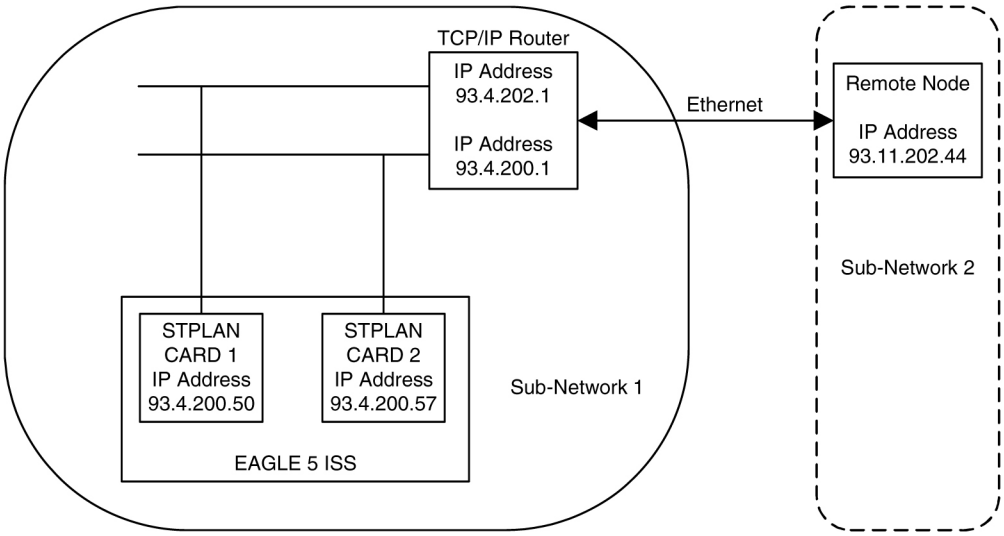



**Note:**

The term "**STPLAN Card**" used in Figure 3-3 refers to **E5-SLAN** card running the `stplan` application.

If a user is using subnet routing and as a result, multiple ethernet cables and **TCP/IP** routers are required and must be configured in the **EAGLE**. See Figure 3-4.

**Figure 4-4 STPLAN Network with Subnet Routing**



> **Note:**
>
> The term "**STPLAN Card**" used in Figure 3-4 refers to **E5-SLAN** card running the `stplan` application.

For the examples shown in Figures 3-3 and 3-4, the **IP** addresses of the **TCP/IP** data links and the remote node are the same. In Figure 3-3, the remote node is in the same network as the **TCP/IP** data links, so no **TCP/IP** router is needed. In Figure 3-4, 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 3-4, the **TCP/IP** router is not configured with the `ent-ip-node` command, the **EAGLE** does not detect that the **TCP/IP** router has been omitted, and no warnings are given in this case. The **EAGLE** 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** supports up to 32 **E5-SLAN** cards.
- Multiple **E5-SLAN** cards can connect to each host on different ports. The assignment of the **LIM**s is done automatically by the **EAGLE**.
- Multiple **LIM** cards can also be used.
- For the **E5-SLAN** card, one of the two cables can be used to connect the **E5-SLAN** card to the node, or a standard CAT-5 ethernet cable. 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 *Hardware Reference* for more information about the **DCM** or **E5-SLAN** card.

# Node Requirements

In order for a node to communicate with the **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** 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**, 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 `gwsm` 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 `gwsm=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** sends a copy of the message to the **STPLAN** application.

In a blocked screen (for example, blocked **DPC**):

**Table 4-1 Gateway Screening Action**

| If... | then... |
|---|---|
| a match is found and the next screening function identifier is `fail`, | 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 `stop`, | the next screening reference is identified and the screening process continues. |
| the next screening function identifier is equal to `stop`, | the message is processed and no further screening takes place. |
| the next screening function identifier is equal to `stop` 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** 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 *Database Administration - GWS User's Guide* 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**, and are copied prior to being transmitted on the outbound link.

The external connection to the remote node consists of several E5-SLAN cards or **DCM** cards (STPLAN cards) 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 **STPLAN** card supports a single remote destination node. Each **STPLAN** card may also support a single default router.

On the **EAGLE**, 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. Performance 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.

**STPLAN** cards are provisioned per site based on the total number of cards in the **EAGLE** which require **STPLAN** service.

To determine the number of **STPLAN** cards required in a particular site ro accommodate the worst-case traffic situations, the following quantities must be determined first.

- **LSL** = the number of low-speed links in the system
- **HSL** = the number of high-speed **LIMATMs** links in the system
- **SE-HSL** = the number of high-speed **SE-HSL** links in the system
- **ST-HSL-A** = the number of high-speed **ST-HSL-A** 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 **MSU**s flowing though the system ( such as 80 octets per **MSU**).

Contact your Sales Representative or Account Representative to determine the number of STPLAN cards that must be provisioned in your EAGLE, and to determine where in the EAGLE these STPLAN cards must be provisioned.

# Understanding Firewall and Router Filtering

Firewall protocol filtering for the interface between the EAGLE E5-SLAN card and the host computer is defined in Table 3-1.

**Table 4-2 STPLAN 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 |
| | N/A | **ARP** (Address Resolution Protocol)[2] | Yes | Yes |

1. The **TCP/IP** port is the port number configured with the `ipport` parameter of the `ent-ip-node` command. The value of the `ipport` parameter is shown in the `IPPORT` field of the `rtrv-ip-node` command output. The values for this parameter are in the range 1024–5000.

2. **ARP** is used to provide **TCP** communication. The customer network will provide this information as appropriate.

The **STPLAN** application requires a data pipe of 10 or 100 Mb. The actual percentage of **SLAN** tranactions 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** 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**. The loopback IP addresses (127.*.*.*) are supported by **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.

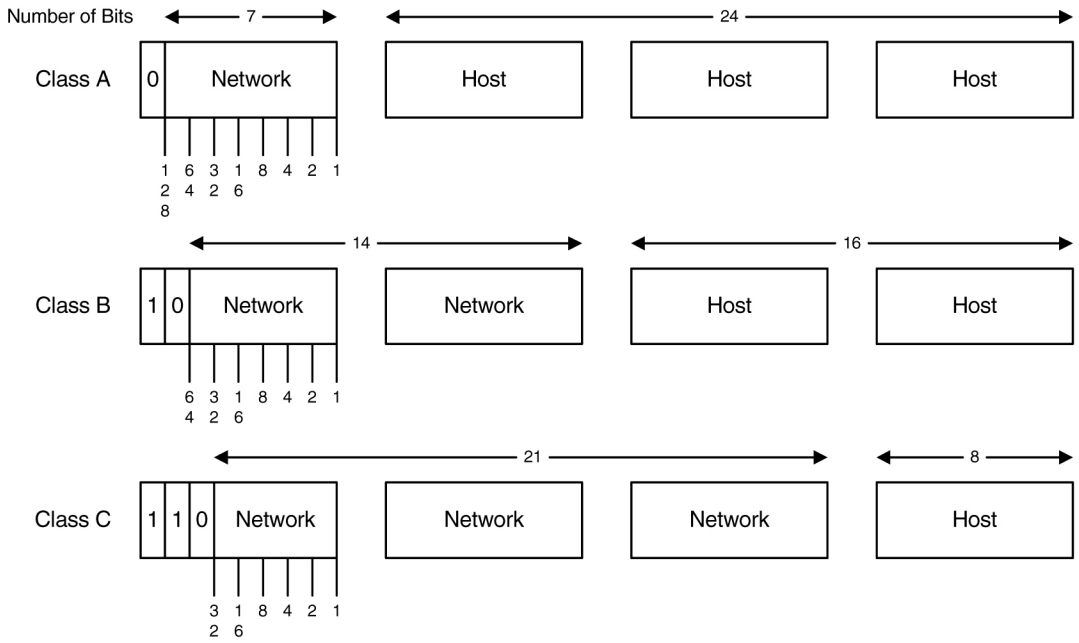
Table 3-2 summarizes the **IP** address values for the classes of **IP** addresses. Figure 3-5 illustrates the different parts of the **IP** addresses in each class of **IP** addresses.

**Table 4-3 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 4-5 IP Address Bit Categorization**




The **EAGLE** 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 3-2. 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 3-3 will be generated when an invalid **IP** address is entered.

**Table 4-4 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 |

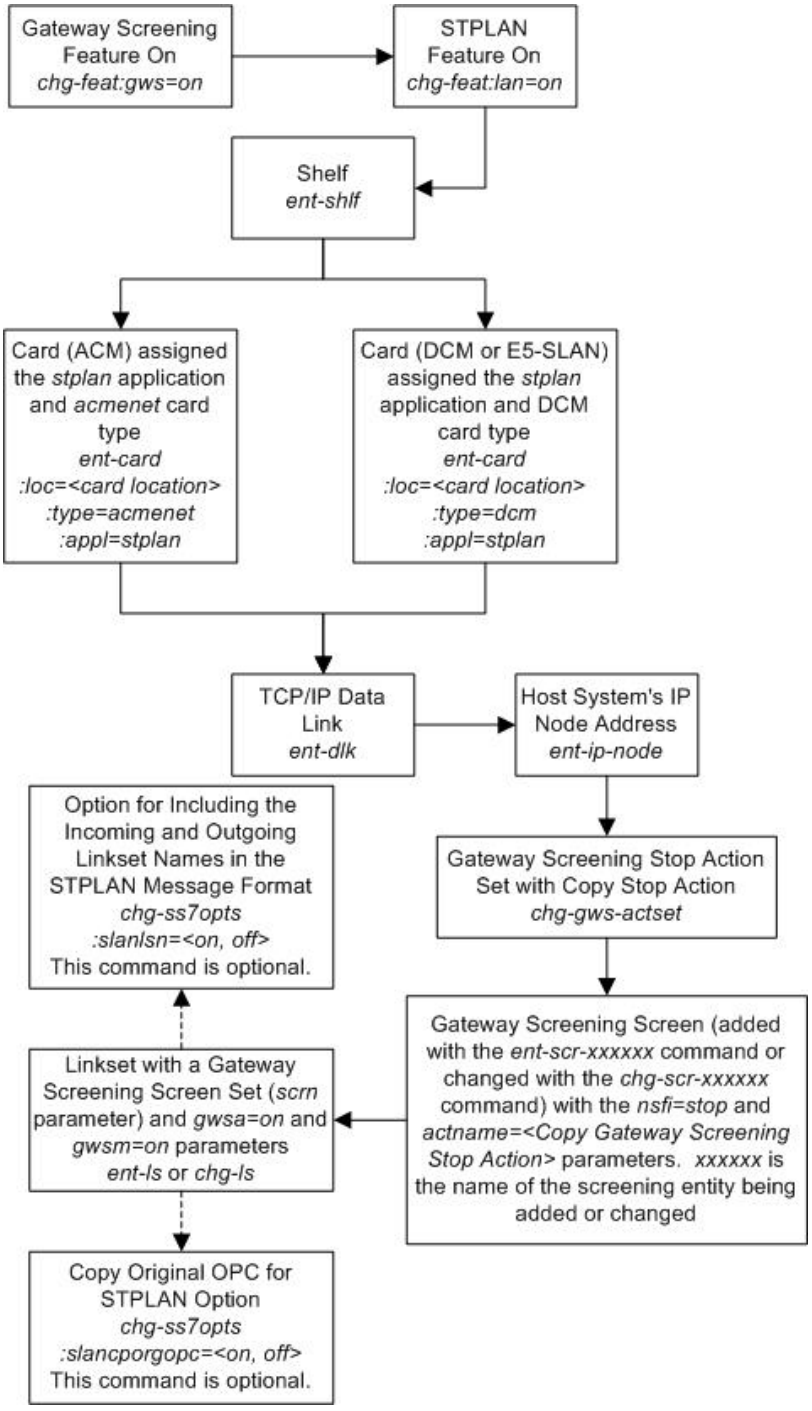
# Network Configuration Procedures

To support the **STPLAN** feature, you must configure these database elements that are specific to the **STPLAN** feature.

- **E5-SLAN** card
- **TCP/IP** Data **Link**
- **IP** Node

When the **EAGLE** is booted, each module gets the configuration information from the database. Figure 4-6 shows the database elements that must be configured, and the order in which they should be configured.

**Figure 4-6 STPLAN Database Relationships**




These procedures use a variety of commands. If you need more information on these commands, refer to *Commands User's Guide* to find the required information.

This list describes the database entities (shown in Figure 4-6) 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 **E5-SLAN** cards (card type `dcm`). The **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, an **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 **E5-SLAN** card shown in step 3. 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 **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  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 - GWSUser's Guide* for information on configuring gateway screening entities.

9. The linkset containing the messages copied for the **STPLAN** application must have a gateway screening assigned to it. Either the `gwsa` or `gwsm` 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 the Changing an SS7 Linkset procedure in the *Database Administration* - **SS7** *User's Guide* and change the `scrn`, `gwsa`, and `gwsm` parameters of the desired linkset.

   **Caution:**

   When **Gateway Screening** is in the screen test mode, as defined by the linkset parameters `gwsa=off` and `gwsm=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.

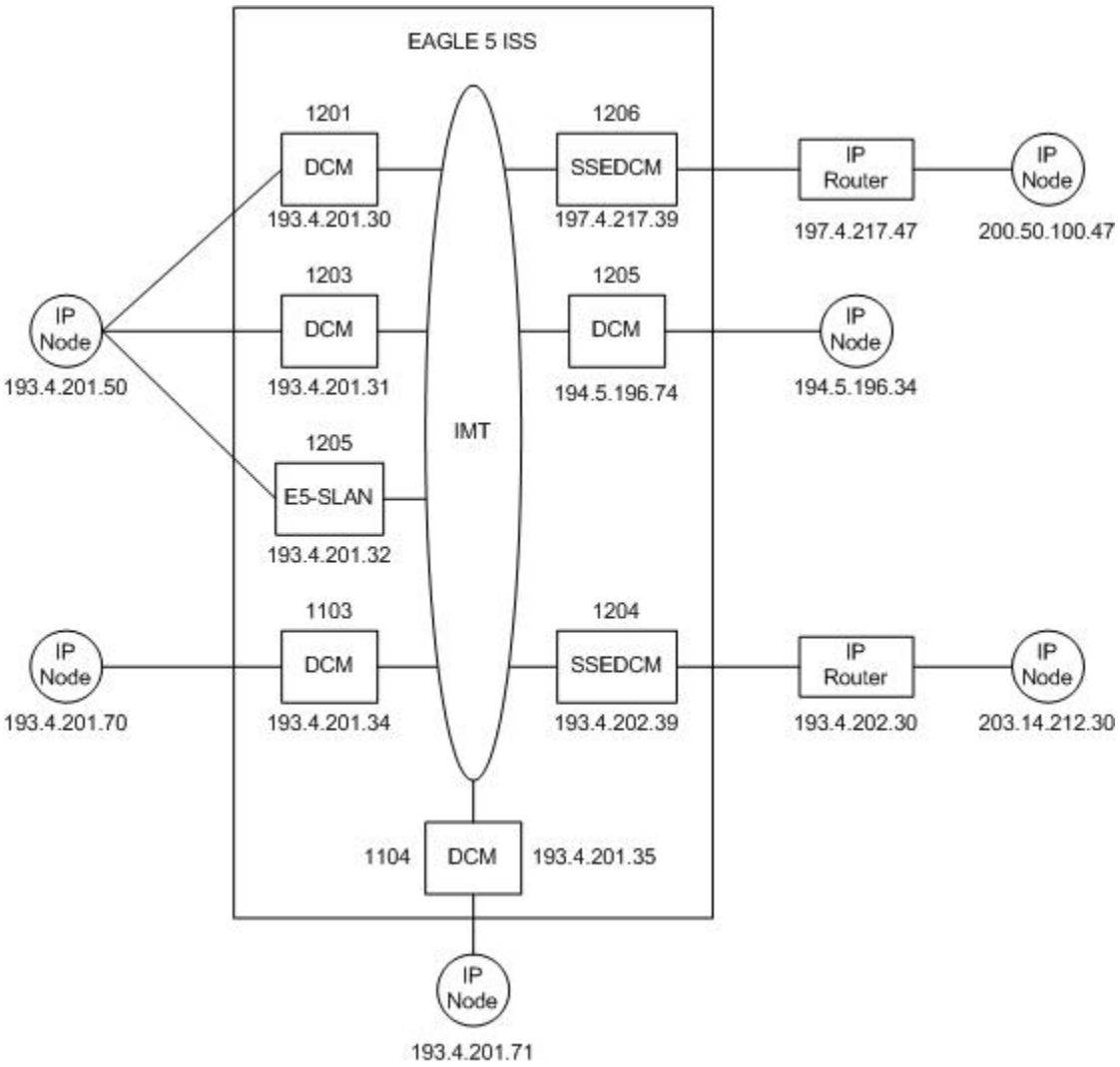
10. The copy original OPC for STPLAN option can be configured for the STPLAN feature. Enter the `rtrv-ss7opts` command to verify the status of this option. This option is configured by performing the procedure Configuring the Copy Original OPC for STPLAN Option. Configuring this option is not required for the STPLAN feature.
11. The option for including the incoming and outgoing linkset names in the STPLAN message format 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 Option for Including the Incoming and Outgoing Linkset Names in the STPLAN Message Format. 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 3-4. Figure 3-7 shows a diagram of this sample network.

**Table 4-5 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 4-7 STPLAN Configuration Example**




# Adding an STPLAN Card

This procedure is used to add a card supporting the **STPLAN** feature, an **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 `dcm`.

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

The **STPLAN** card part numbers are shown in Table 4-6.

**Table 4-6 STPLAN Card Part Numbers**

| Card Type | Card Name (as shown on the card label) | TYPE Parameter Value | Part Number |
|---|---|---|---|
| E5-SLAN Card | E5-ENET | dcm | 870-2212-02 |
| | E5-ENET-B | dcm | 870-2971-XX |

**Note:**

If the STPLAN card will be sending traffic to the ECAP, the STPLAN card must be an E5-SLAN card.

The dual-slot **DCM** card can be inserted only in card slots 01, 03, 05, 07, 11, 13, 15, and 17 of the extension shelf. The dual-slot **DCM** card can be inserted in the control shelf, but only in slots 01, 03, 05, 07, and 11. The dual-slot **DCM** card occupies two card slots, so the even numbered card slot adjacent to the odd numbered slot where the dual-slot **DCM** card has been inserted must be empty, as shown in Table 4-7. The dual-slot **DCM** card is connected to the network through the odd numbered card slot connector.

**Table 4-7 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:**

After the Gateway Screening and STPLAN features are turned on with the `chg-feat` command, they cannot be turned off.

**Note:**

Perform the “Changing the High-Capacity Card Temperature Alarm Thresholds” procedure in *Database Administration - SS7 User's Guide* to verify the temperature threshold settings for the **E5-SLAN** card.

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 *Database Administration – System Management User's Guide*.

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

**STPLAN Card Provisioning**

Follow these rules to provision **STPLAN** cards:

- A minimum of two **STPLAN** cards must be provisioned in an EAGLE.
- A maximum of 32 **STPLAN** cards can be provisioned in an EAGLE.
- For shelves containing **HIPR2** cards, the **STPLAN** cards should be provisioned in the same shelves that contain **HIPR2** cards. The shelf can contain more than three STPLAN cards.
- The **E5-SLAN** card requires that **HIPR2** cards are installed in the card locations 9 and 10 in the shelf that will contain the **E5-SLAN** card. If **HIPR2** 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-gpl:gpl=hipr2` command to verify whether or not **HIPR2** cards are installed in the same shelf as the E5-SLAN card being provisioned in this procedure. The shelf can contain more than three E5-SLAN cards.
- If the E5-SLAN card is an E5-ENET-B card, the FAN feature must be turned on and fans must be installed on the shelf that contains the E5-ENET-B card. Enter the `rtrv-feat` command to verify whether or not the FAN feature is turned on. Perform the procedures in *Installation Guide* to install fans on the shelf that contains the E5-ENET-B card if fans must be installed. The MFC (message flow control) option must be on. Enter the `rtrv-stpopts` command to verify whether or not the MFC option is on. Perform the Configuring the MFC Option procedure to turn on the MFC option, if required.

> **Note:**
>
> Contact your Sales Representative or Account Representative to determine the number of **STPLAN** cards that must be provisioned in your EAGLE, and to determine where in the EAGLE these **STPLAN** cards must provisioned before performing this procedure.

1. Enter the `rtrv-card` command to display the cards in the **EAGLE**.

   Cards should be distributed throughout the EAGLE for proper power distribution. Refer to *Installation Guide* for the shelf power distribution.

```
rlghncxa03w 09-14-25 09:58:31 GMT EAGLE5 46.0.0
CARD   TYPE      APPL      LSET NAME     LINK SLC LSET NAME     LINK SLC
1102   TSM       GLS
1103   E5-ENET   STPLAN
1104   E5-ENET   STPLAN
1113   E5-MCAP   OAMHC
1114   E5-TDM-A
1115   E5-MCAP   OAMHC
1116   E5-TDM-B
1117   E5-MDAL
1203   E5-ENET   STPLAN
```

```
1205   E5-ENET   STPLAN
1206   E5-ENET   STPLAN
1211   LIMDS0    SS7ANSI   lsn1          A    0   lsn2          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
```

If the APPL field of the `rtrv-card` command output shows cards assigned to the STPLAN application, continue the procedure with 5.

2. Enter the `rtrv-feat` command to verify that the **STPLAN** and the Gateway Screening features are on.

   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. To view all fields displayed by the `rtrv-feat` command, see the `rtrv-feat` command description in *Commands User's Guide*.

   If the gateway screening and **STPLAN** features are on, continue the procedure with 5. If the Gateway Screening feature is not on, continue the procedure with 3. If the Gateway Screening feature is on, but the **STPLAN** feature is off, continue the procedure with 4.

3. If the Gateway Screening feature is not on, turn the Gateway Screening feature on by entering this command.

   ```
   chg-feat:gws=on
   ```

   > **Note:**
   >
   > After the Gateway Screening feature is turned on with the `chg-feat` command, it cannot be turned off.

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.

5. Verify that the card has been physically installed into the proper location.

**Note:**

If the STPLAN card will be sending traffic to the ECAP, the STPLAN card must be an E5-SLAN card.

**Caution:**

If the versions of the flash **GPL**s 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 *Unsolicited Alarm and Information Messages Reference* before proceeding with this procedure.

If an E5-SLAN card is being added, continue the procedure with 6, otherwise continue the procedure with 11.

6. Verify that HIPR2 cards are installed at card locations 9 and 10 in the shelf where the E5-SLAN card will be installed. Enter this command.

   `rept-stat-gpl:gpl=hipr2`

   This is an example of the possible output.

```
rlghncxa03w 09-07-01 11:40:26 GMT  EAGLE5 41.1.0
GPL        CARD      RUNNING            APPROVED      TRIAL
HIPR2      1109      126-002-000        126-002-000   126-003-000
HIPR2      1110      126-002-000        126-002-000   126-003-000
HIPR2      1209      126-002-000        126-002-000   126-003-000
HIPR2      1210      126-002-000        126-002-000   126-003-000
HIPR2      1309      126-002-000        126-002-000   126-003-000
HIPR2      1310      126-002-000        126-002-000   126-003-000
HIPR2      2109      126-002-000        126-002-000   126-003-000
HIPR2      2110      126-002-000        126-002-000   126-003-000
Command Completed
```

   If HIPR2 cards are installed at the card locations 9 and 10 on the shelf where the E5-SLAN card is to be installed, continue the procedure with 11.

   If HIPR2 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 *Installation Guide* to install the HIPR2 cards. Once the HIPR2 cards have been installed, continue the procedure with 11.

   After the procedures in the *Installation Guide* have been performed, or if HIPR2 cards are installed at the card locations 9 and 10 on the shelf where the E5-SLAN card is to be installed, continue the procedure by performing one of these steps.

   - If the card that is being added is an E5-ENET card, continue the procedure with 11.
   - If the card that is being added is an E5-ENET-B card, continue the procedure with 7.

7. Enter the `rtrv-stpopts` command to verify whether or not the MFC option is on (EAGLE Release 46.2 and later require MFC be turned on).

   This is an example of the possible output.

```
rlghncxa03w 11-10-17 16:02:05 GMT EAGLE5 44.0.0
STP OPTIONS
--------------------------
MFC                     off
```

The `rtrv-stpopts` command output contains other fields that are not used by this procedure. To see all fields displayed by the `rtrv-stpopts` command, see the `rtrv-stpopts` command description in *Commands User's Guide*.

If the **MFC** option is off, perform the Configuring the MFC Option procedure to turn on the MFC option.

If the MFC option is on or the Configuring the MFC Option procedure was performed in this step, continue the procedure with 8.

8. The Fan feature must be turned on. If the `rtrv-feat` command is 2 was not performed, enter the `rtrv-feat` command to verify that the Fan feature is on.

   If the Fan feature is on, shown in either the `rtrv-feat` output in this step or in 2 if 2 was performed, the `FAN` field should be set to `on`.

   The `rtrv-feat` command output contains other fields that are not used by this procedure. To see all fields displayed by the `rtrv-feat` command, see the `rtrv-feat` command description in *Commands User's Guide*.

   If the Fan feature is on, continue the procedure with 10.

   If the Fan feature is off, continue the procedure with 9.

9. Turn the Fan feature on by entering this command.

   ```
   chg-feat:fan=on
   ```

   > **Note:**
   >
   > Once the Fan feature is turned on with the`chg-feat` command, it cannot be turned off.

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

   ```
   rlghncxa03w 11-10-28 11:43:04 GMT EAGLE5 44.0.0
   CHG-FEAT: MASP A - COMPLTD
   ```

10. The shelf containing the E5-ENET-B card that is being added in this procedure must have fans installed. Verify whether or not fans are installed on the shelf.

    If the fans are installed, continue the procedure with 11.

    If the fans are not installed on the shelf containing the E5-ENET-B card, go to the *Installation Guide* and install the fans. After the fans have been installed and tested, continue the procedure with 11.

11. Add the card to the database using the `ent-card` command.

    For this example, enter this command:
    `ent-card:loc=1201:type=dcm:appl=stplan`

12. Verify the changes using the `rtrv-card` command with the card location specified.

For this example, enter these commands.

```
rtrv-card:loc=1201
```

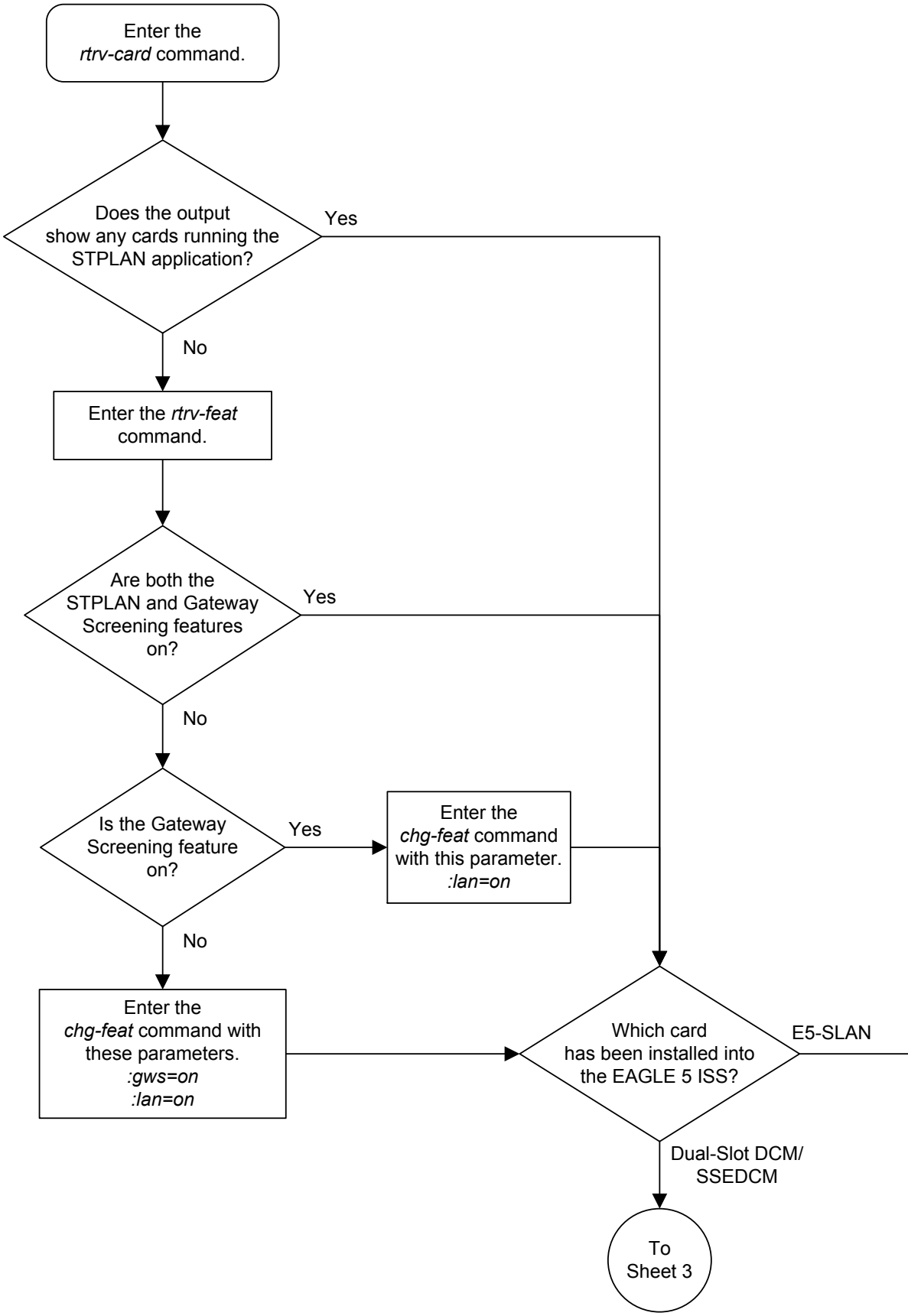
```
rlghncxa03w 09-05-20 21:22:37 GMT EAGLE5 41.0.0
CARD   TYPE      APPL      LSET NAME     LINK SLC LSET NAME     LINK SLC
1201   E5-ENET-B STPLAN
```

13. Back up the new changes, using the `chg-db:action=backup:dest=fixed` command.

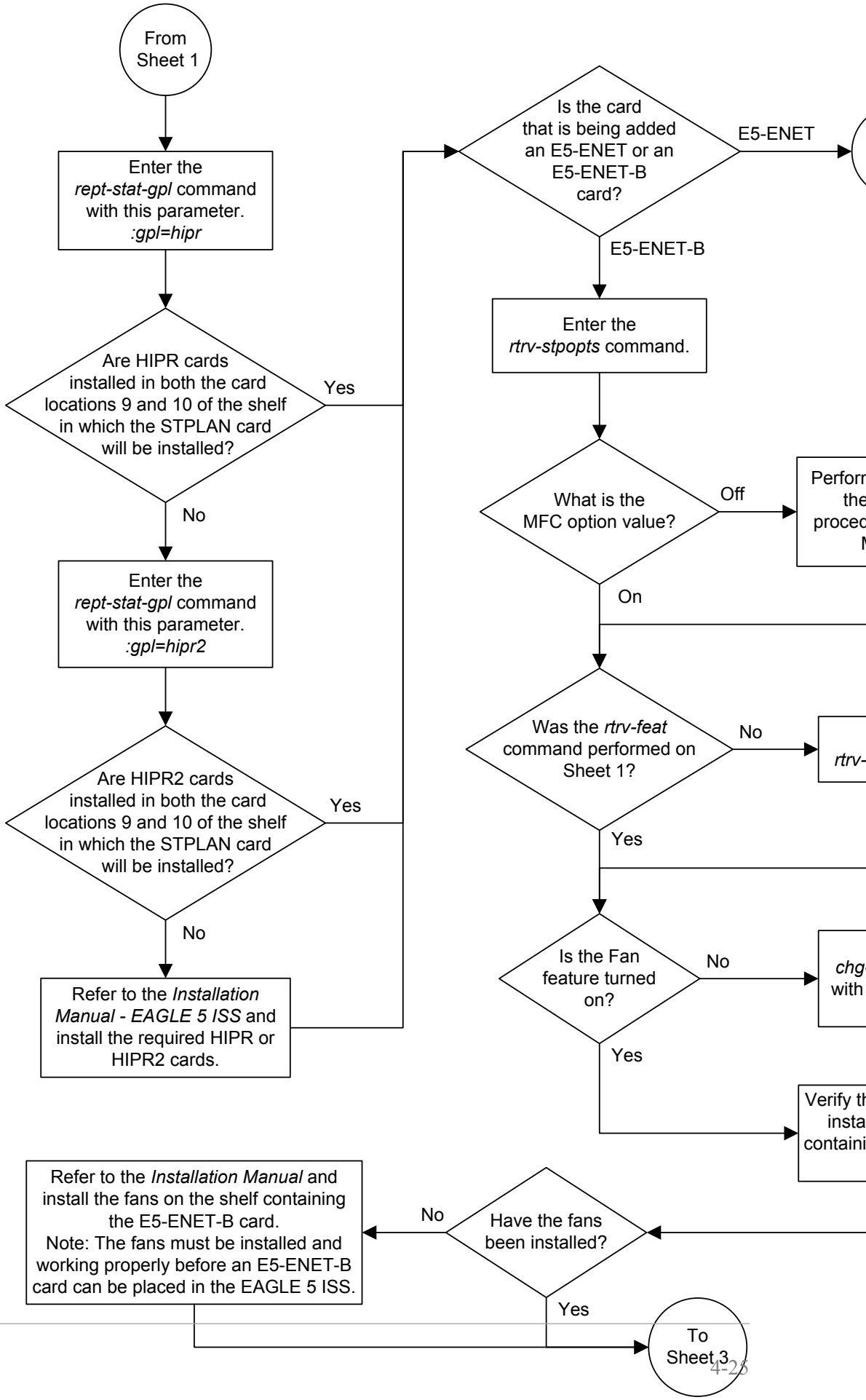
    These messages should appear; the active **Maintenance and Administration Subsystem** Processor (**MASP**) appears first.

```
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.
```

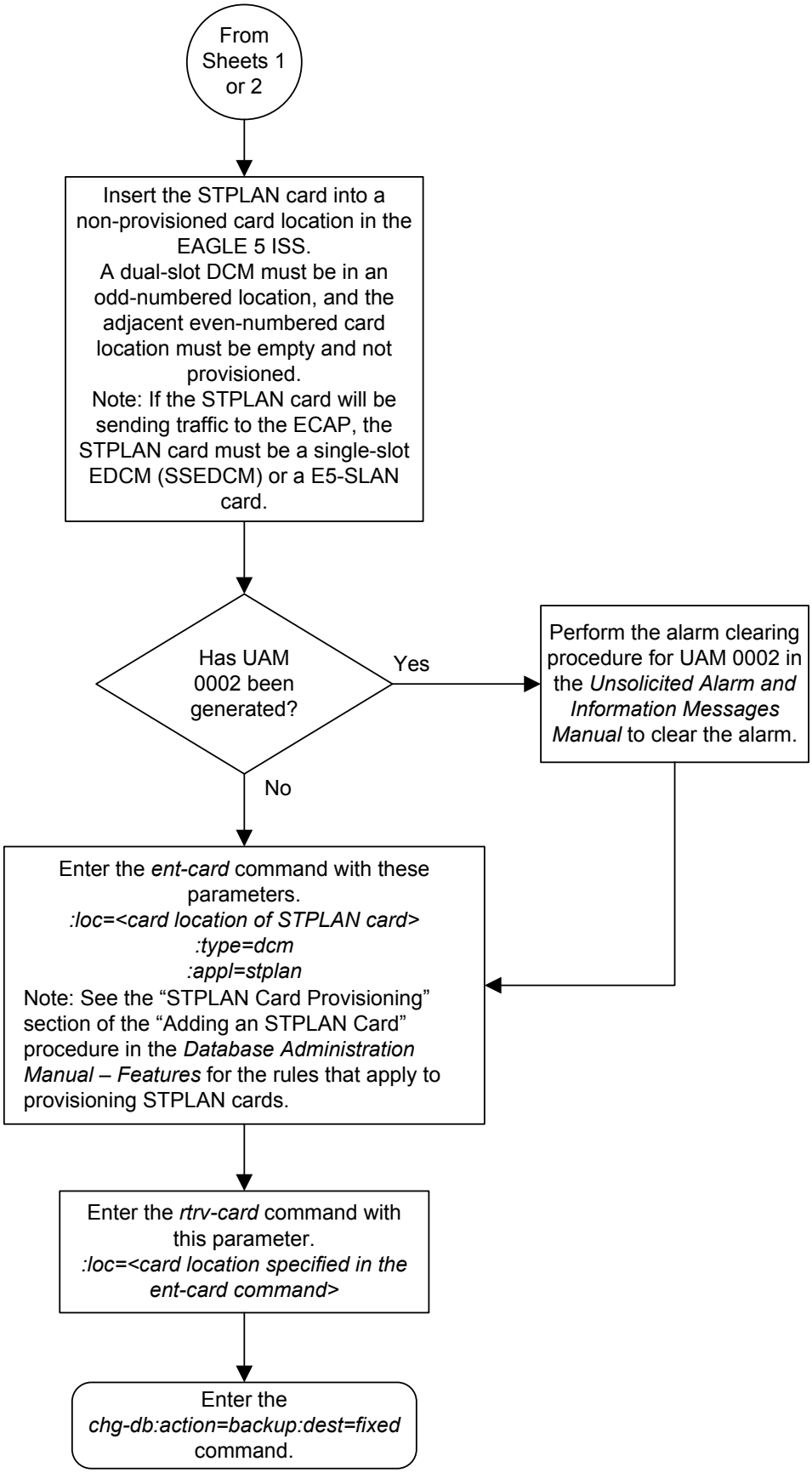
**Figure 4-8 Adding an STPLAN Card**



Sheet 1 of 3


From Sheet 1
Enter the *rept-stat-gpl* command with this parameter. *:gpl=hipr*
Are HIPR cards installed in both the card locations 9 and 10 of the shelf in which the STPLAN card will be installed?
Yes
No
Enter the *rept-stat-gpl* command with this parameter. *:gpl=hipr2*
Are HIPR2 cards installed in both the card locations 9 and 10 of the shelf in which the STPLAN card will be installed?
Yes
No
Refer to the *Installation Manual - EAGLE 5 ISS* and install the required HIPR or HIPR2 cards.
Is the card that is being added an E5-ENET or an E5-ENET-B card?
E5-ENET
E5-ENET-B
Enter the *rtrv-stpopts* command.
What is the MFC option value?
Off
On
Was the *rtrv-feat* command performed on Sheet 1?
No
Yes
Is the Fan feature turned on?
No
Yes
Have the fans been installed?
No
Refer to the *Installation Manual* and install the fans on the shelf containing the E5-ENET-B card.
Note: The fans must be installed and working properly before an E5-ENET-B card can be placed in the EAGLE 5 ISS.
Yes
To Sheet 3

Sheet 2 of 3


From Sheets 1 or 2
Insert the STPLAN card into a non-provisioned card location in the EAGLE 5 ISS.
A dual-slot DCM must be in an odd-numbered location, and the adjacent even-numbered card location must be empty and not provisioned.
Note: If the STPLAN card will be sending traffic to the ECAP, the STPLAN card must be a single-slot EDCM (SSEDCM) or a E5-SLAN card.
Has UAM 0002 been generated?
Yes
Perform the alarm clearing procedure for UAM 0002 in the *Unsolicited Alarm and Information Messages Manual* to clear the alarm.
No
Enter the *ent-card* command with these parameters.
*:loc=<card location of STPLAN card>*
*:type=dcm*
*:appl=stplan*
Note: See the “STPLAN Card Provisioning” section of the “Adding an STPLAN Card” procedure in the *Database Administration Manual – Features* for the rules that apply to provisioning STPLAN cards.
Enter the *rtrv-card* command with this parameter.
*:loc=<card location specified in the ent-card command>*
Enter the *chg-db:action=backup:dest=fixed* command.

Sheet 3 of 3

# Removing an STPLAN Card

This procedure is used to remove a card supporting the **STPLAN** feature, either an E5-ENET or E5-ENET-B, or **E5-SLAN** card running the `stplan` 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:**
>
> If the card being removed from the database is the last in-service card supporting the **STPLAN** feature (either E5-ENET or E5-ENET-B 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 **E5-ENET-B** card 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 09-14-25 09:58:31 GMT EAGLE5 46.0.0
CARD   TYPE      APPL      LSET NAME     LINK SLC LSET NAME     LINK SLC
1101   E5-SM4G   SCCPHC
1102   TSM       GLS
1103   E5-ENET-B STPLAN
1104   E5-ENET-B STPLAN
1113   E5-MCAP   OAMHC
1114   E5-TDM-A
1115   E5-MCAP   OAMHC
1116   E5-TDM-B
1117   E5-MDAL
1201   E5-ENET-B STPLAN
1203   E5-ENET-B STPLAN
1204   E5-ENET-B STPLAN
1205   E5-ENET-B STPLAN
1206   E5-ENET-B STPLAN
1207   E5-ENET-B STPLAN
1211   LIMDS0    SS7ANSI   lsn1          A    0   lsn2          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
```

   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 10-07-20 21:20:37 GMT EAGLE5 42.0.0
DLK             PST          SST       AST
1201            IS-NR        Active    ----
  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 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. Verify that the state of the TCP/IP data link is OOS-MT-DSBLD by entering the `rept-stat-dlk` command with the card location specified in 3. For this example, enter this command.

   ```
   rept-stat-dlk:loc=1201
   ```

   This is an example of the possible output.

   ```
   rlghncxa03w 10-07-20 21:20:37 GMT EAGLE5 42.0.0
   DLK             PST          SST       AST
   1201            OOS-MT-DSBLD Manual    ----
     Alarm Status       =  * 0155 STPLAN connection unavailable
   Command Completed.
   ```

5. Inhibit the card using the `rmv-card` command, specifying the card location specified in 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.
   ```

6. Display the **TCP/IP** nodes in the database by entering the `rtrv-ip-node` command with the card location specified in 5 . 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%   --
   ```

7. 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 6 .

   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
```

8. Remove the data link from the specified card by using the `dlt-dlk` command with the card location specified in 7 .

   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
   ```

9. 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
   ```

10. Verify the changes using the `rtrv-card` command specifying the card that was removed in 9 .

    For this example, enter this command.

    ```
    rtrv-card:loc=1201
    ```

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

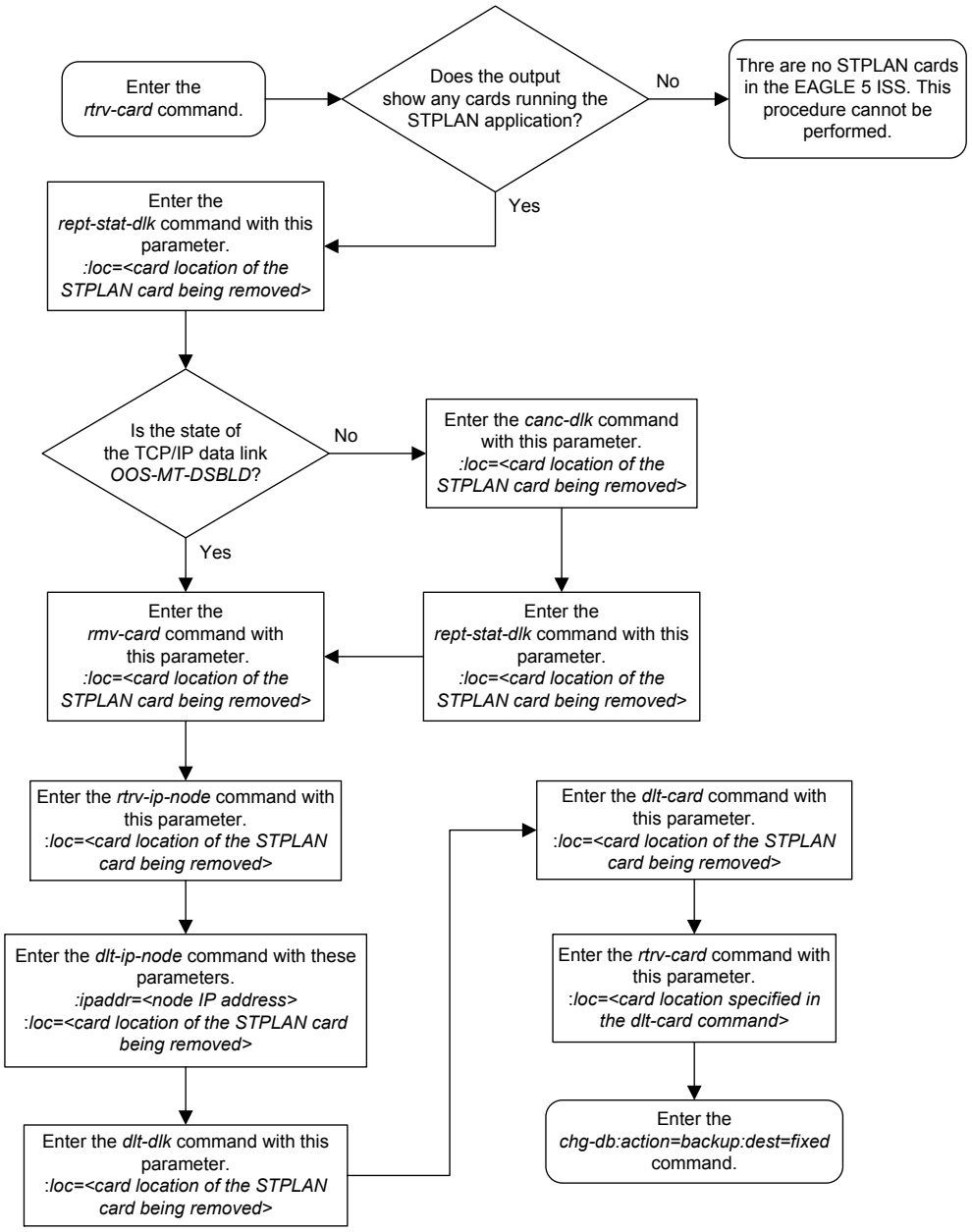
    ```
    E2144 Cmd Rej: Location invalid for hardware configuration
    ```

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 4-9 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 **DCM**, **SSEDCM-A**, 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. 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 **STPLAN**. 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. 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.

The examples used in this procedure are based on the example network shown in Figure 4-7 and Table 4-5.

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:**
>
> After 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 a **DCM**, SSEDCM-A, or **E5-SLAN** card running the `stplan` application. This can be verified in step 2 with the `rtrv-card` command.The **DCM** SSEDCM-A, 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 **STPLANCard**" procedure 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.

Refer to the *Commands Manual* for complete descriptions of the commands used in this procedure, including parameter descriptions and valid values, rules for correct use, and output examples.

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
```

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 21:16:37 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%  --
```

3. Display the cards in the database by entering the `rtrv-card` command.

   This is an example of the possible output.

```
rlghncxa03w 09-05-25 09:58:31 GMT EAGLE5 45.0.0
CARD   TYPE      APPL      LSET NAME     LINK SLC LSET NAME     LINK SLC
1102   TSM       GLS
1103   DCM       STPLAN
1104   DCM       STPLAN
1113   E5-MCAP   OAMHC
1114   E5-TDM-A
1115   E5-MCAP   OAMHC
1116   E5-TDM-B
1117   E5-MDAL
1201   DCM       STPLAN
1203   DCM       STPLAN
1204   DCM       STPLAN
1205   DCM       STPLAN
1206   DCM       STPLAN
1207   DCM       STPLAN
1211   LIMDS0    SS7ANSI   lsn1          A    0   lsn2          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
```

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 **STPLANCard**" procedure 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" procedure and add the **STPLAN** card to the database.

The `speed`, `duplex`, and `auto` parameters can be specified with the `ent-dlk` command.

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
   ```

   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 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.

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
```

6. 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.

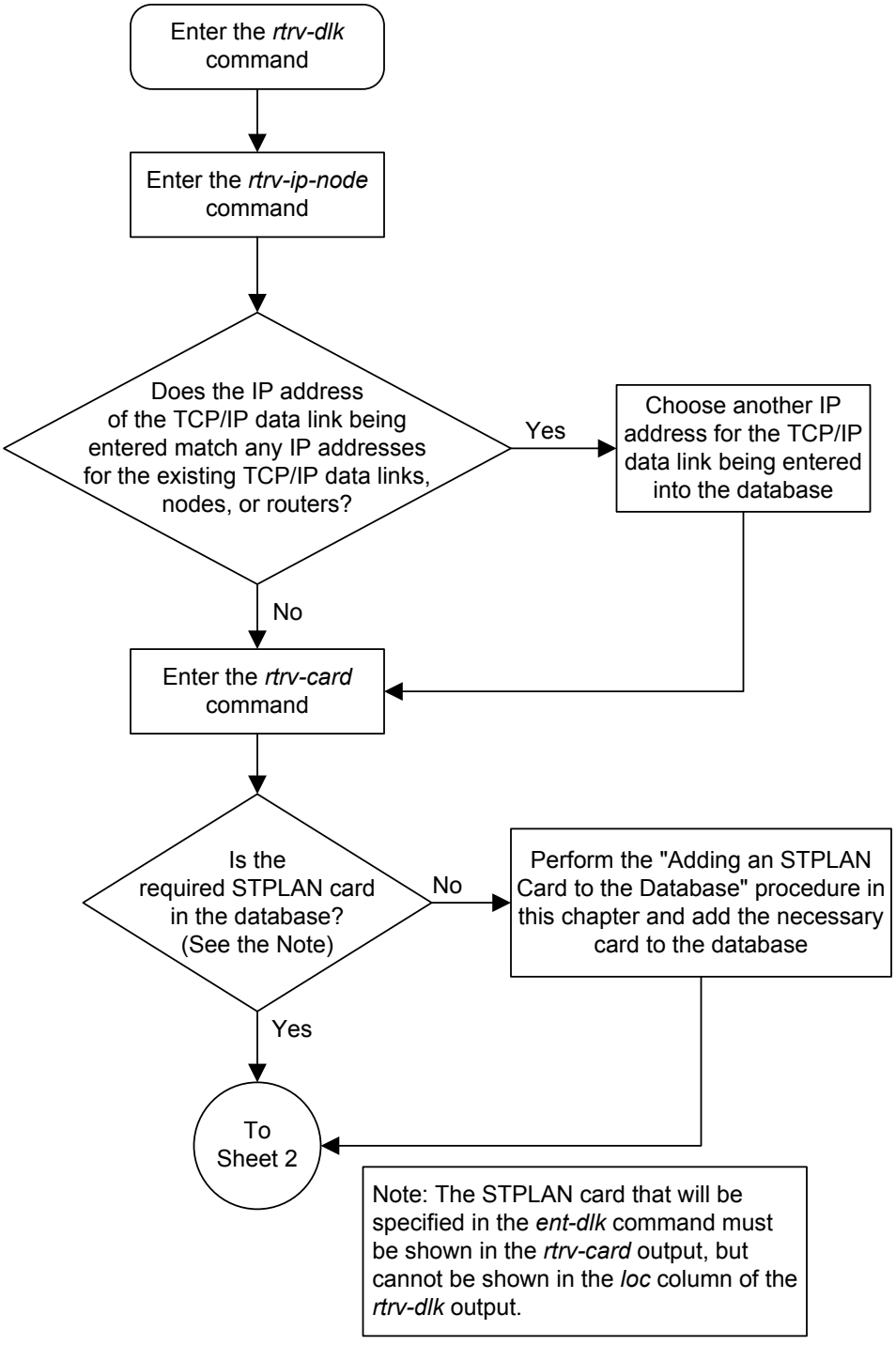
   ```
   rlghncxa03w 06-10-20 21:22:37 GMT EAGLE5 36.0.0
   Activate Link message sent to card
   ```

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

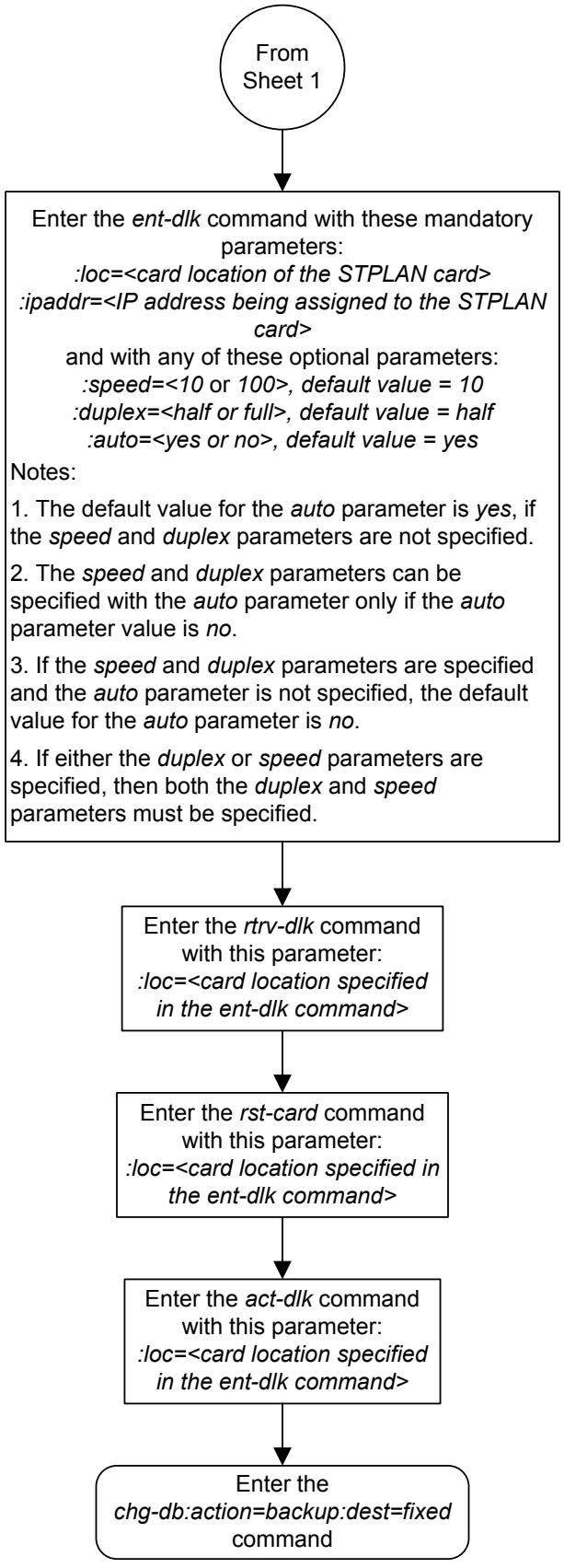
   These messages should appear; the active **Maintenance and Administration Subsystem** Processor (**MASP**) appears first.

   ```
   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 4-10 Adding a TCP/IP Data Link**



Sheet 1 of 2


From Sheet 1
Enter the ent-dlk command with these mandatory parameters:
:loc=<card location of the STPLAN card>
:ipaddr=<IP address being assigned to the STPLAN card>
and with any of these optional parameters:
:speed=<10 or 100>, default value = 10
:duplex=<half or full>, default value = half
:auto=<yes or no>, default value = yes
Notes:
1. The default value for the auto parameter is yes, if the speed and duplex parameters are not specified.
2. The speed and duplex parameters can be specified with the auto parameter only if the auto parameter value is no.
3. If the speed and duplex parameters are specified and the auto parameter is not specified, the default value for the auto parameter is no.
4. If either the duplex or speed parameters are specified, then both the duplex and speed parameters must be specified.
Enter the rtrv-dlk command with this parameter:
:loc=<card location specified in the ent-dlk command>
Enter the rst-card command with this parameter:
:loc=<card location specified in the ent-dlk command>
Enter the act-dlk command with this parameter:
:loc=<card location specified in the ent-dlk command>
Enter the chg-db:action=backup:dest=fixed command

Sheet 2 of 2

# 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 a **DCM**, SSEDCM-A, or **E5-SLAN** card running the `stplan` application. This can be verified with the `rtrv-card` command. The **DCM**, SSEDCM-A, 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.

```
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
   ```

```
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`

```
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%   --
```

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=200.50.100.47:loc=1204`

7. 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`

8. Verify the changes using the `rtrv-dlk` command with the card location specified in step 7.

   `rtrv-dlk:loc=1204`

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

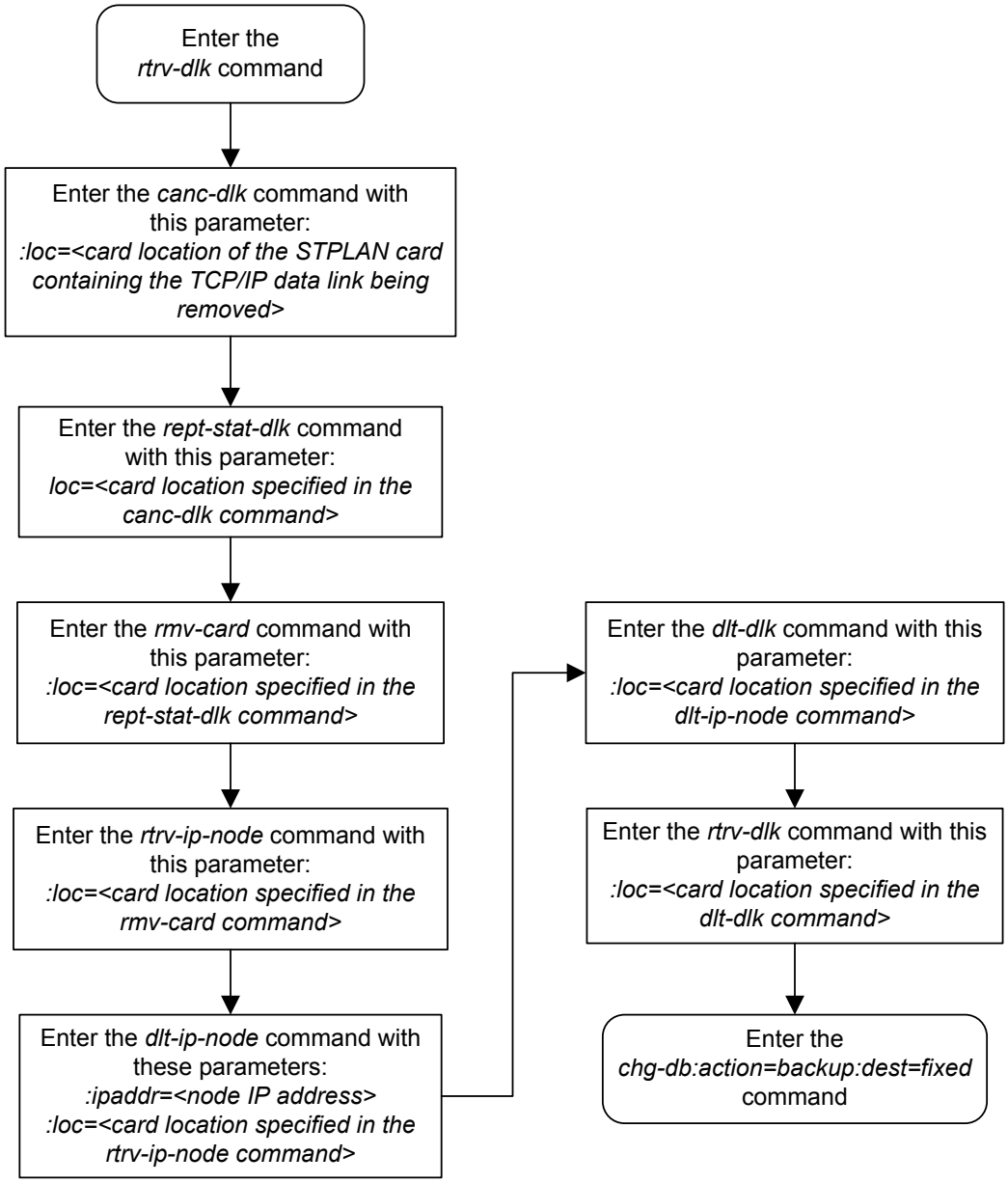
   `E2604 Cmd Rej: Card location not assigned a TCP/IP link`

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 4-11 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 (1 to 100) of ethernet capacity for this node connection. This capacity is added to other connections to this node for the total capacity of the node. The total capacity of the node cannot exceed 100%. The value of the `cap` parameter can be used to calculate the throughput for E5-ENET cards (the E5-SLAN card types shown in Table 4-6) and to control the amount of traffic that is being sent to the **ECAP**. Refer to these sections of the `ent-ip-node` command description in *Commands User's Guide* for more information.

- Determining the correct CAP value for ECAP
- Using the CAP Value to Calculate Throughput for DCM and E5-ENET Cards

`:iprte` – The **IP** address of the **TCP/IP** router.

This examples used in this procedure are based on the example network shown in Figure 4-7 and Table 4-5.

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** 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 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 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:ipport=1024 :
cap=10
```

```
ent-ip-
node:loc=1203:ipaddr=193.4.201.78:ipappl=stplan:ipport=1024 :
cap=10
```

```
ent-ip-
node:loc=1204:ipaddr=200.50.115.101:ipappl=stplan:ipport=2000
:cap=40:iprte=193.4.202.30
```

```
ent-ip-
node:loc=1205:ipaddr=193.4.201.56:ipappl=stplan:ipport=3000 :
cap=40
```

```
ent-ip-
node:loc=1206:ipaddr=203.24.212.30:ipappl=stplan:ipport=4000
:cap=40:iprte=197.4.217.47
```

```
ent-ip-
node:loc=1207:ipaddr=205.37.12.63:ipappl=stplan:ipport=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
   ```

5. 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
```

6. 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.

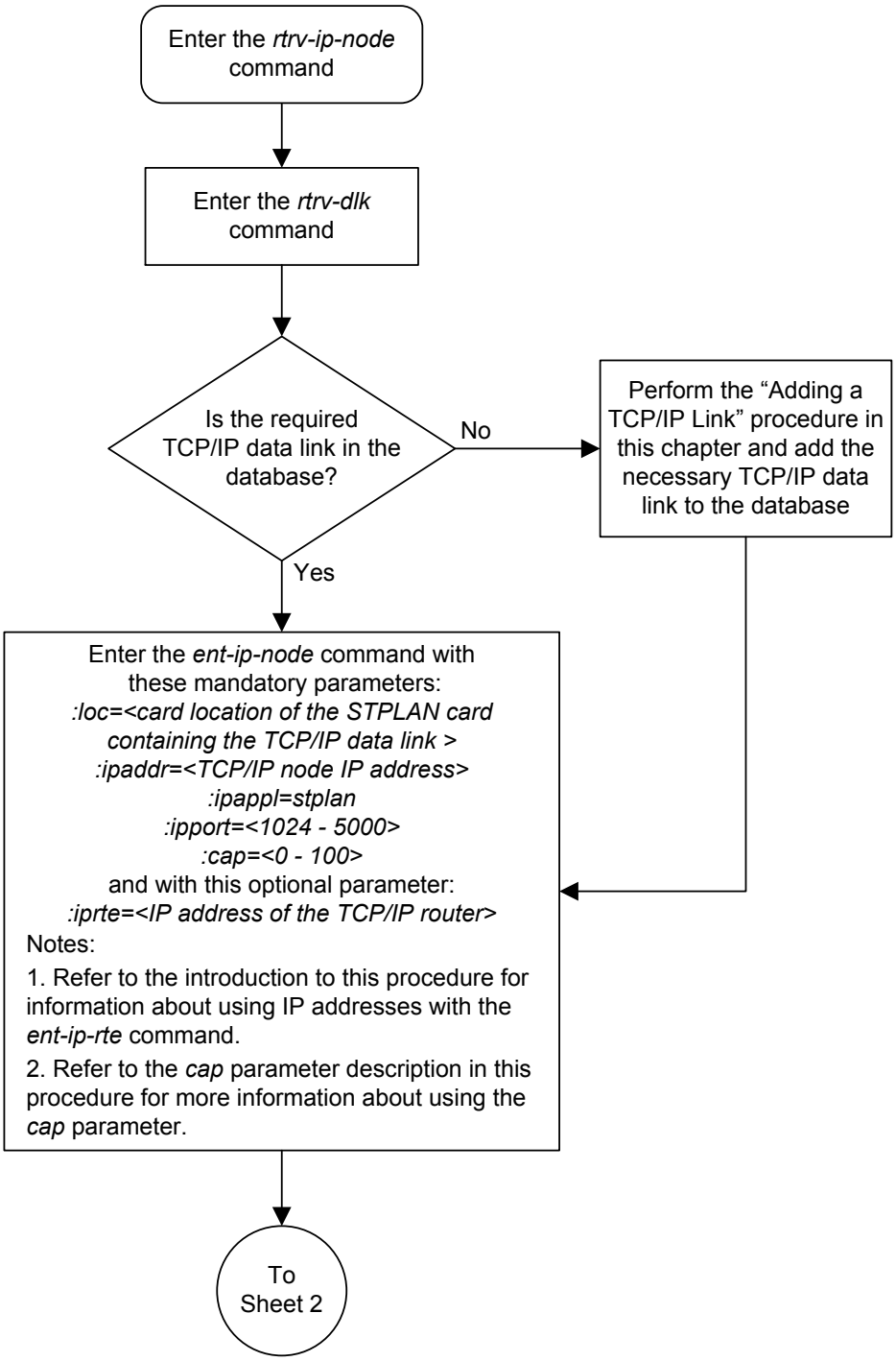
```
rlghncxa03w 06-10-20 21:21:37 GMT EAGLE5 36.0.0
DLK             PST          SST       AST
1103            IS-NR        Avail     ----
1104            IS-NR        Avail     ----
1201            IS-NR        Avail     ----
1203            IS-NR        Avail     ----
1204            IS-NR        Avail     ----
1205            IS-NR        Avail     ----
1206            IS-NR        Avail     ----
1207            IS-NR        Avail     ----
Command Completed.
```

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 4-12 Adding a TCP/IP Node**



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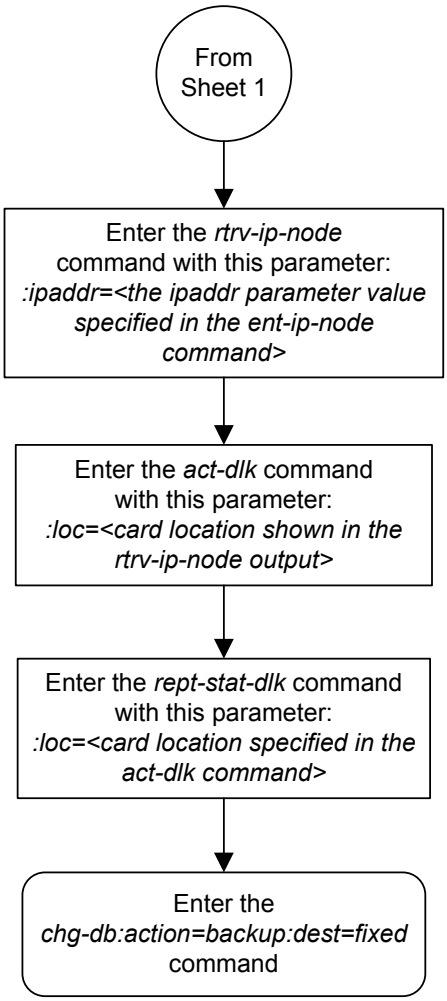

From Sheet 1
Enter the *rtrv-ip-node* command with this parameter: *:ipaddr=<the ipaddr parameter value specified in the ent-ip-node command>*
Enter the *act-dlk* command with this parameter: *:loc=<card location shown in the rtrv-ip-node output>*
Enter the *rept-stat-dlk* command with this parameter: *:loc=<card location specified in the act-dlk command>*
Enter the *chg-db:action=backup:dest=fixed* command

Sheet 2 of 2

# 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 bea **DCM**, SSEDCM-A, or **E5-SLAN** card running the `stplan` application. This can be verified with the `rtrv-card` command. The **DCM**, SSEDCM-A , 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  IPRTE
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
```

3. 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 10-07-20 21:21:37 GMT EAGLE5 42.0.0
DLK             PST          SST       AST
1104            IS-NR        Active    ----
  Alarm Status      = No Alarms.
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`.

4. 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.
```

5. 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 10-07-20 21:19:37 GMT EAGLE5 42.0.0
DLK             PST          SST       AST
1104            OOS-MT-DSBLD Unavail   ----
  ALARM STATUS    =  * 0155 STPLAN connection unavailable
```

```
Command Completed.
```

6. 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       STPLAN     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`.

7. 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.
```

8. 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       STPLAN     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.
```

9. 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.

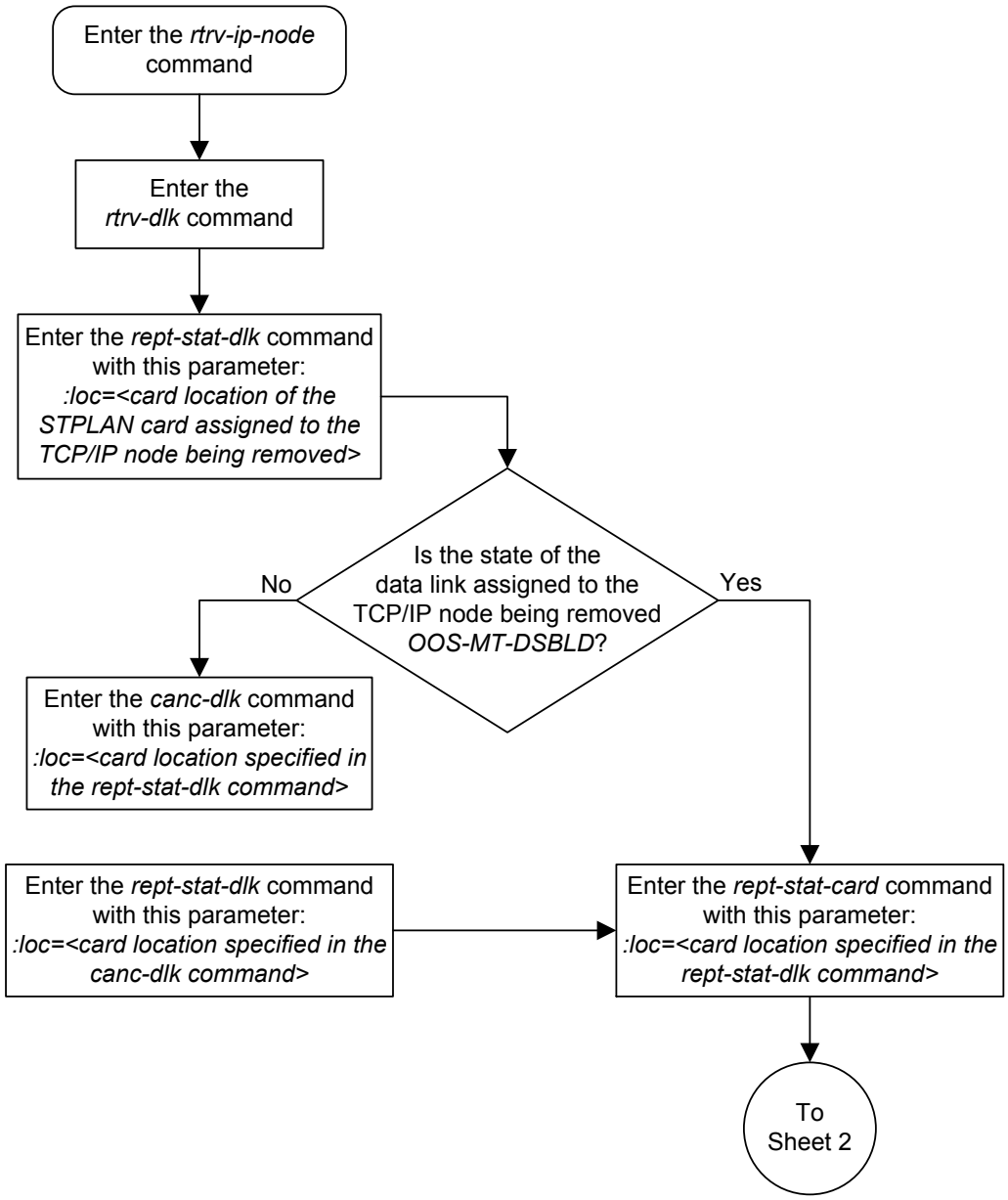
    ```
    rlghncxa03w 07-02-20 21:22:37 GMT EAGLE5 37.0.0
    IPADDR          IPPORT  IPAPPL  LOC   CAP   IPRTE

    IPADDR not connected to any TCP/IP Link.
    ```

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

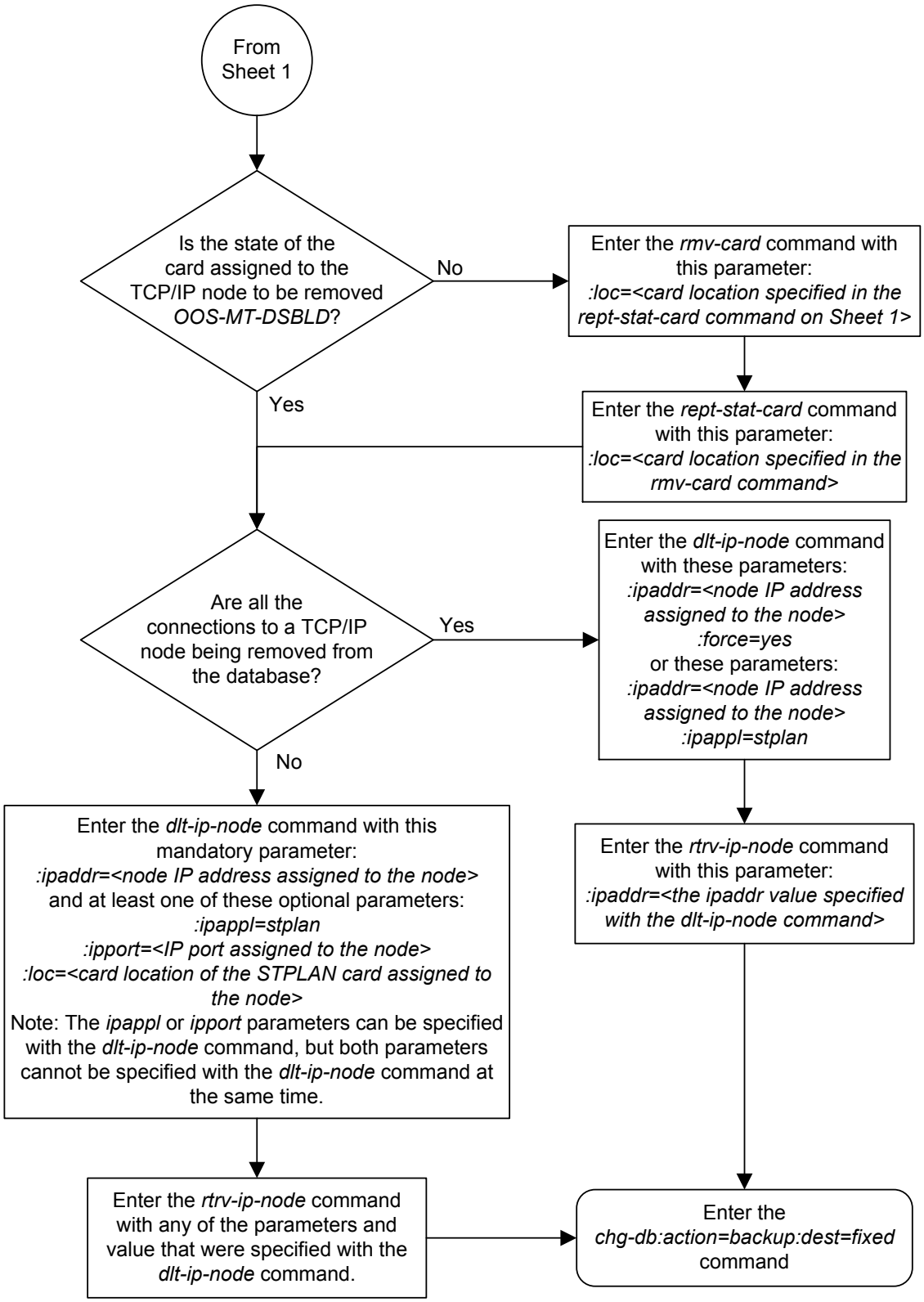
    These messages should appear; the active **Maintenance and Administration Subsystem** Processor (**MASP**) appears first.

    ```
    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 4-13 Removing a TCP/IP Node**



Sheet 1 of 2


From Sheet 1
Is the state of the card assigned to the TCP/IP node to be removed OOS-MT-DSBLD?
No
Enter the rmv-card command with this parameter: :loc=<card location specified in the rept-stat-card command on Sheet 1>
Yes
Enter the rept-stat-card command with this parameter: :loc=<card location specified in the rmv-card command>
Are all the connections to a TCP/IP node being removed from the database?
Yes
Enter the dlt-ip-node command with these parameters: :ipaddr=<node IP address assigned to the node> :force=yes or these parameters: :ipaddr=<node IP address assigned to the node> :ipappl=stplan
No
Enter the dlt-ip-node command with this mandatory parameter: :ipaddr=<node IP address assigned to the node> and at least one of these optional parameters: :ipappl=stplan :ipport=<IP port assigned to the node> :loc=<card location of the STPLAN card assigned to the node>
Note: 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.
Enter the rtrv-ip-node command with this parameter: :ipaddr=<the ipaddr value specified with the dlt-ip-node command>
Enter the rtrv-ip-node command with any of the parameters and value that were specified with the dlt-ip-node command.
Enter the chg-db:action=backup:dest=fixed command

Sheet 2 of 2

# 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.
- `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.

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 User's Guide*.

If the current `SLANCPORGOPC` value is on, continue the procedure with 3.

If the current `SLANCPORGOPC` value is off, continue the procedure with 2.

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 User's Guide*.

If the STPLAN feature is on, continue the procedure with 3.

If the STPLAN feature is not on, perform the procedure Adding an STPLAN Card to turn the STPLAN feature on and to add the required STPLAN cards. After the procedure Adding an STPLAN Card has been performed, continue the procedure with 3.

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
   ```

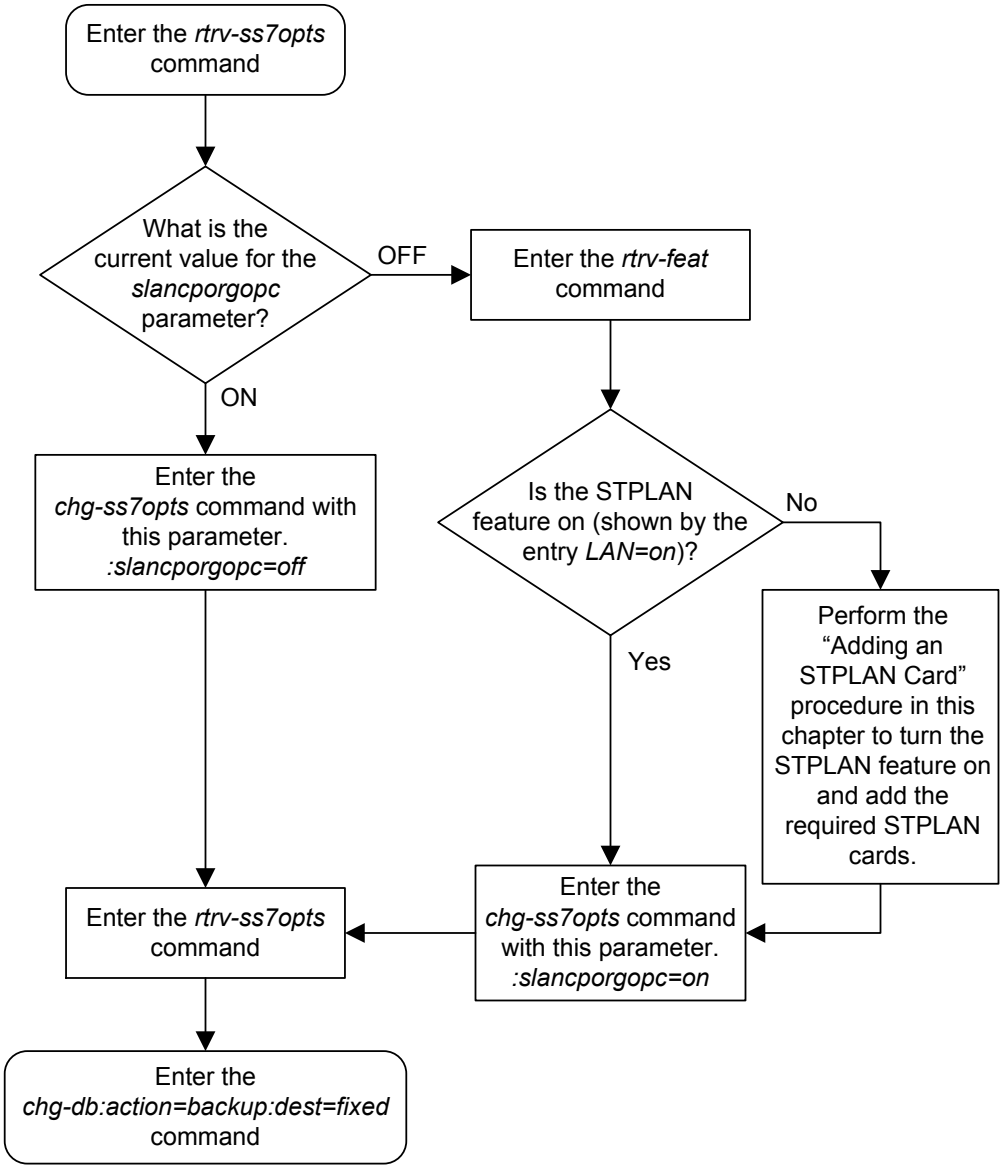
   **Note:**

   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 User's Guide*.

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 4-14 Configuring the Copy Original OPC for STPLAN Option**



# Configuring the Option for Including the Incoming and Outgoing Linkset Names in the STPLAN Message Format

This procedure is used to configure the option that allows the incoming and outgoing linkset names to be included in the STPLAN message format using the `chg-ss7opts` command with the `slanlsn` parameter. The `slanlsn` parameter has two values:

- `on` – The incoming and outgoing linkset names are copied into the STPLAN message format.
- `off` – The incoming and outgoing linkset names are not copied into the STPLAN message format.

1. Display the existing value for the `slanlsn` parameter by entering the `rtrv-ss7opts` command. This is an example of the possible output.

```
rlghncxa03w 09-03-17 16:02:05 GMT  EAGLE5 40.1.0

SS7 OPTIONS
----------------------
SLANSLS             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 `SLANSLS` value is on, continue the procedure with 3.

If the current `SLANSLS` value is off, continue the procedure with 2.

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 3.

   If the STPLAN feature is not on, perform the procedure Adding an STPLAN Card to turn the STPLAN feature on and to add the required STPLAN cards. After the procedure Adding an STPLAN Card has been performed, continue the procedure with 3.

3. Change the value of the `slanlsn` parameter.

If the current value of the `slanlsn` parameter is off, enter this command.

```
chg-ss7opts:slanlsn=on
```

If the current value of the `slanlsn` parameter is on, enter this command.

```
chg-ss7opts:slanlsn=off
```

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

```
rlghncxa03w 09-03-07 00:22:57 GMT  EAGLE5 40.1.0
CHG-SS7OPTS: MASP A - COMPLTD
```

4. Verify the changes using the `rtrv-ss7opts` command. This is an example of the possible output.

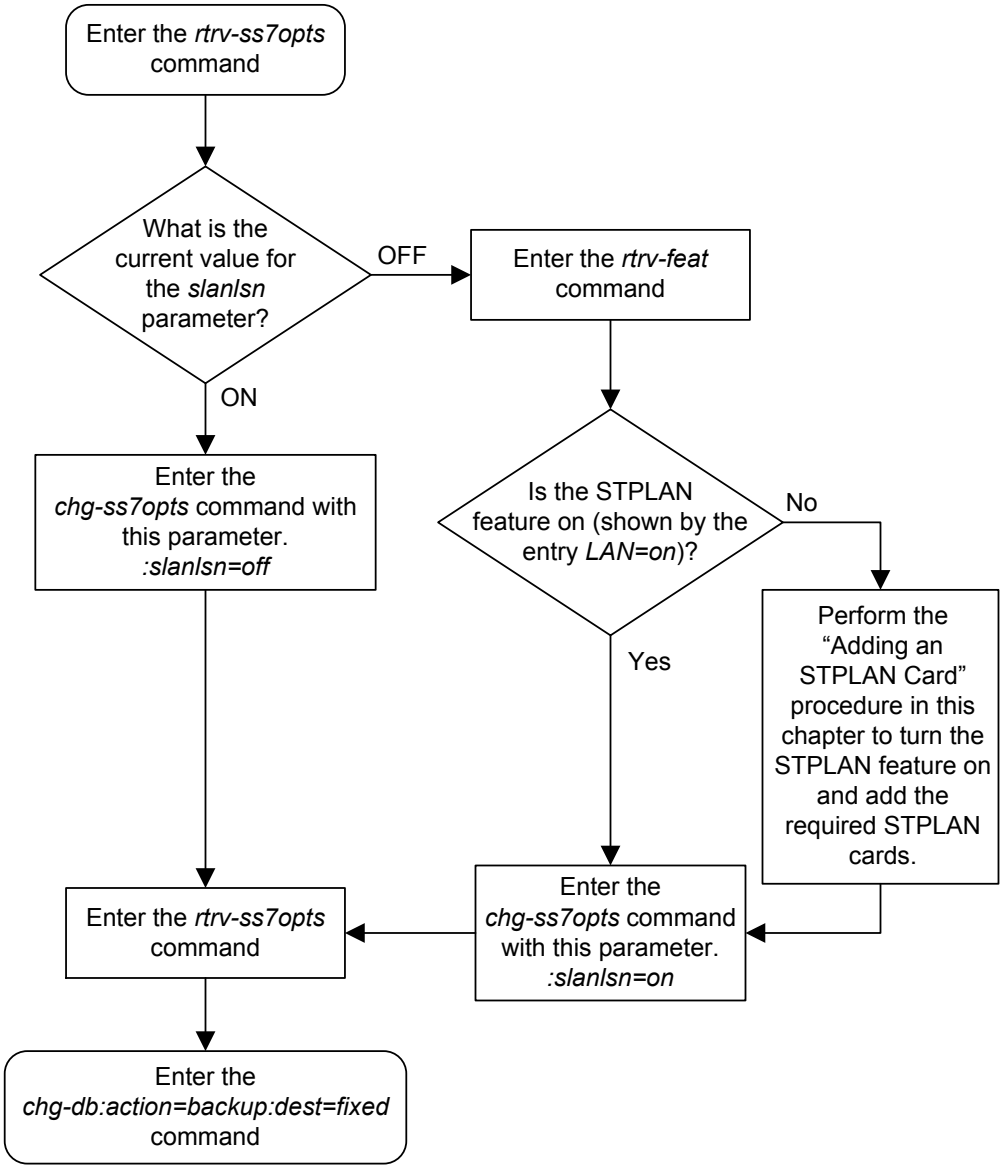
```
rlghncxa03w 09-03-17 16:02:05 GMT  EAGLE5 40.1.0

SS7 OPTIONS
----------------------
SLANSLS              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 4-15 Configuring the Option for Including the Incoming and Outgoing Linkset Names in the STPLAN Message Format**



5

# Database Transport Access (DTA) Configuration

Chapter 5, Database Transport Access (DTA) Configuration, describes the Database Transport Access (DTA) feature and the procedures necessary to configure the EAGLE 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.

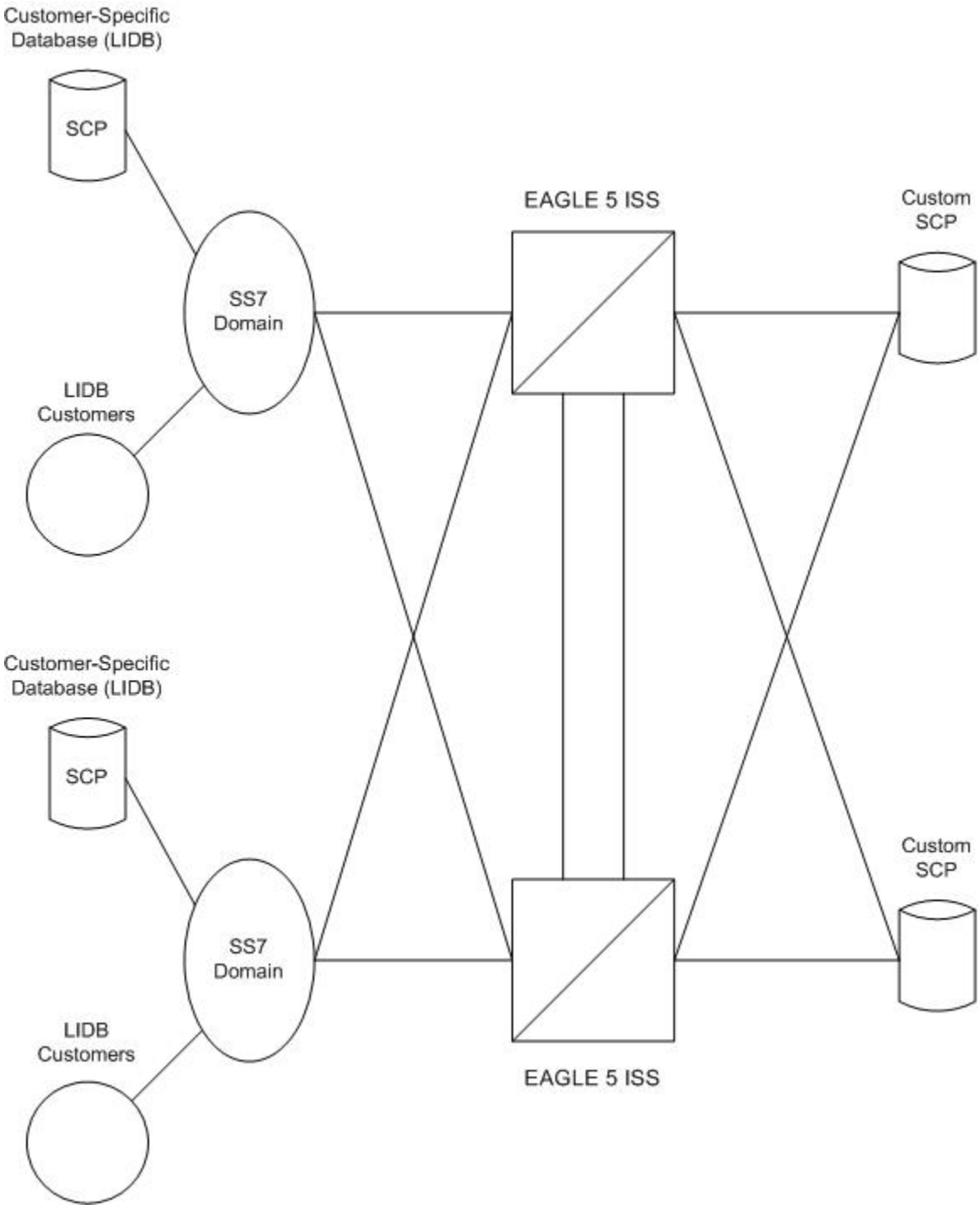
In the case of specialized applications, **MSU**s containing **SCCP** and proprietary data must be sent through the network to customer-specific databases. However, these **MSU**s may need additional processing before being routed to their final destination.

The **DTA** feature provides a mechanism for the redirection of specific **MSU**s to a customized database. The **EAGLE** uses gateway screening to qualify incoming **MSU**s for redirection.

Once gateway screening is passed, the original **MSU** is encapsulated into a new **MSU** and routed to its new destination.

Figure 5-1 shows a typical configuration for the **DTA** feature.

**Figure 5-1 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**. At the **EAGLE**, the **MSU** is routed to its final destination in the **SS7** 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.

As an optional feature, **MSU**s 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** 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, the E5-SLAN card running the STPLAN application, is required. These cards provide an ethernet interface supporting **TCP/IP** applications. For more information regarding the **STPLAN** feature, see STPLAN Configuration.

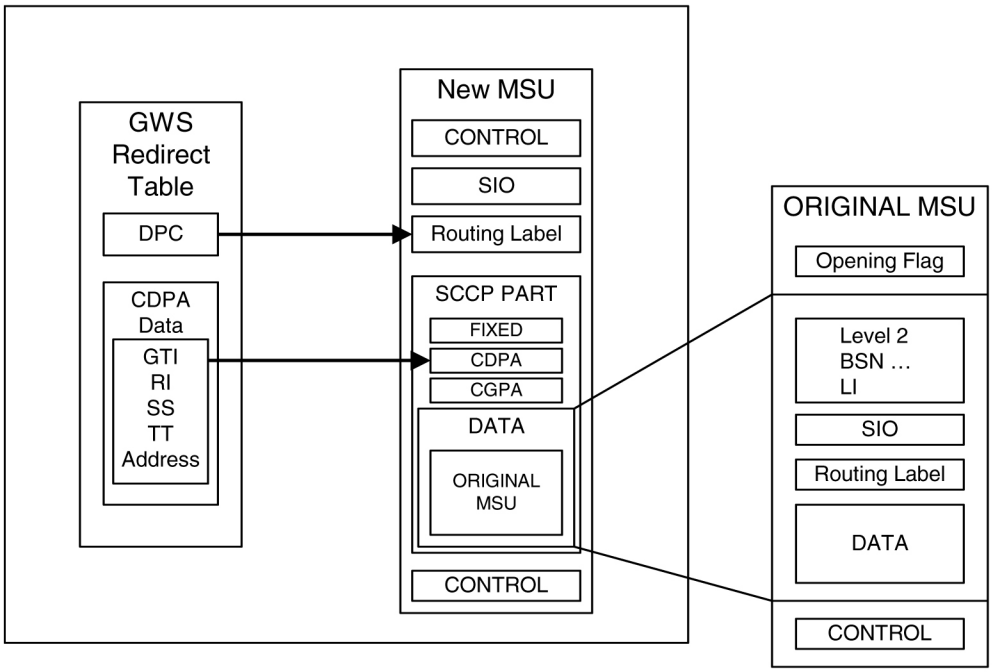
# Functional Description

The principal function within the **EAGLE** for this feature is gateway screening. This feature allows the **EAGLE** 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**'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 4-2 illustrates the encapsulation process.

**Figure 5-2 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**'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** 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**'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 5-1.

**Table 5-1 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**'s point code, the **MSU** is sent to the **EAGLE**'s **SCCP** subsystem for **GTT** processing. If the **EAGLE**'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 *Unsolicited Alarm and Information Messages Reference*.

**Measurements**

Two measurements are provided to indicate the number of **MSU**s 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**.

The **MSGWSDSLIM** counts the number of **MSU**s 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 *Measurements Reference* .

# Summary of the Gateway Screening Redirect Table Commands

The following set of commands is used to administer the gateway screening redirect table.

**Table 5-2 Commands for the Gateway Screening Redirect Table**

| Command | Explanation and action |
|---|---|
| ent-gws-redirect | The ent-gws-redirect command is used to enter the routing table for redirected **MSUs**. |
| chg-gws-redirect | The chg-gws-redirect command is used to modify the existing redirect routing table. |
| dlt-gws-redirect | The dlt-gws-redirect command is used to delete the redirect table from the database. |
| rtrv-gws-redirect | The rtrv-gws-redirect command is used to display the parameters of an existing redirect routing table. |

# SCCP Subsystem Management

The **EAGLE** 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**. The links connecting the **EAGLE** and the **SCP** must be configured in such a way to support **SCCP** subsystem management. The application supported by the dual **SCP**s is duplicated in both entities. The applications can be configured in one of the following two modes: dominant or load-shared.

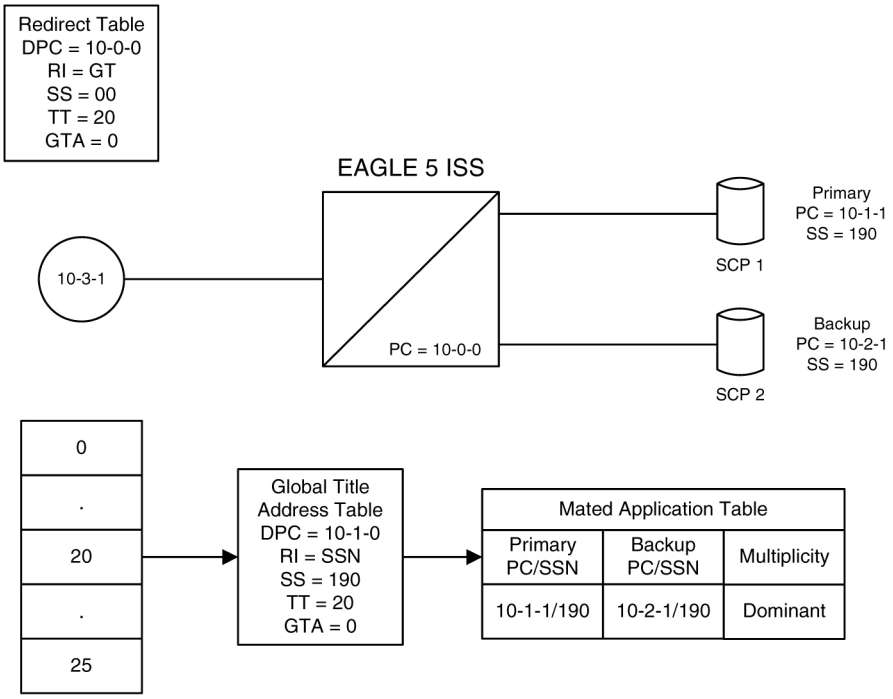
When configured as dominant, one **SCP** is configured to receive all queries. This assignment is made in **EAGLE** routing tables. In the event the dominant **SCP** fails, traffic is diverted by **SCCP** subsystem management to the mate application.

If load sharing is configured, both **SCP**s will receive queries. **SCCP** ensures that all associated transactions are sent to the same **SCP**. Load sharing allows traffic to be distributed to both **SCP**s 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** resumes load sharing.

Figure 4-4 shows an **EAGLE** configured with primary and backup **SCP**s.

**Figure 5-3 Configuration of GTT for Routing Management**




# EAGLE 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 5-3 Cards Required in Specific Situations**

| If | Required Card |
|---|---|
| **STPLAN** feature is used | E5-SLAN |
| Subsystem management is used | **E5-SM4G**, E5-SM8G |

# Configuring the EAGLE for the DTA Feature

This procedure is used to add all the items to the **EAGLE** database that are necessary to implement the **DTA** feature.

The following features must be turned on:

Gateway screening
Global title translation

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)

> **Note:**
>
> After the Gateway Screening 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** can be provisioned for the **DTA** feature:

- **LIMs** assigned to the `ss7ansi` application that are necessary to implement the **DTA** feature – "Adding an SS7 LIM" procedure in *Database Administration – System Management User's Guide*. The **LIMs** can be verified by entering the `rtrv-card` command.
- Service Module cards assigned to the `vsccp` applications that are necessary to implement the **DTA** feature - Adding a Service Module procedure in *Database Administration* – **GTT User's Guide**. The Service Module cards can be verified by entering the `rtrv-card` command.
- If you wish to redirect **MSU**s 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 **IPSG** Card procedures in *Database Administration - IP7 User's Guide*. 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 *Database Administration - IP7 User's Guide* to update the IP7 Secure Gateway configuration as necessary.

- Linksets whose **APCs** are in the **SS7** domain that are necessary to implement the **DTA** feature – see "Adding an **SS7** Linkset" procedure in *Database Administration – **SS7** User's Guide*. 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 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 **SS7APCs** that are necessary to implement the **DTA** feature – "Adding an **SS7** Signaling Link" procedure in *Database Administration – **SS7** User's Guide*. 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 signaling links can be verified by entering the `rtrv-slk` command.
- Routes assigned to linksets containing **SS7APCs** that are necessary to implement the **DTA** feature - "Adding a Route Containing an **SS7DPC**" procedure in *Database Administration – **SS7** User's Guide*. 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 routes can be verified by entering the `rtrv-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  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 *Database Administration - GWS User's Guide*.

> **Caution:**
>
> Redirecting **SLTA**/**SLTM** messages prevents **SLTA**/**SLTM** messages from being returned to the **EAGLE**. The signaling link carrying these messages will fail if these messages are not returned to the **EAGLE**. 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**'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 *Database Administration - GWS User's Guide* 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 *Database Administration - GWS User's Guide* 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 *Database Administration - GWS User's Guide* 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 - GWS User's Guide*.

- "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 - GWS User's Guide* 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:**
>
> When **Gateway Screening** is in the screen test mode, as defined by the linkset parameters `gwsa=off` and `gwsm=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 *Database Administration - GWS User's Guide* 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 *Database Administration - GWS User's Guide* 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 that 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 *Commands User's Guide*.

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 09-05-07 00:17:31 GMT EAGLE5 41.0.0
   ENABLED    DPCA           RI   SSN  TT   GT

   Redirect function data is not provisioned.
   ```

   If the gateway screening redirect function is enabled, the `ent-gws-redirect` command in 2 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=dtaclli
```

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**'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
```

3. Verify the changes by entering the `rtrv-gws-redirect` command.

   The following is an example of the possible output.

```
rlghncxa03w 09-05-07 00:17:31 GMT EAGLE5 41.0.0
ENABLED    DPCA           RI   SSN  TT   GT
on         009-002-001    GT   15   225  9105551212
```

4. 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 *Commands User's Guide*.

   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-gttsel`, `ent-gttsel`, `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 5, and 6, and go to 7.

5. Verify the global title translation data in the database for the translation type specified in the output of 3 by entering the `rtrv-gtt` command with the `type` and `gta` parameters, specifying the values shown in 3 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 9.

6. Verify that the global title translation type shown in the output of 3, 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 5-4.

**Table 5-4 Translation Type Parameters**

| Point Code Type | DPC Parameter shown in the `rtrv-gws-redirect` 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 *Database Administration* - **GTT** *User's Guide* and configure a global title translation entry that contains the values shown in the `rtrv-gws-redirect` output in 3. 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 *Database Administration* - **GTT** *User's Guide* and configure a global title translation entry that contains the values shown in the `rtrv-gws-redirect` output in 3. This procedure is finished.

> **Note:**
>
> If the enhanced global title translation is off, do not perform 7, 8, and 9. This procedure is finished.

7. Verify that the global title translation type specified in the output of 3, in the `TT` field, is in the database by entering the `rtrv-gttsel` command with the `tt` parameter.

For this example, enter the `rtrv-gttsel: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-gttsel` command output, go to 8 and verify that the global title address data is in the database.

If the translation type is not shown in the `rtrv-gttsel` command output, perform the "Adding a **GTT** Set," "Adding a **GTT** Selector," and "Adding Global Title Address Information" procedures in *Database Administration* - **GTT** *User's Guide* and configure a global title address entry that contains the values shown in the `rtrv-gws-redirect` output in 3. 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 7 by entering the `rtrv-gta` command with the `GTTSN` value shown in the output of 7, and with the `GTA`, `SSN`, and `DPC` values shown in the output of 3. 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 9.

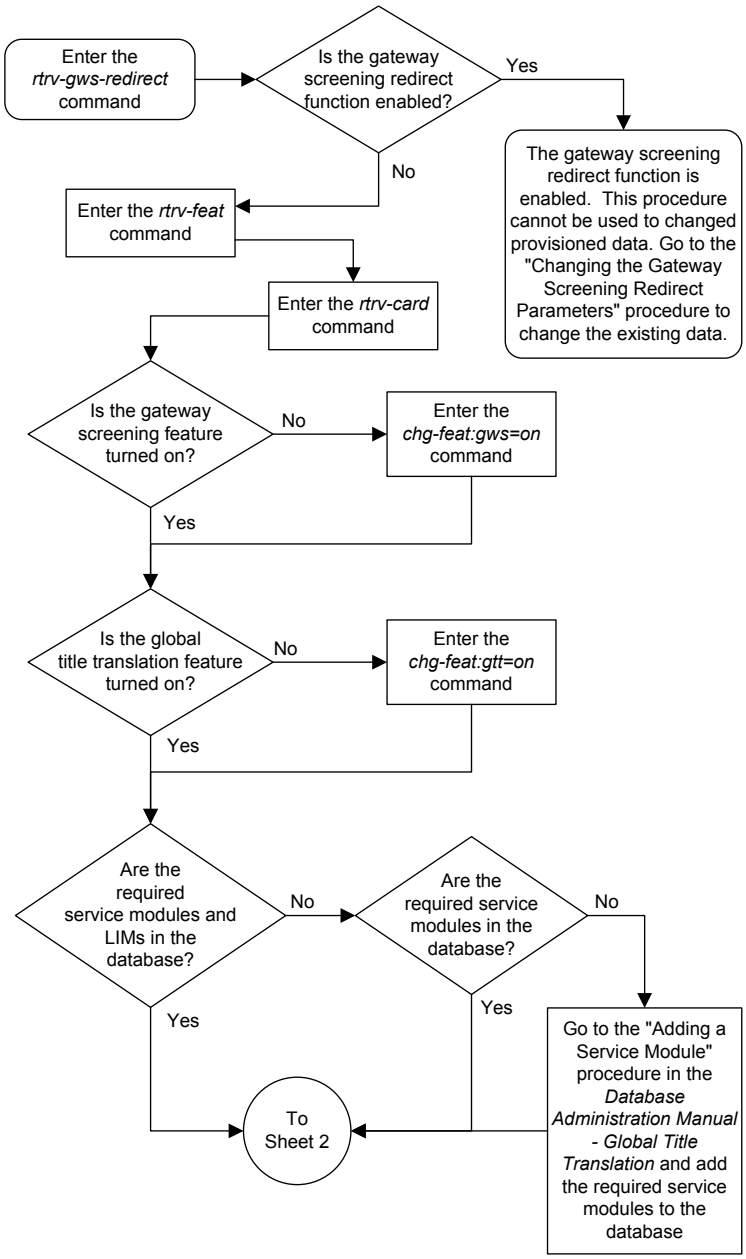
   If the required global title translation data is not shown in the `rtrv-gta` command output, perform the "Adding Global Title Address Information" procedure in *Database Administration* - **GTT** *User's Guide* and configure a global title address entry that contains the values shown in the `rtrv-gws-redirect` output in 3. 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 5-4 Configuring the EAGLE for the DTA Feature**

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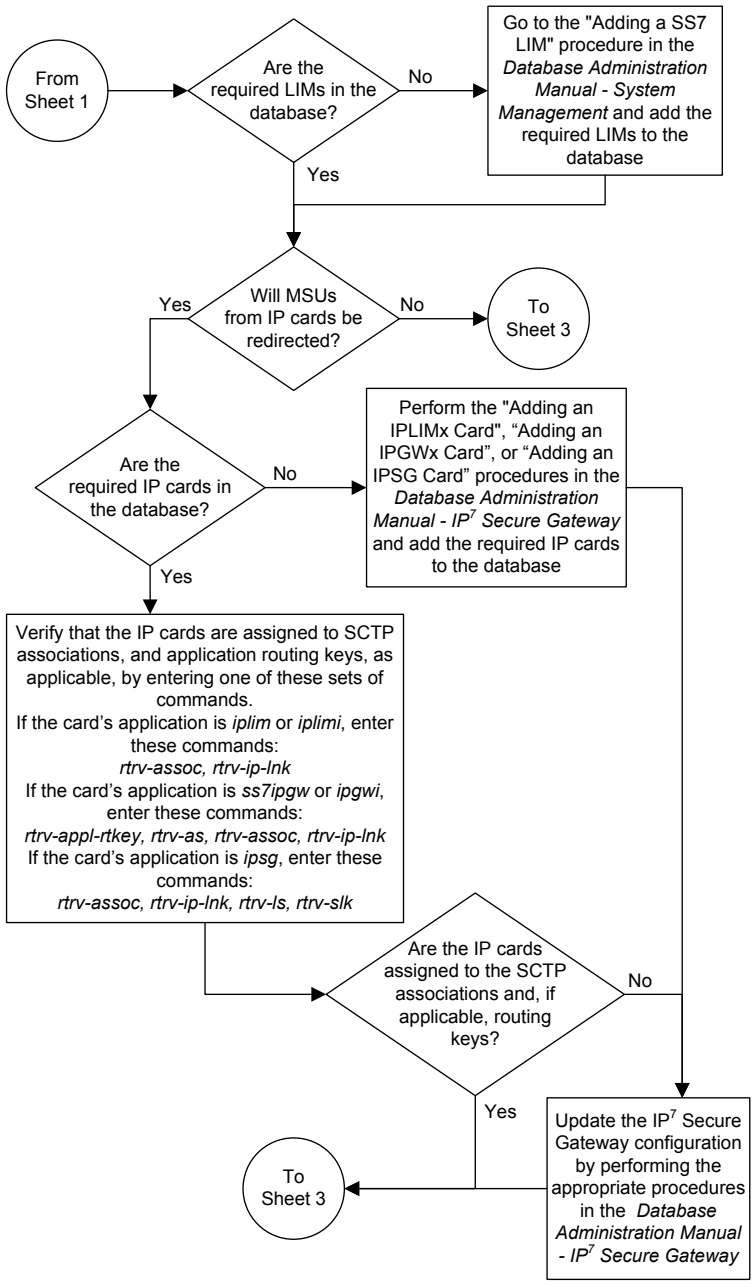
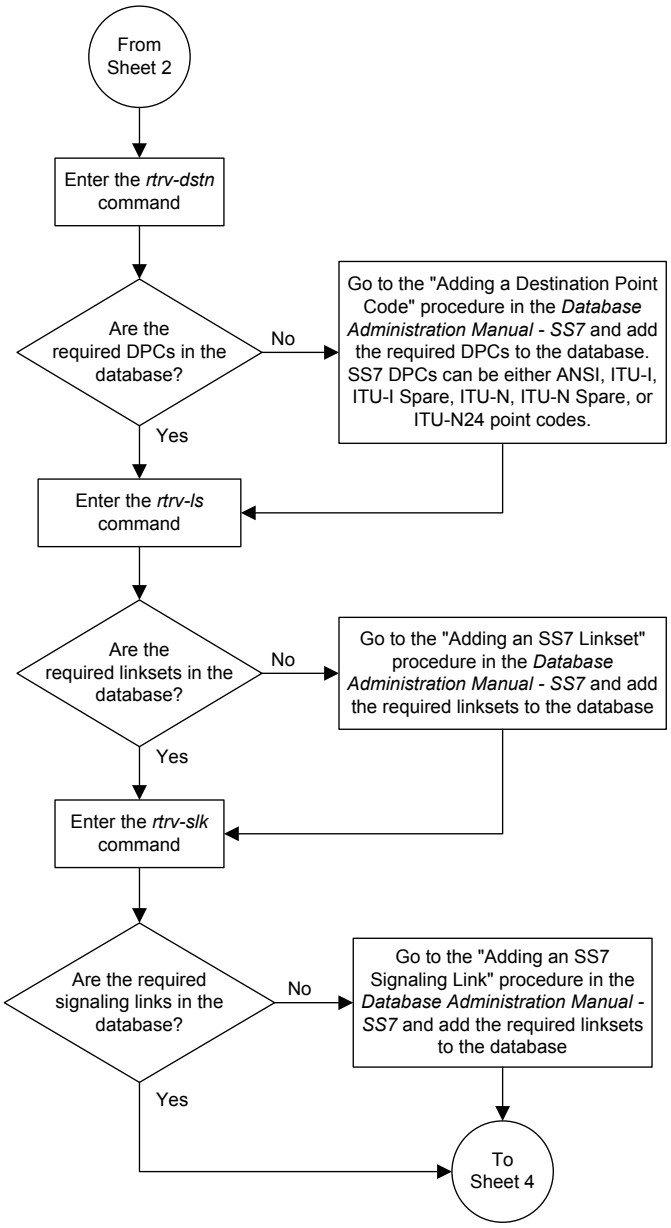
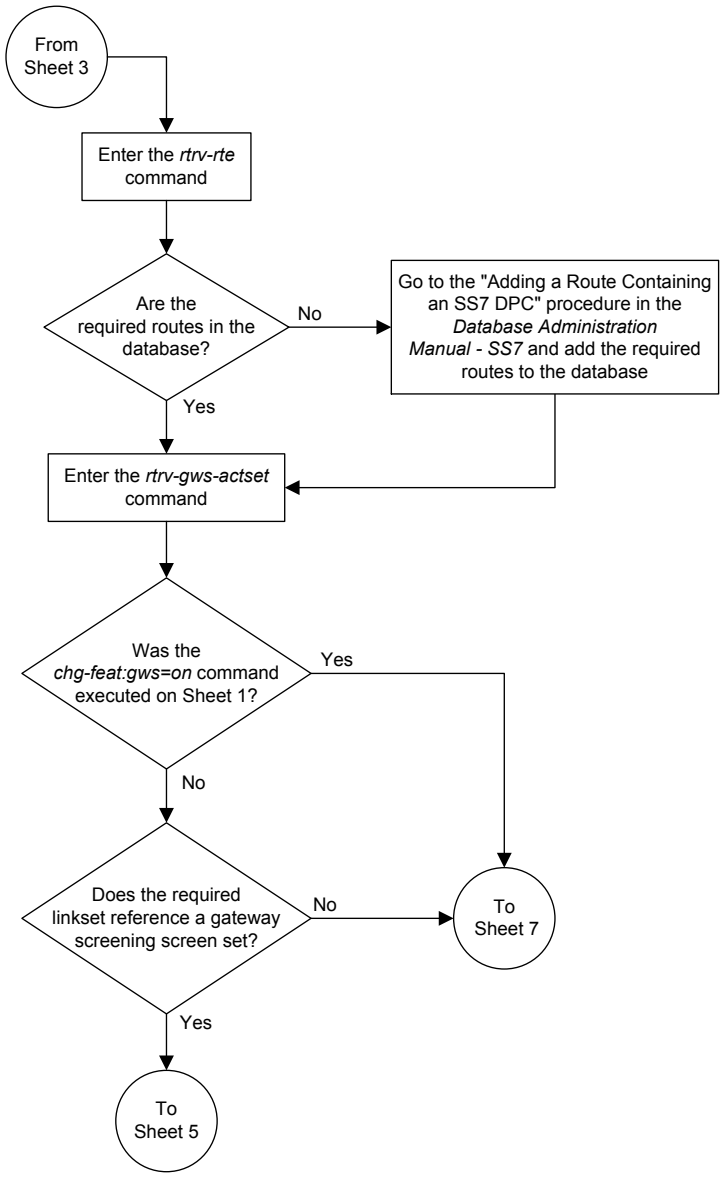

From Sheet 1
Are the required LIMs in the database?
No
Go to the "Adding a SS7 LIM" procedure in the *Database Administration Manual - System Management* and add the required LIMs to the database
Yes
Will MSUs from IP cards be redirected?
Yes
No
To Sheet 3
Are the required IP cards in the database?
No
Perform the "Adding an IPLIMx Card", "Adding an IPGWx Card", or "Adding an IPSG Card" procedures in the *Database Administration Manual - IP7 Secure Gateway* and add the required IP cards to the database
Yes
Verify that the IP cards are assigned to SCTP associations, and application routing keys, as applicable, by entering one of these sets of commands.
If the card's application is *iplim* or *iplimi*, enter these commands:
*rtrv-assoc, rtrv-ip-lnk*
If the card's application is *ss7ipgw* or *ipgwi*, enter these commands:
*rtrv-appl-rtkey, rtrv-as, rtrv-assoc, rtrv-ip-lnk*
If the card's application is *ipsg*, enter these commands:
*rtrv-assoc, rtrv-ip-lnk, rtrv-ls, rtrv-slk*
Are the IP cards assigned to the SCTP associations and, if applicable, routing keys?
No
Yes
To Sheet 3
Update the IP7 Secure Gateway configuration by performing the appropriate procedures in the *Database Administration Manual - IP7 Secure Gateway*

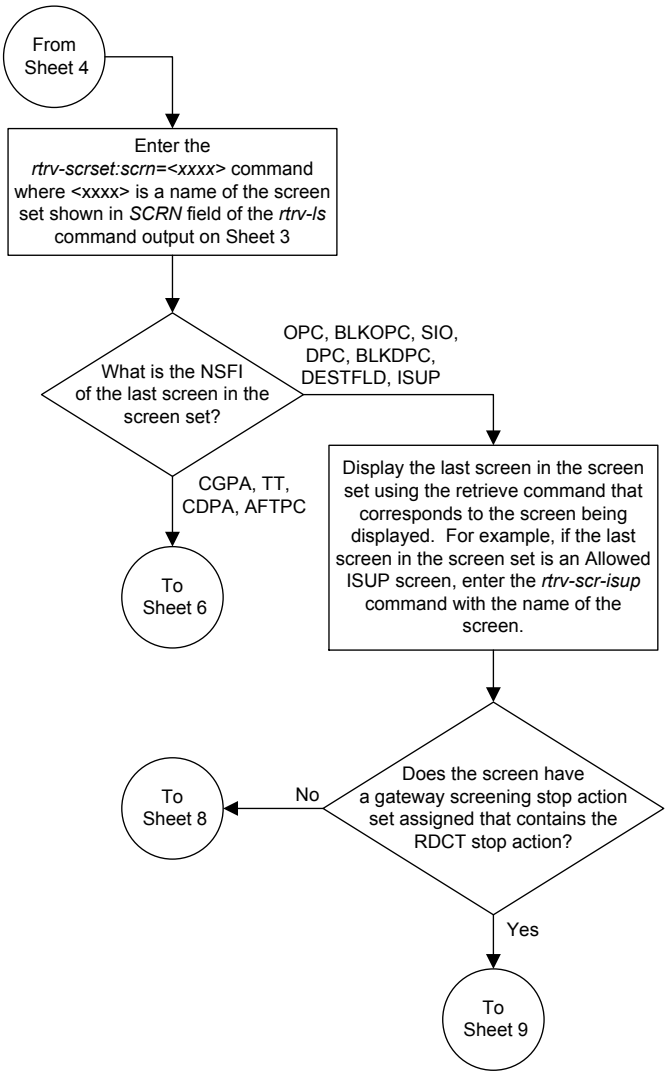
Sheet 2 of 11


From Sheet 2
Enter the rtrv-dstn command
Are the required DPCs in the database?
No
Go to the "Adding a Destination Point Code" procedure in the Database Administration Manual - SS7 and add the required DPCs to the database. SS7 DPCs can be either ANSI, ITU-I, ITU-I Spare, ITU-N, ITU-N Spare, or ITU-N24 point codes.
Yes
Enter the rtrv-ls command
Are the required linksets in the database?
No
Go to the "Adding an SS7 Linkset" procedure in the Database Administration Manual - SS7 and add the required linksets to the database
Yes
Enter the rtrv-slk command
Are the required signaling links in the database?
No
Go to the "Adding an SS7 Signaling Link" procedure in the Database Administration Manual - SS7 and add the required linksets to the database
Yes
To Sheet 4

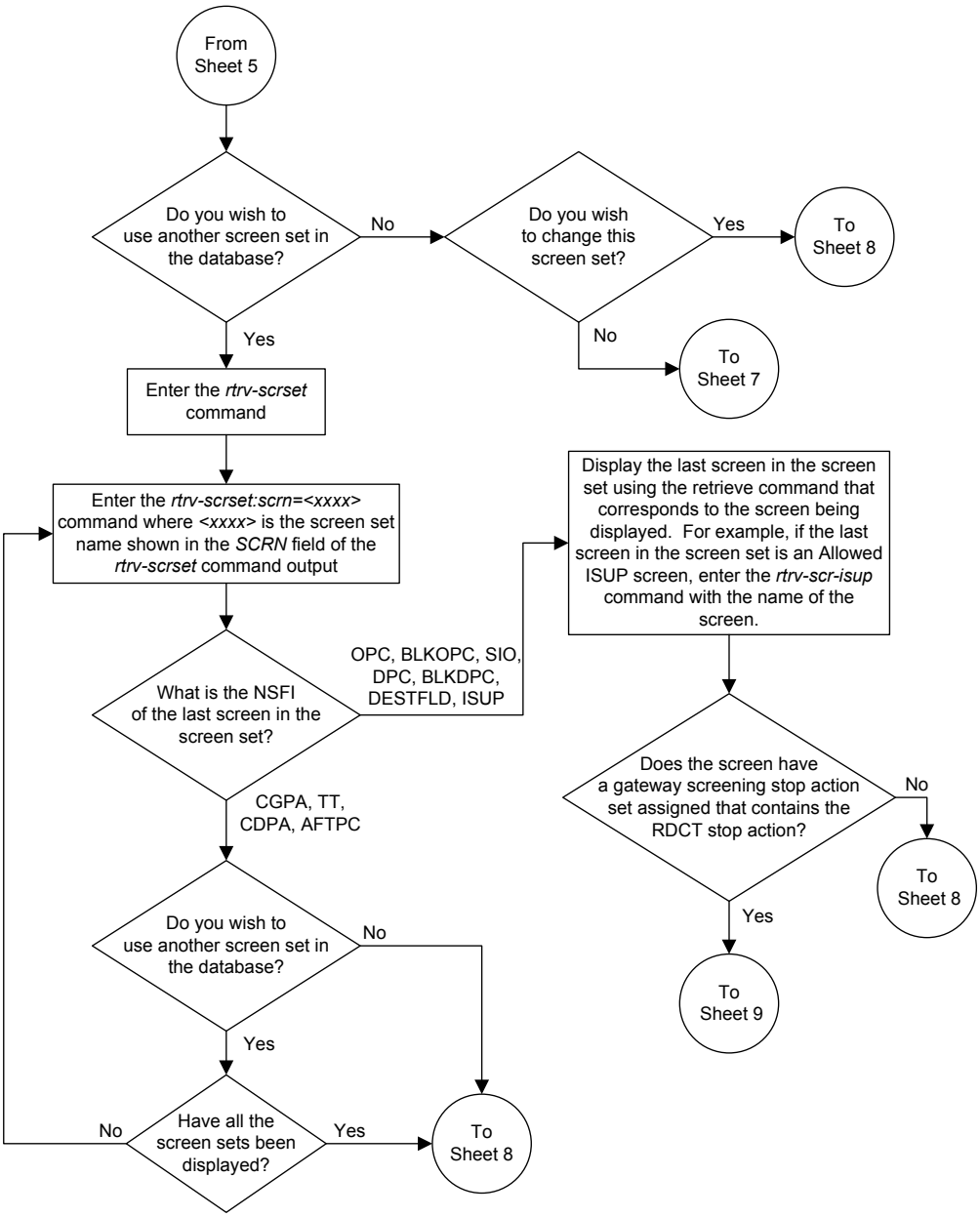
Sheet 3 of 11


From Sheet 3
Enter the *rtrv-rte* command
Are the required routes in the database?
No
Go to the "Adding a Route Containing an SS7 DPC" procedure in the *Database Administration Manual - SS7* and add the required routes to the database
Yes
Enter the *rtrv-gws-actset* command
Was the *chg-feat:gws=on* command executed on Sheet 1?
Yes
No
Does the required linkset reference a gateway screening screen set?
No
To Sheet 7
Yes
To Sheet 5

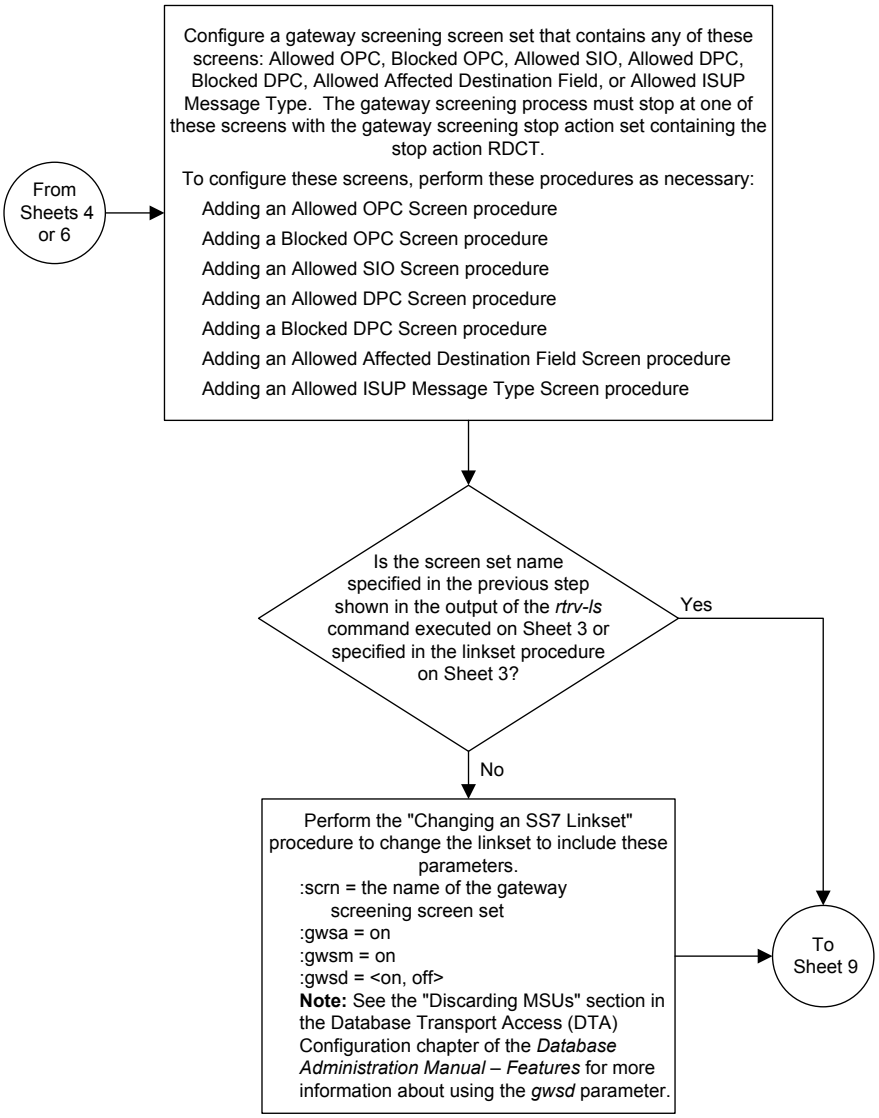
Sheet 4 of 11


From Sheet 4
Enter the rtrv-scrset:scrn=<xxxx> command where <xxxx> is a name of the screen set shown in SCRN field of the rtrv-ls command output on Sheet 3
What is the NSFI of the last screen in the screen set?
OPC, BLKOPC, SIO, DPC, BLKDPC, DESTFLD, ISUP
CGPA, TT, CDPA, AFTPC
To Sheet 6
Display the last screen in the screen set using the retrieve command that corresponds to the screen being displayed. For example, if the last screen in the screen set is an Allowed ISUP screen, enter the rtrv-scr-isup command with the name of the screen.
Does the screen have a gateway screening stop action set assigned that contains the RDCT stop action?
No
To Sheet 8
Yes
To Sheet 9

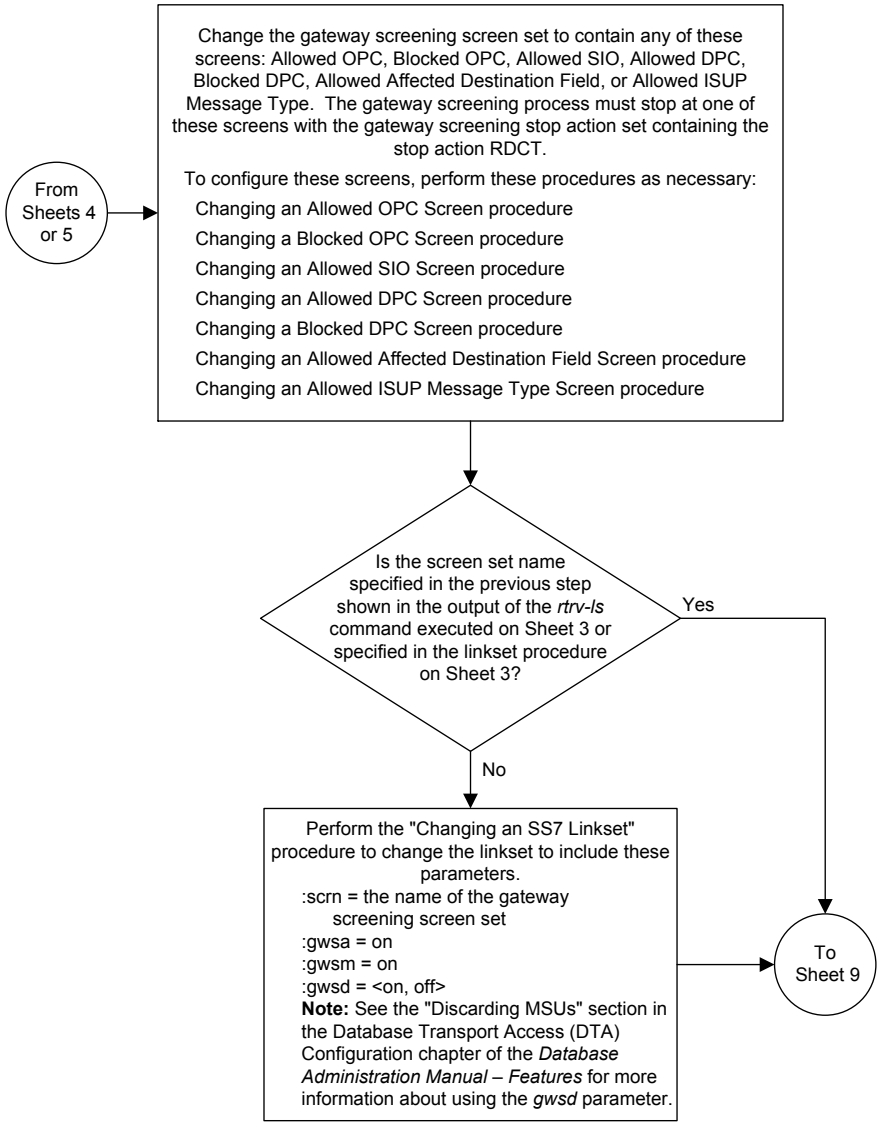
Sheet 5 of 11


From Sheet 5
Do you wish to use another screen set in the database?
No
Do you wish to change this screen set?
Yes
To Sheet 8
No
To Sheet 7
Yes
Enter the rtrv-scrset command
Enter the rtrv-scrset:scrn=<xxxx> command where <xxxx> is the screen set name shown in the SCRN field of the rtrv-scrset command output
Display the last screen in the screen set using the retrieve command that corresponds to the screen being displayed. For example, if the last screen in the screen set is an Allowed ISUP screen, enter the rtrv-scr-isup command with the name of the screen.
What is the NSFI of the last screen in the screen set?
OPC, BLKOPC, SIO, DPC, BLKDPC, DESTFLD, ISUP
CGPA, TT, CDPA, AFTPC
Does the screen have a gateway screening stop action set assigned that contains the RDCT stop action?
No
To Sheet 8
Yes
To Sheet 9
Do you wish to use another screen set in the database?
No
Yes
Have all the screen sets been displayed?
No
Yes
To Sheet 8

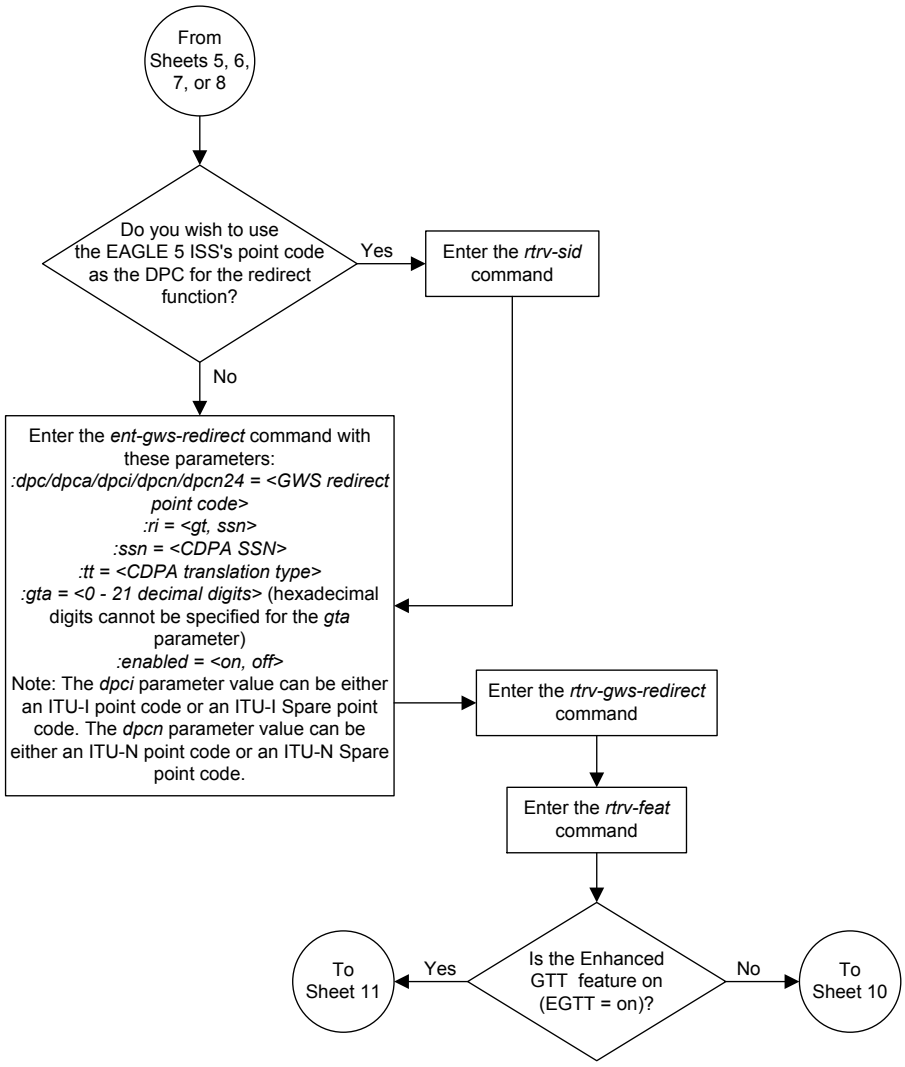
Sheet 6 of 11


From Sheets 4 or 6
Configure a gateway screening screen set that contains any of these screens: Allowed OPC, Blocked OPC, Allowed SIO, Allowed DPC, Blocked DPC, Allowed Affected Destination Field, or Allowed ISUP Message Type. The gateway screening process must stop at one of these screens with the gateway screening stop action set containing the stop action RDCT.
To configure these screens, perform these procedures as necessary:
Adding an Allowed OPC Screen procedure
Adding a Blocked OPC Screen procedure
Adding an Allowed SIO Screen procedure
Adding an Allowed DPC Screen procedure
Adding a Blocked DPC Screen procedure
Adding an Allowed Affected Destination Field Screen procedure
Adding an Allowed ISUP Message Type Screen procedure
Is the screen set name specified in the previous step shown in the output of the rtrv-ls command executed on Sheet 3 or specified in the linkset procedure on Sheet 3?
Yes
No
Perform the "Changing an SS7 Linkset" procedure to change the linkset to include these parameters.
:scrn = the name of the gateway screening screen set
:gwsa = on
:gwsm = on
:gwsd = <on, off>
Note: See the "Discarding MSUs" section in the Database Transport Access (DTA) Configuration chapter of the Database Administration Manual – Features for more information about using the gwsd parameter.
To Sheet 9

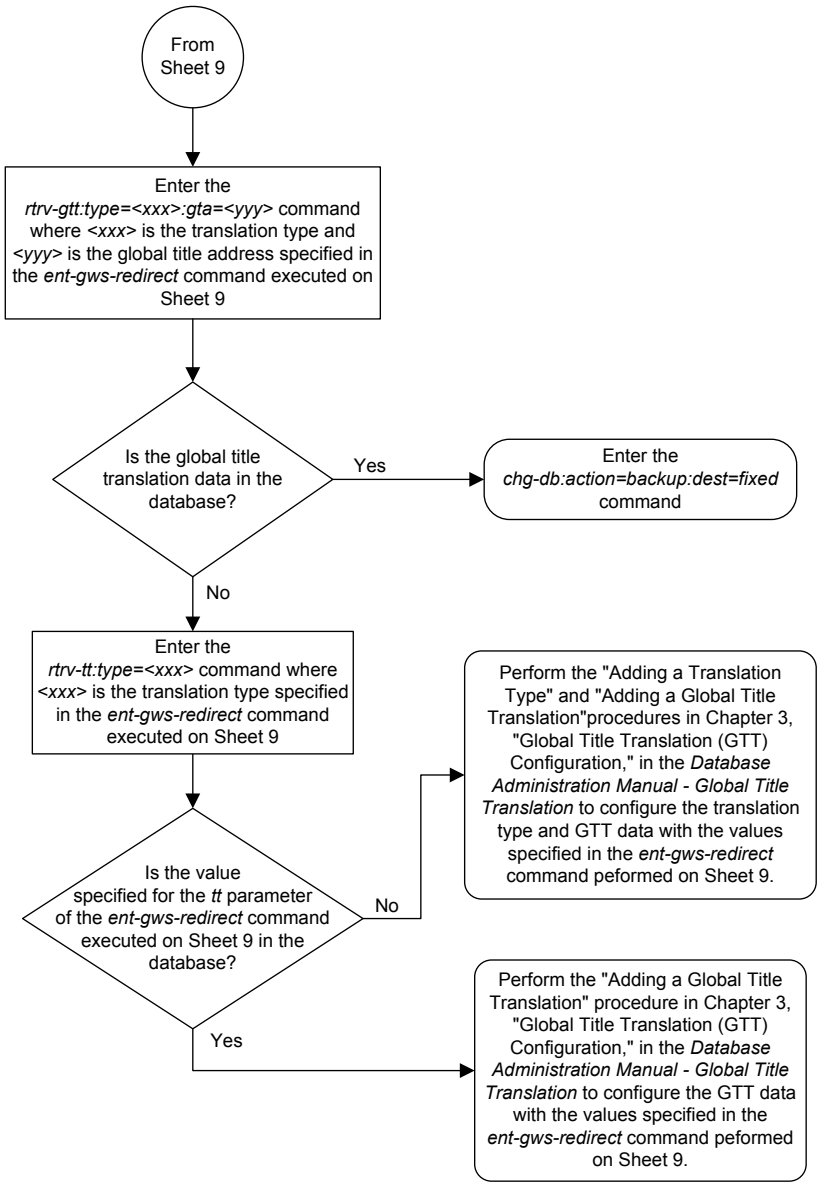
Sheet 7 of 11


From Sheets 4 or 5
Change the gateway screening screen set to contain any of these screens: Allowed OPC, Blocked OPC, Allowed SIO, Allowed DPC, Blocked DPC, Allowed Affected Destination Field, or Allowed ISUP Message Type. The gateway screening process must stop at one of these screens with the gateway screening stop action set containing the stop action RDCT.
To configure these screens, perform these procedures as necessary:
Changing an Allowed OPC Screen procedure
Changing a Blocked OPC Screen procedure
Changing an Allowed SIO Screen procedure
Changing an Allowed DPC Screen procedure
Changing a Blocked DPC Screen procedure
Changing an Allowed Affected Destination Field Screen procedure
Changing an Allowed ISUP Message Type Screen procedure
Is the screen set name specified in the previous step shown in the output of the rtrv-ls command executed on Sheet 3 or specified in the linkset procedure on Sheet 3?
Yes
No
Perform the "Changing an SS7 Linkset" procedure to change the linkset to include these parameters.
:scrn = the name of the gateway screening screen set
:gwsa = on
:gwsm = on
:gwsd = <on, off>
Note: See the "Discarding MSUs" section in the Database Transport Access (DTA) Configuration chapter of the Database Administration Manual – Features for more information about using the gwsd parameter.
To Sheet 9

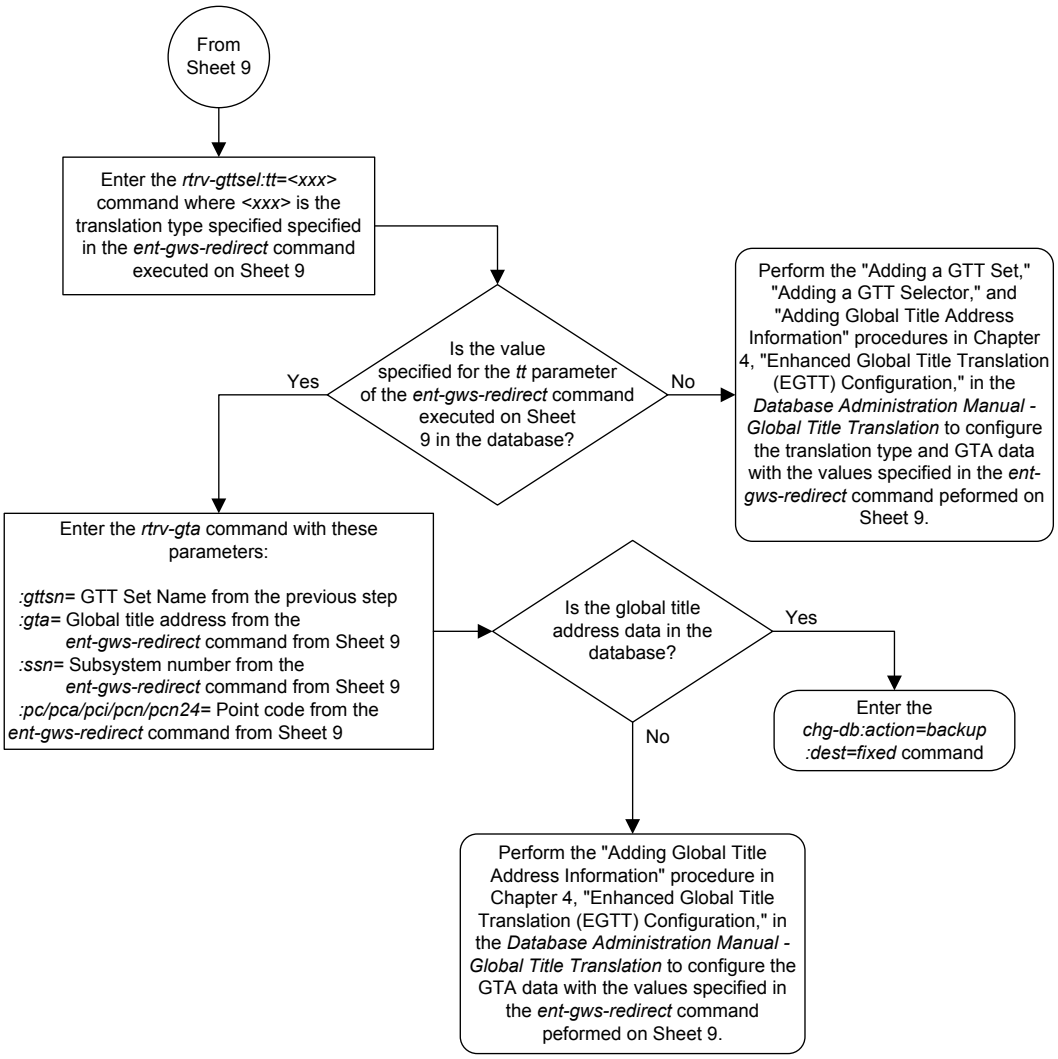
Sheet 8 of 11


From Sheets 5, 6, 7, or 8
Do you wish to use the EAGLE 5 ISS's point code as the DPC for the redirect function?
Yes
Enter the rtrv-sid command
No
Enter the ent-gws-redirect command with these parameters:
:dpc/dpca/dpci/dpcn/dpcn24 = <GWS redirect point code>
:ri = <gt, ssn>
:ssn = <CDPA SSN>
:tt = <CDPA translation type>
:gta = <0 - 21 decimal digits> (hexadecimal digits cannot be specified for the gta parameter)
:enabled = <on, off>
Note: The dpci parameter value can be either an ITU-I point code or an ITU-I Spare point code. The dpcn parameter value can be either an ITU-N point code or an ITU-N Spare point code.
Enter the rtrv-gws-redirect command
Enter the rtrv-feat command
Is the Enhanced GTT feature on (EGTT = on)?
Yes
To Sheet 11
No
To Sheet 10

Sheet 9 of 11




Sheet 10 of 11




Sheet 11 of 11

# 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-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 that 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 *Commands User's Guide*.

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.

```
rlghncxa03w 09-05-07 00:17:31 GMT EAGLE5 41.0.0
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, 2, and 3, and go to step 4.

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**'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 ---------- --------------   ls02       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 **SS7 DPC**" procedure in *Database Administration - **SS7** User's Guide* and add the route to the **DPC** to the database.

3. Display the **EAGLE**'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.

```
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**'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
```

5. Verify the changes by entering the `rtrv-gws-redirect` command.

```
rlghncxa03w 09-05-07 00:17:31 GMT EAGLE5 41.0.0
ENABLED    DPCA           RI   SSN  TT   GTA
on         009-003-001    GT   45   175  3365841342
```

If only the **DPC** parameter was changed in step 4, skip steps 6 through 10, go to step 11.

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 *Commands User's Guide*.

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-gttsel`, `ent-gttsel`, `rtrv-gta`, and `ent-gta` are used to verify and configure the global title translation data.

7. The new global title address data must be in the database.

> **Note:**
>
> If the enhanced global title translation is on, skip steps 7 and 8, and go to step 9.

Verify the global title translation data in the database for the translation type specified in the output of step 5 by entering the `rtrv-gtt` command with the `type` and `gta` parameters. For this example, enter this command.

```
rtrv-gtt:type=175:gta=3365841342
```

```
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.

8. 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 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 and Table 4-5.

**Table 5-5 Translation Type Parameters**

| Point Code Type | DPC Parameter shown in the `rtrv-gws-redirect` 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 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
```

```
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* - **GTT** *User's Guide* and configure a global title translation entry that contains the values shown in the `rtrv-gws-redirect` output in step 5. 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 *Database Administration* - **GTT** *User's Guide* and configure a global title translation entry that contains the values shown in the `rtrv-gws-redirect` output in step 5. This procedure is finished.

9. Verify that the global title translation type specified in the output of step 5, in the `TT` field, is in the database by entering the `rtrv-gttsel` 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-gttsel:tt=175` command.

```
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 disp1lay.

```
No GTT Selectors matching the specified criteria were found.
```

If the translation type is shown in the `rtrv-gttsel` command output, go to step 10 and verify that the global title address data is in the database.

If the translation type is not shown in the `rtrv-gttsel` command output, perform the "Adding a **GTT** Set," "Adding a **GTT** Selector," and "Adding Global Title Address Information" procedures in *Database Administration* - **GTT** *User's Guide* 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 by entering the `rtrv-gta` command with the `GTTSN` value shown in the output of step 9 and with the `GTA`, `SSN`, and `DPC` values shown in the output of step 5. 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.

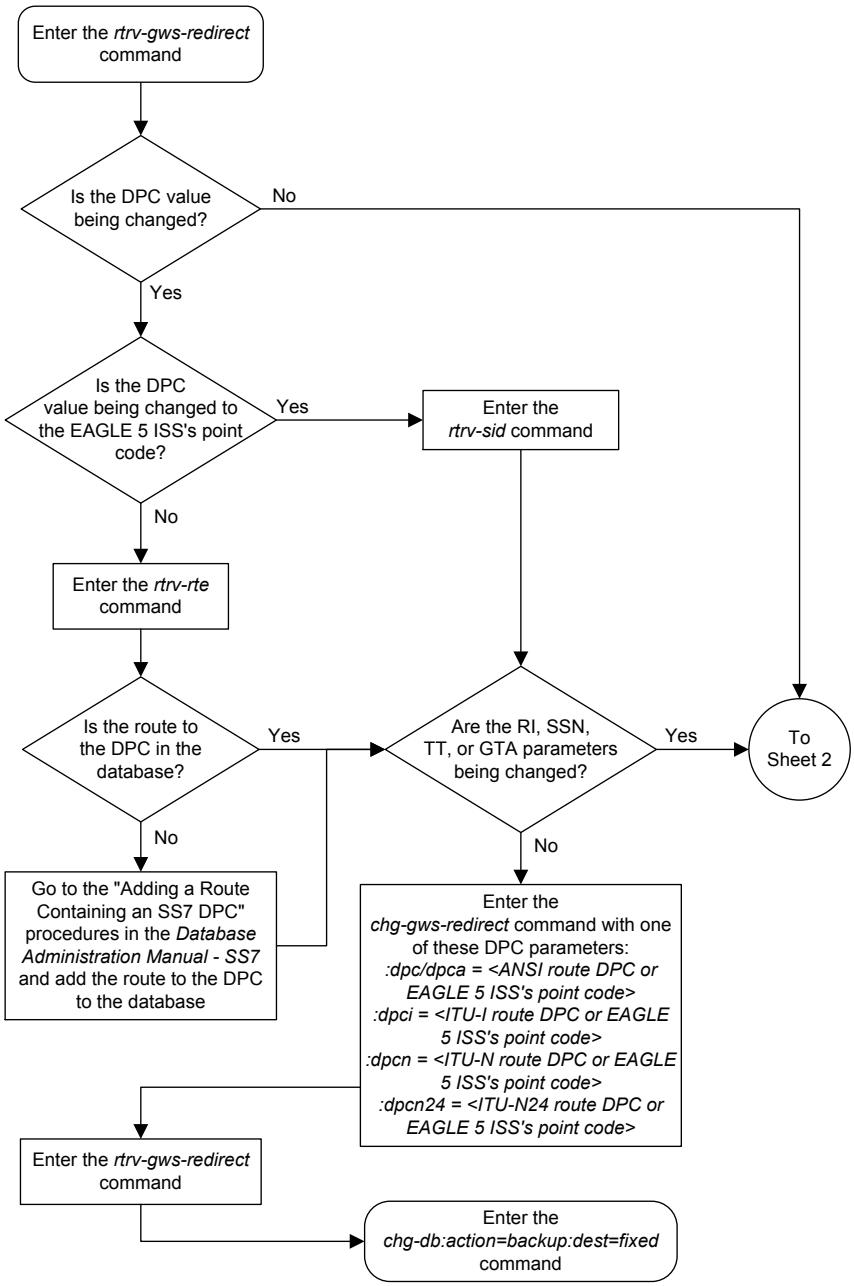
    If the required global title translation data is not shown in the `rtrv-gta` command output, perform the "Adding Global Title Address Information" procedure in *Database Administration* - **GTT** *User's Guide* and configure a global title address entry that contains the values shown in the `rtrv-gws-redirect` output in step 5. This procedure is finished.

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

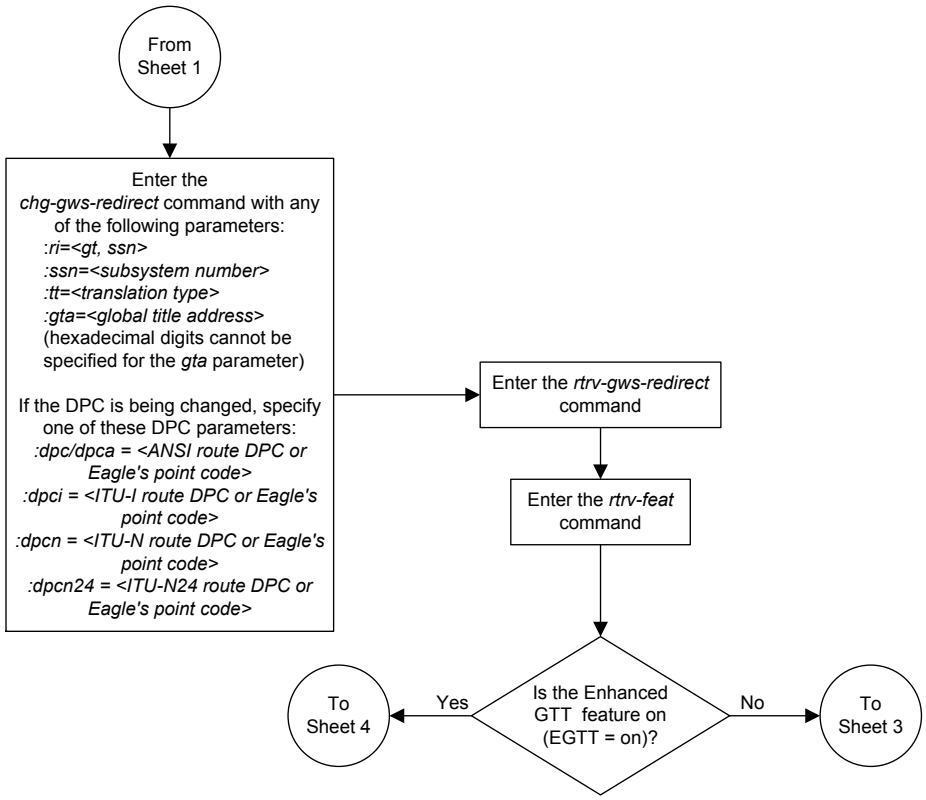
    The following messages should appear, the active **Maintenance and Administration Subsystem** Processor (**MASP**) appears first.

    ```
    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.
    ```

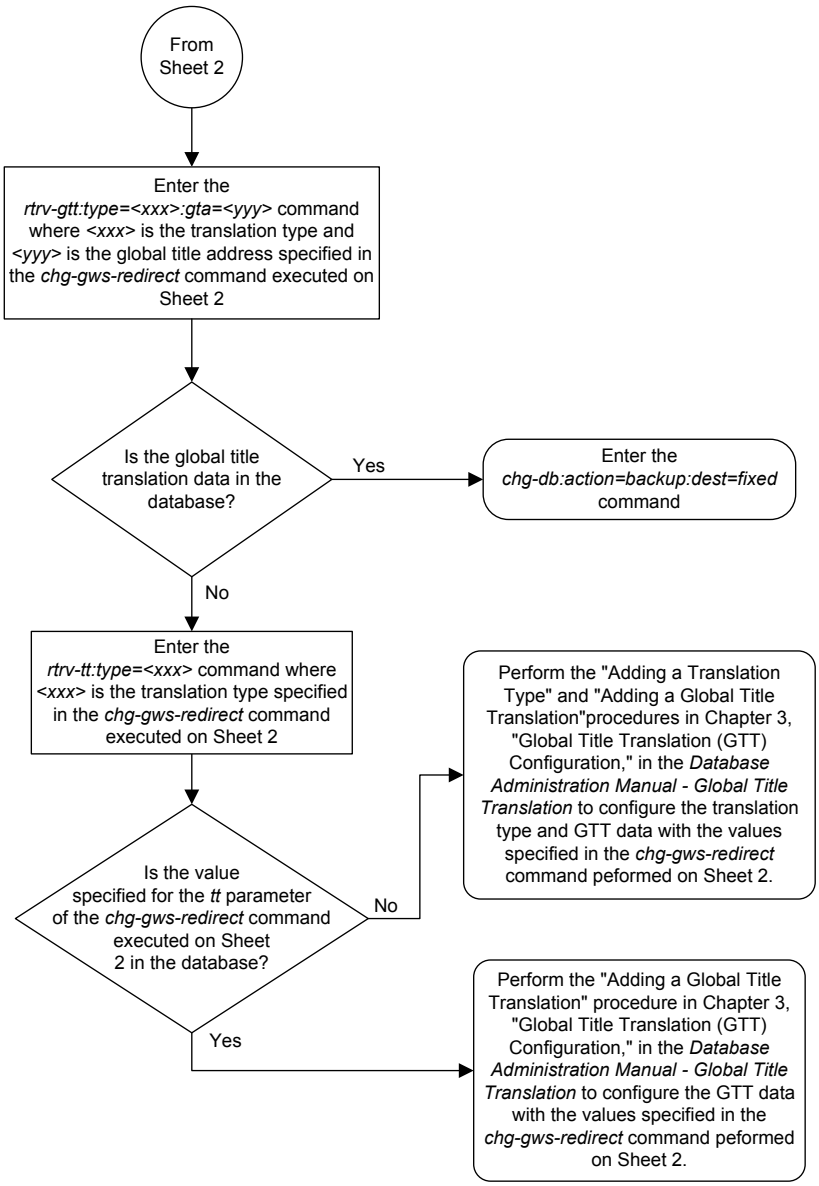
**Figure 5-5 Changing the Gateway Screening Redirect Parameters**



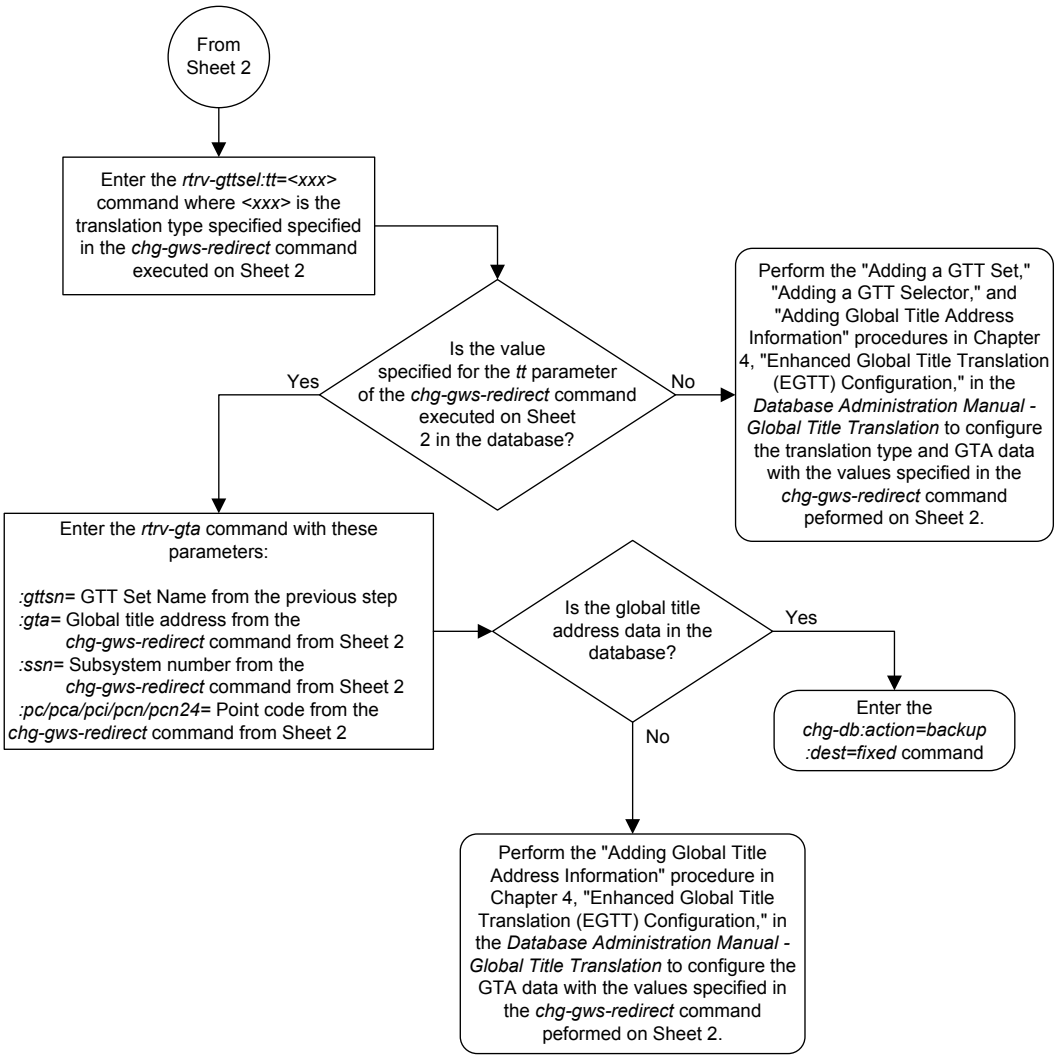

Sheet 1 of 4


From Sheet 1
Enter the chg-gws-redirect command with any of the following parameters:
:ri=<gt, ssn>
:ssn=<subsystem number>
:tt=<translation type>
:gta=<global title address>
(hexadecimal digits cannot be specified for the gta parameter)
If the DPC is being changed, specify one of these DPC parameters:
:dpc/dpca = <ANSI route DPC or Eagle's point code>
:dpci = <ITU-I route DPC or Eagle's point code>
:dpcn = <ITU-N route DPC or Eagle's point code>
:dpcn24 = <ITU-N24 route DPC or Eagle's point code>
Enter the rtrv-gws-redirect command
Enter the rtrv-feat command
Is the Enhanced GTT feature on (EGTT = on)?
Yes
No
To Sheet 4
To Sheet 3

Sheet 2 of 4


From Sheet 2
Enter the rtrv-gtt:type=<xxx>:gta=<yyy> command where <xxx> is the translation type and <yyy> is the global title address specified in the chg-gws-redirect command executed on Sheet 2
Is the global title translation data in the database?
Yes
Enter the chg-db:action=backup:dest=fixed command
No
Enter the rtrv-tt:type=<xxx> command where <xxx> is the translation type specified in the chg-gws-redirect command executed on Sheet 2
Is the value specified for the tt parameter of the chg-gws-redirect command executed on Sheet 2 in the database?
No
Perform the "Adding a Translation Type" and "Adding a Global Title Translation"procedures in Chapter 3, "Global Title Translation (GTT) Configuration," in the Database Administration Manual - Global Title Translation to configure the translation type and GTT data with the values specified in the chg-gws-redirect command peformed on Sheet 2.
Yes
Perform the "Adding a Global Title Translation" procedure in Chapter 3, "Global Title Translation (GTT) Configuration," in the Database Administration Manual - Global Title Translation to configure the GTT data with the values specified in the chg-gws-redirect command peformed on Sheet 2.

Sheet 3 of 4


From Sheet 2
Enter the rtrv-gttsel:tt=<xxx> command where <xxx> is the translation type specified specified in the chg-gws-redirect command executed on Sheet 2
Is the value specified for the tt parameter of the chg-gws-redirect command executed on Sheet 2 in the database?
Yes
No
Perform the "Adding a GTT Set," "Adding a GTT Selector," and "Adding Global Title Address Information" procedures in Chapter 4, "Enhanced Global Title Translation (EGTT) Configuration," in the Database Administration Manual - Global Title Translation to configure the translation type and GTA data with the values specified in the chg-gws-redirect command peformed on Sheet 2.
Enter the rtrv-gta command with these parameters:
:gttsn= GTT Set Name from the previous step
:gta= Global title address from the chg-gws-redirect command from Sheet 2
:ssn= Subsystem number from the chg-gws-redirect command from Sheet 2
:pc/pca/pci/pcn/pcn24= Point code from the chg-gws-redirect command from Sheet 2
Is the global title address data in the database?
Yes
No
Enter the chg-db:action=backup :dest=fixed command
Perform the "Adding Global Title Address Information" procedure in Chapter 4, "Enhanced Global Title Translation (EGTT) Configuration," in the Database Administration Manual - Global Title Translation to configure the GTA data with the values specified in the chg-gws-redirect command peformed on Sheet 2.

Sheet 4 of 4

# 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.

```
rlghncxa03w 09-05-07 00:17:31 GMT EAGLE5 41.0.0
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.

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.

```
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
```

```
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
```

```
rlghncxa03w 06-10-07 00:22:31 GMT EAGLE5 36.0.0
SCREEN = BLOCKED OPC
SR    NI       NC       NCM      NSFI    NSR/ACT
DTA2  C        C        C        STOP    RDCT
```

```
rtrv-scr-sio:actname=rdct
```

```
rlghncxa03w 06-10-07 00:23:31 GMT EAGLE5 36.0.0
SCREEN = ALLOWED SIO
SR    NIC  PRI  SI  H0     H1     NSFI    NSR/ACT
DTA3  1    3    4   --     --     STOP    RDCT
```

```
rtrv-scr-dpc:actname=rdct
```

```
rlghncxa03w 06-10-07 00:24:31 GMT EAGLE5 36.0.0
SCREEN = ALLOWED DPC
SR    NI       NC       NCM      NSFI    NSR/ACT
DTA4  243      015      001      STOP    RDCT
```

```
rtrv-scr-blkdpc:actname=rdct
```

```
rlghncxa03w 06-10-07 00:25:31 GMT EAGLE5 36.0.0
SCREEN = BLOCKED DPC
SR    NI       NC       NCM      NSFI    NSR/ACT
DTA5  C        C        C        STOP    RDCT
```

```
rtrv-scr-destfld:actname=rdct
```

5. 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
```

6. 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.

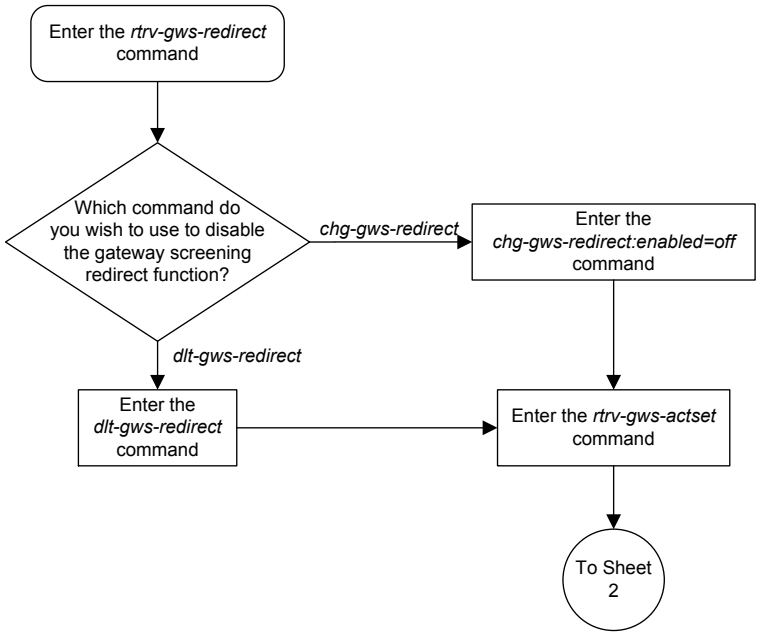
   ```
   E3680 Cmd Rej: No match on ACTNAME parameter during retrieve
   ```

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

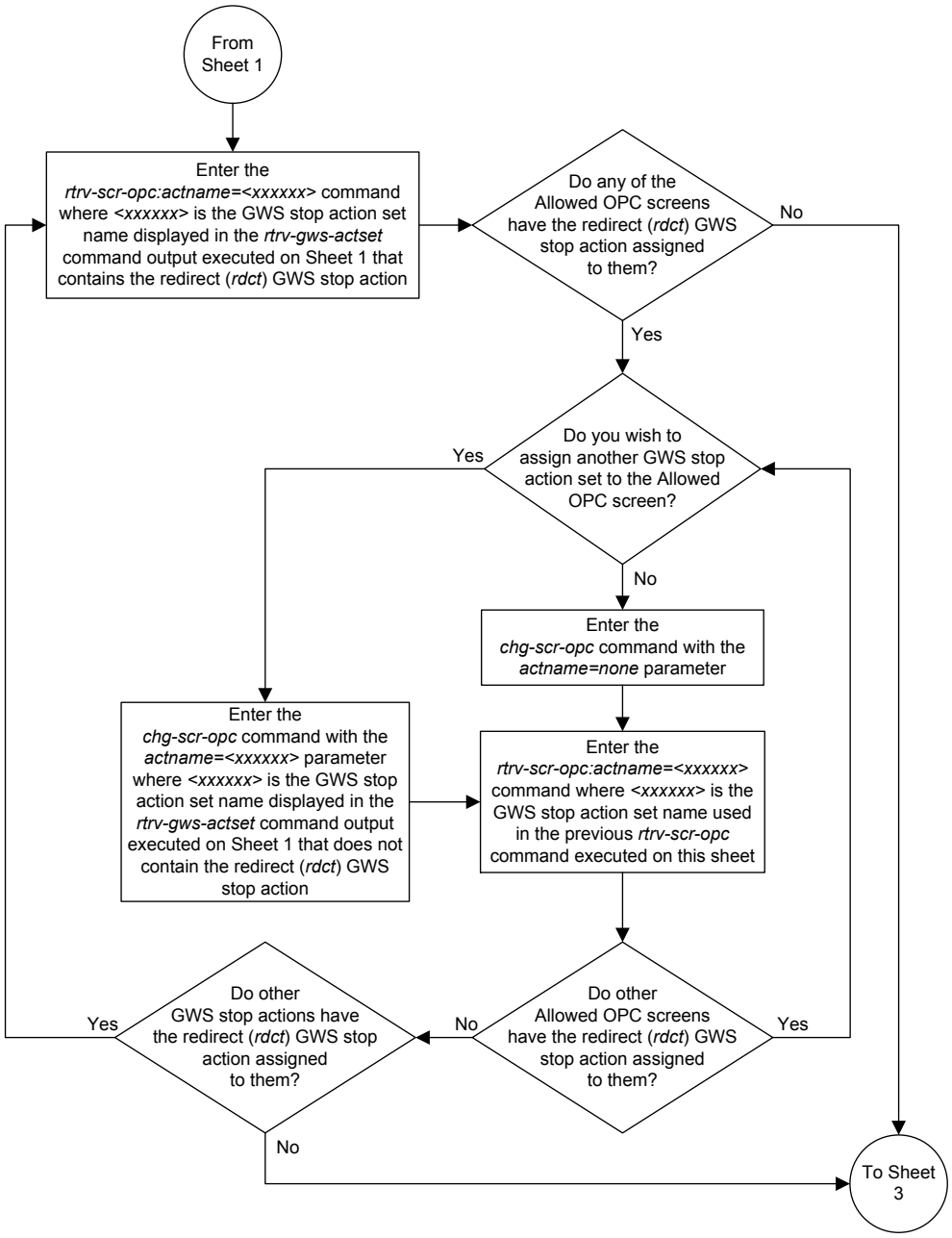
   The following messages should appear, the active **Maintenance and Administration Subsystem** Processor (**MASP**) appears first.

   ```
   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.
   ```

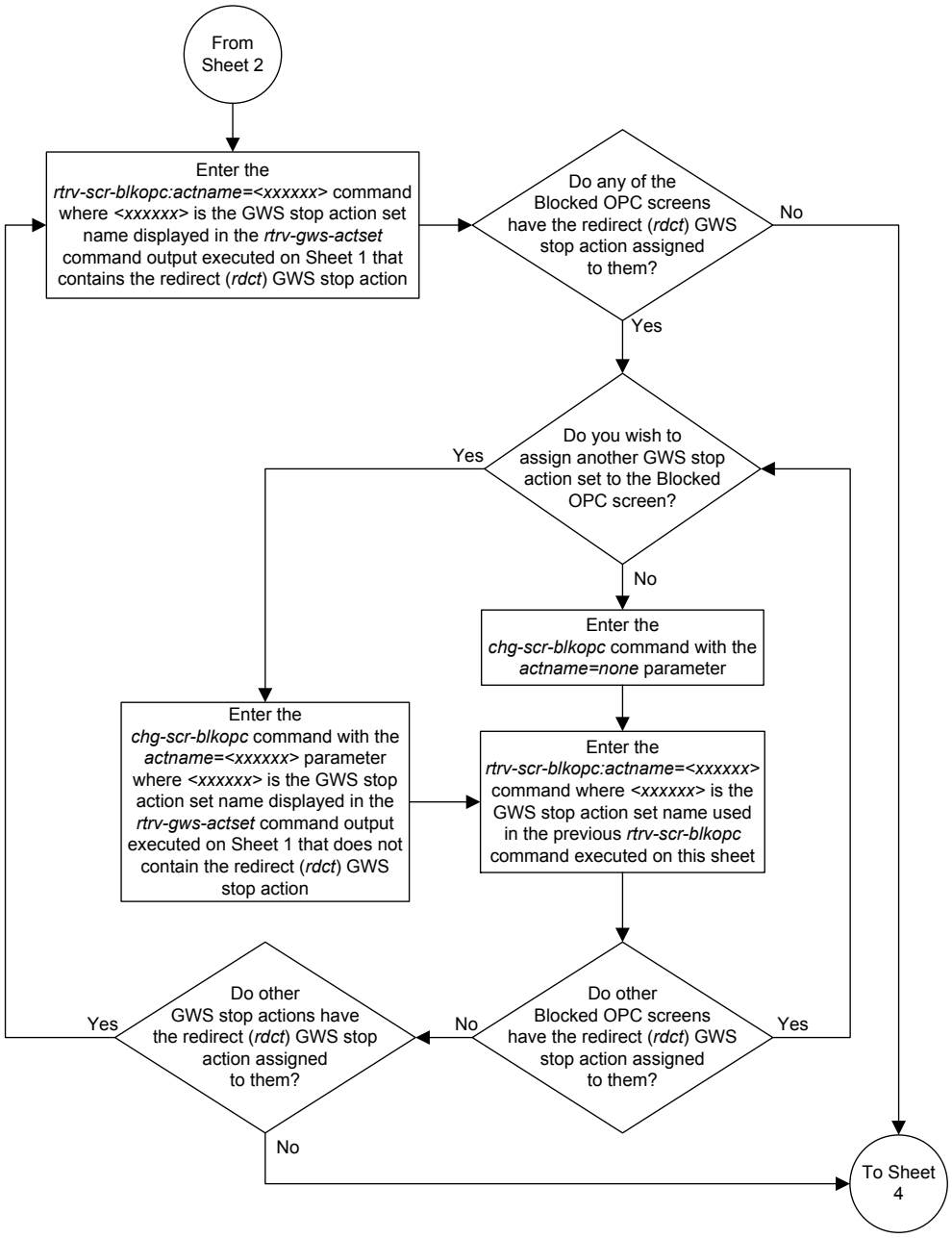
**Figure 5-6 Disabling the Gateway Screening Redirect Function**



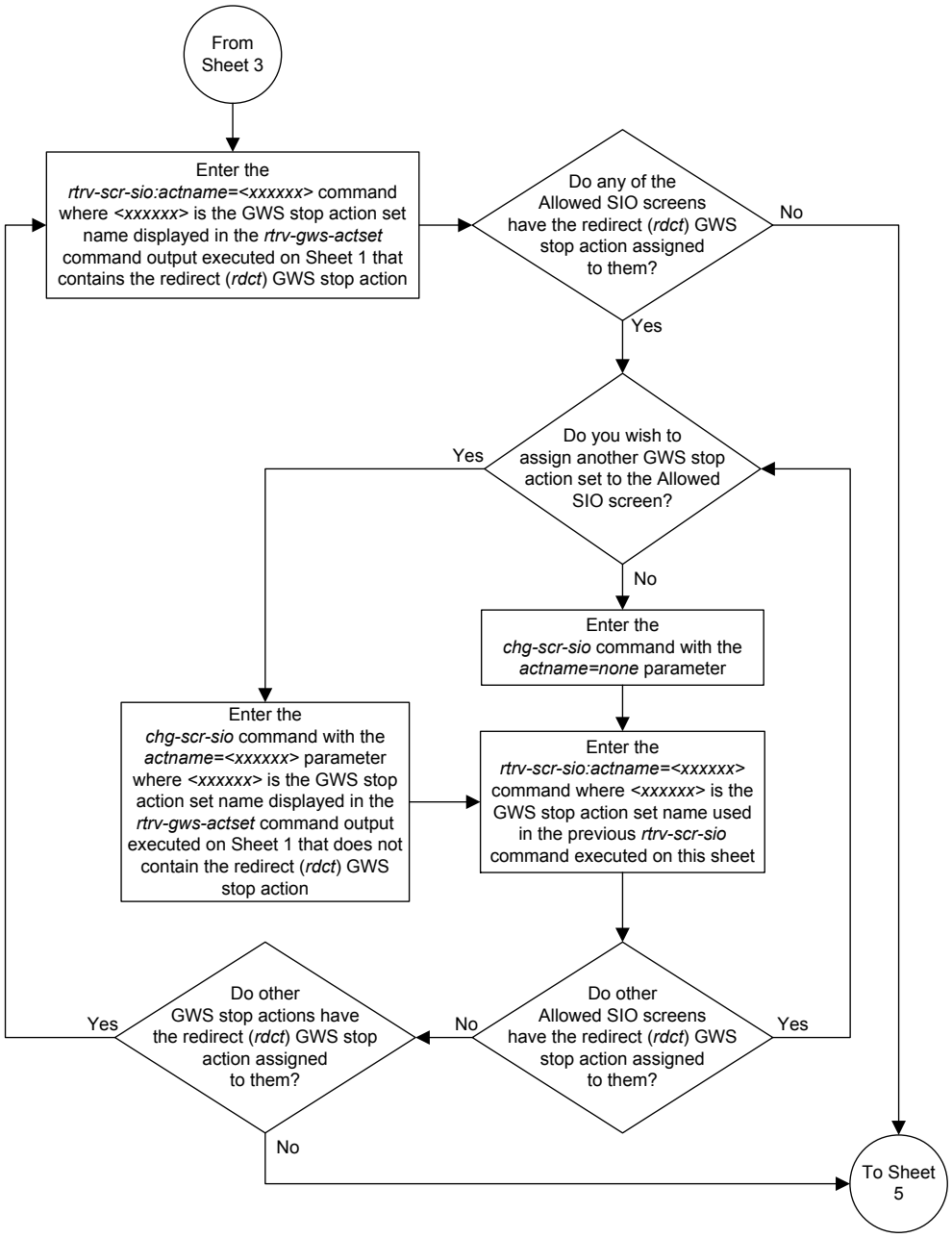

Sheet 1 of 7


From Sheet 1
Enter the rtrv-scr-opc:actname=<xxxxxx> command where <xxxxxx> is the GWS stop action set name displayed in the rtrv-gws-actset command output executed on Sheet 1 that contains the redirect (rdct) GWS stop action
Do any of the Allowed OPC screens have the redirect (rdct) GWS stop action assigned to them?
No
Yes
Do you wish to assign another GWS stop action set to the Allowed OPC screen?
Yes
No
Enter the chg-scr-opc command with the actname=none parameter
Enter the chg-scr-opc command with the actname=<xxxxxx> parameter where <xxxxxx> is the GWS stop action set name displayed in the rtrv-gws-actset command output executed on Sheet 1 that does not contain the redirect (rdct) GWS stop action
Enter the rtrv-scr-opc:actname=<xxxxxx> command where <xxxxxx> is the GWS stop action set name used in the previous rtrv-scr-opc command executed on this sheet
Do other Allowed OPC screens have the redirect (rdct) GWS stop action assigned to them?
No
Yes
Do other GWS stop actions have the redirect (rdct) GWS stop action assigned to them?
Yes
No
To Sheet 3

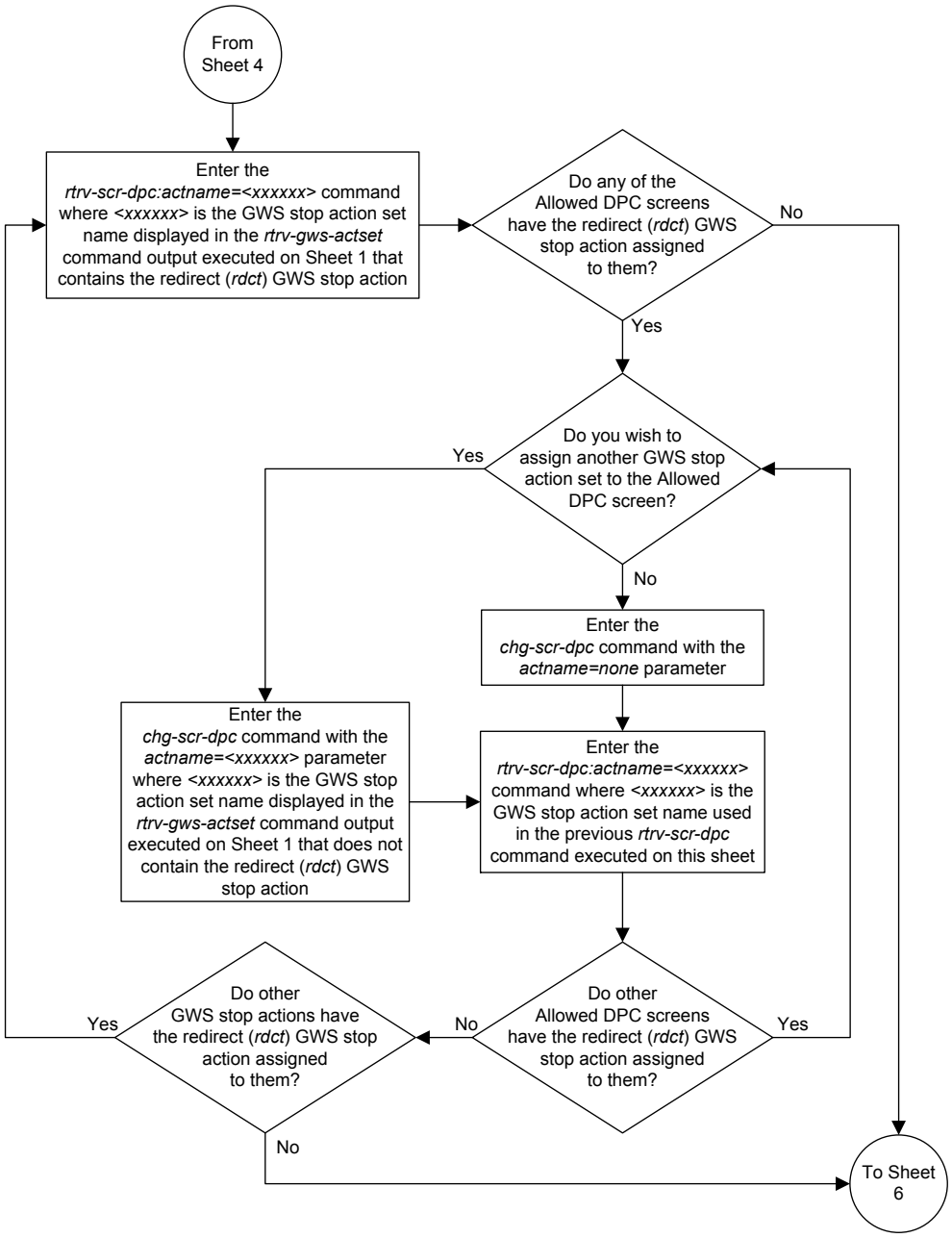
Sheet 2 of 7


From Sheet 2
Enter the rtrv-scr-blkopc:actname=<xxxxxx> command where <xxxxxx> is the GWS stop action set name displayed in the rtrv-gws-actset command output executed on Sheet 1 that contains the redirect (rdct) GWS stop action
Do any of the Blocked OPC screens have the redirect (rdct) GWS stop action assigned to them?
No
Yes
Do you wish to assign another GWS stop action set to the Blocked OPC screen?
Yes
No
Enter the chg-scr-blkopc command with the actname=none parameter
Enter the chg-scr-blkopc command with the actname=<xxxxxx> parameter where <xxxxxx> is the GWS stop action set name displayed in the rtrv-gws-actset command output executed on Sheet 1 that does not contain the redirect (rdct) GWS stop action
Enter the rtrv-scr-blkopc:actname=<xxxxxx> command where <xxxxxx> is the GWS stop action set name used in the previous rtrv-scr-blkopc command executed on this sheet
Do other Blocked OPC screens have the redirect (rdct) GWS stop action assigned to them?
Yes
No
Do other GWS stop actions have the redirect (rdct) GWS stop action assigned to them?
Yes
No
To Sheet 4

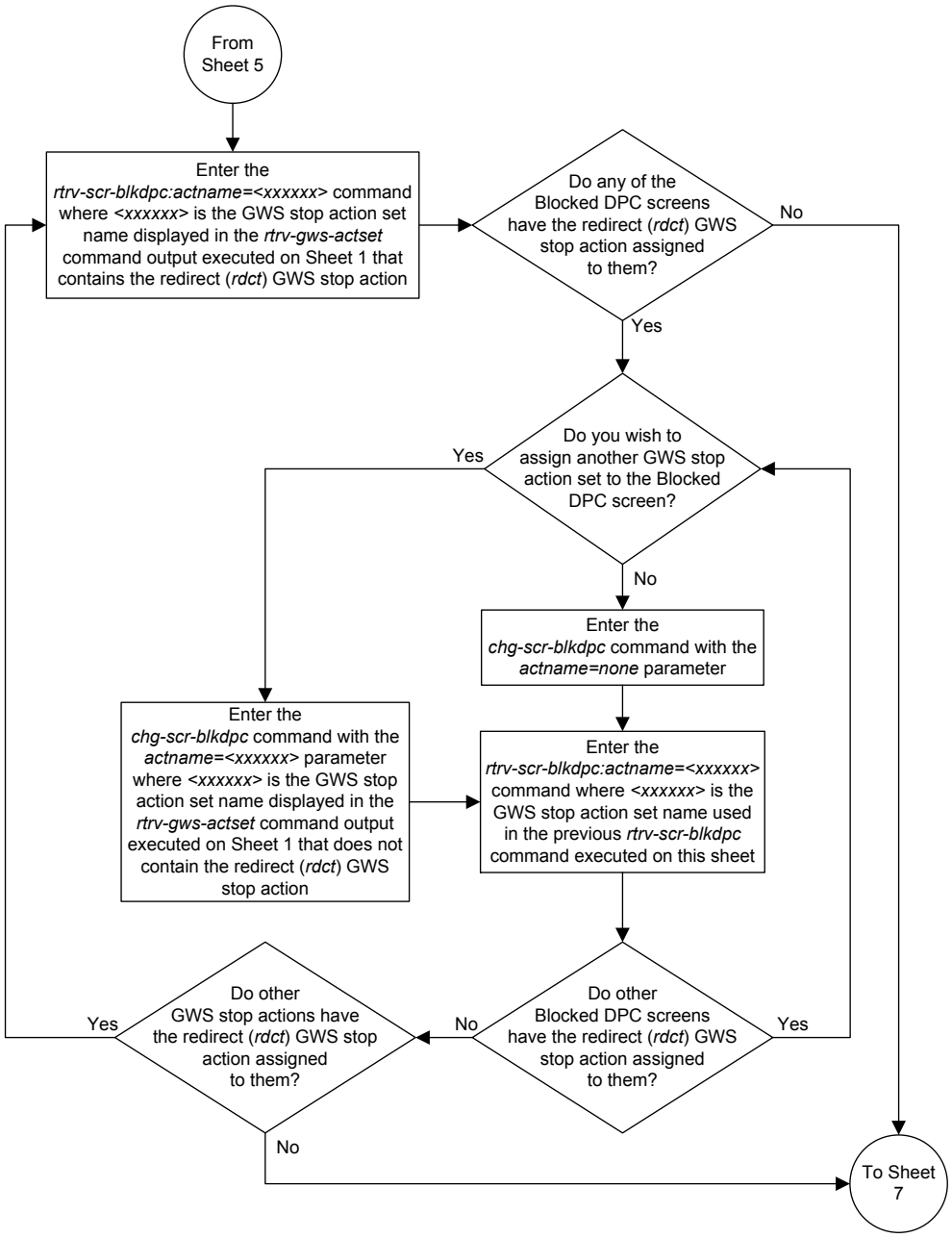
Sheet 3 of 7


From Sheet 3
Enter the rtrv-scr-sio:actname=<xxxxxx> command where <xxxxxx> is the GWS stop action set name displayed in the rtrv-gws-actset command output executed on Sheet 1 that contains the redirect (rdct) GWS stop action
Do any of the Allowed SIO screens have the redirect (rdct) GWS stop action assigned to them?
No
Yes
Do you wish to assign another GWS stop action set to the Allowed SIO screen?
Yes
No
Enter the chg-scr-sio command with the actname=none parameter
Enter the chg-scr-sio command with the actname=<xxxxxx> parameter where <xxxxxx> is the GWS stop action set name displayed in the rtrv-gws-actset command output executed on Sheet 1 that does not contain the redirect (rdct) GWS stop action
Enter the rtrv-scr-sio:actname=<xxxxxx> command where <xxxxxx> is the GWS stop action set name used in the previous rtrv-scr-sio command executed on this sheet
Do other Allowed SIO screens have the redirect (rdct) GWS stop action assigned to them?
Yes
No
Do other GWS stop actions have the redirect (rdct) GWS stop action assigned to them?
Yes
No
To Sheet 5

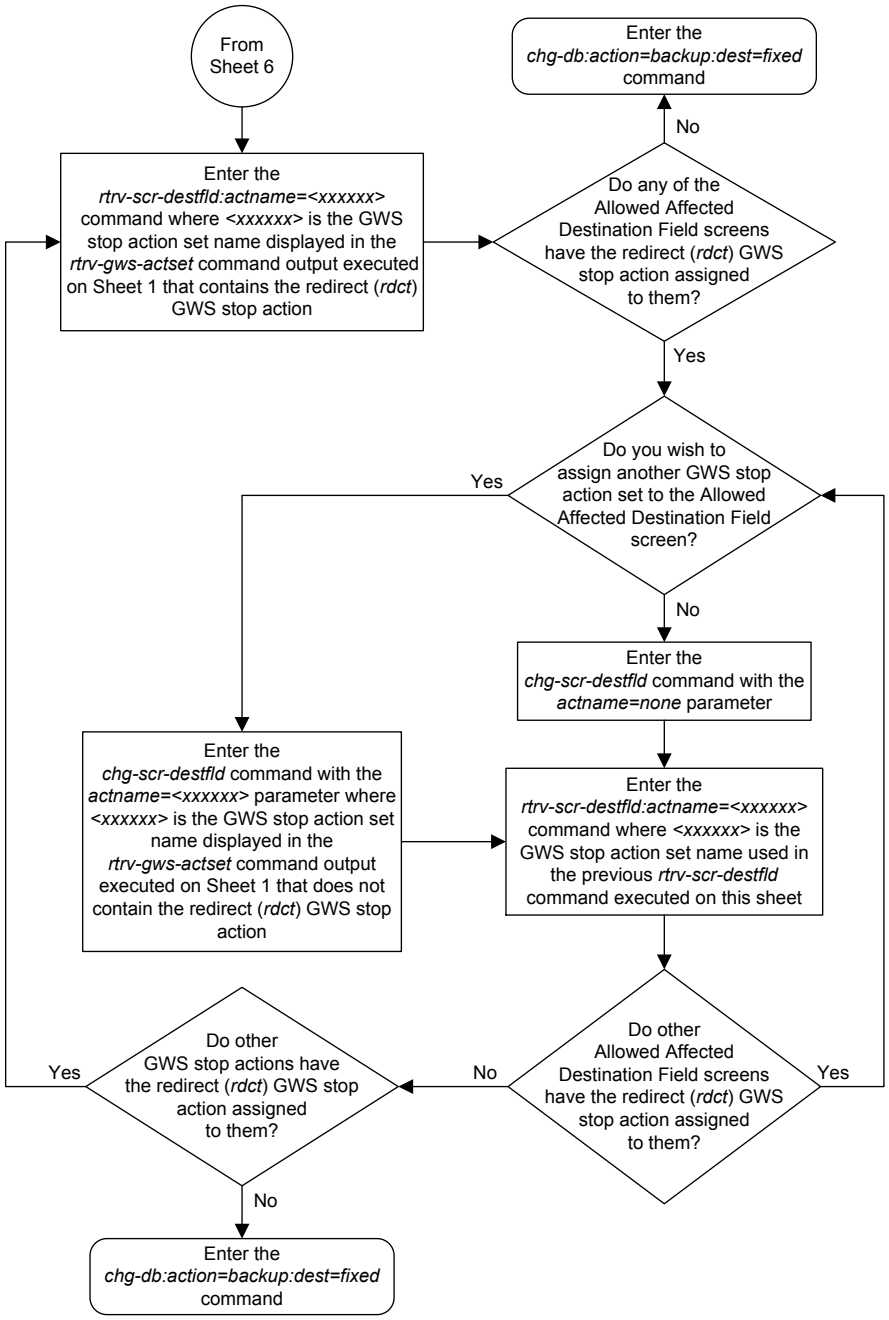
Sheet 4 of 7


From Sheet 4
Enter the rtrv-scr-dpc:actname=<xxxxxx> command where <xxxxxx> is the GWS stop action set name displayed in the rtrv-gws-actset command output executed on Sheet 1 that contains the redirect (rdct) GWS stop action
Do any of the Allowed DPC screens have the redirect (rdct) GWS stop action assigned to them?
No
Yes
Do you wish to assign another GWS stop action set to the Allowed DPC screen?
Yes
No
Enter the chg-scr-dpc command with the actname=none parameter
Enter the chg-scr-dpc command with the actname=<xxxxxx> parameter where <xxxxxx> is the GWS stop action set name displayed in the rtrv-gws-actset command output executed on Sheet 1 that does not contain the redirect (rdct) GWS stop action
Enter the rtrv-scr-dpc:actname=<xxxxxx> command where <xxxxxx> is the GWS stop action set name used in the previous rtrv-scr-dpc command executed on this sheet
Do other Allowed DPC screens have the redirect (rdct) GWS stop action assigned to them?
Yes
No
Do other GWS stop actions have the redirect (rdct) GWS stop action assigned to them?
Yes
No
To Sheet 6

Sheet 5 of 7


From Sheet 5
Enter the rtrv-scr-blkdpc:actname=<xxxxxx> command where <xxxxxx> is the GWS stop action set name displayed in the rtrv-gws-actset command output executed on Sheet 1 that contains the redirect (rdct) GWS stop action
Do any of the Blocked DPC screens have the redirect (rdct) GWS stop action assigned to them?
No
Yes
Do you wish to assign another GWS stop action set to the Blocked DPC screen?
Yes
No
Enter the chg-scr-blkdpc command with the actname=none parameter
Enter the chg-scr-blkdpc command with the actname=<xxxxxx> parameter where <xxxxxx> is the GWS stop action set name displayed in the rtrv-gws-actset command output executed on Sheet 1 that does not contain the redirect (rdct) GWS stop action
Enter the rtrv-scr-blkdpc:actname=<xxxxxx> command where <xxxxxx> is the GWS stop action set name used in the previous rtrv-scr-blkdpc command executed on this sheet
Do other Blocked DPC screens have the redirect (rdct) GWS stop action assigned to them?
No
Yes
Do other GWS stop actions have the redirect (rdct) GWS stop action assigned to them?
Yes
No
To Sheet 7

Sheet 6 of 7


From Sheet 6
Enter the rtrv-scr-destfld:actname=<xxxxxx> command where <xxxxxx> is the GWS stop action set name displayed in the rtrv-gws-actset command output executed on Sheet 1 that contains the redirect (rdct) GWS stop action
Do any of the Allowed Affected Destination Field screens have the redirect (rdct) GWS stop action assigned to them?
No
Enter the chg-db:action=backup:dest=fixed command
Yes
Do you wish to assign another GWS stop action set to the Allowed Affected Destination Field screen?
Yes
No
Enter the chg-scr-destfld command with the actname=none parameter
Enter the chg-scr-destfld command with the actname=<xxxxxx> parameter where <xxxxxx> is the GWS stop action set name displayed in the rtrv-gws-actset command output executed on Sheet 1 that does not contain the redirect (rdct) GWS stop action
Enter the rtrv-scr-destfld:actname=<xxxxxx> command where <xxxxxx> is the GWS stop action set name used in the previous rtrv-scr-destfld command executed on this sheet
Do other Allowed Affected Destination Field screens have the redirect (rdct) GWS stop action assigned to them?
Yes
No
Do other GWS stop actions have the redirect (rdct) GWS stop action assigned to them?
Yes
No
Enter the chg-db:action=backup:dest=fixed command

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6

# GSM MAP Screening Configuration

Chapter 6, GSM MAP Screening Configuration, describes the GSM MAP Screening feature and the procedures necessary to configure the EAGLE 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** on a linkset with the `gsmscrn` parameter value set to `on`. If the **DPC** of the **MSU** is the **EAGLE**'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**'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**'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** 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** 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.

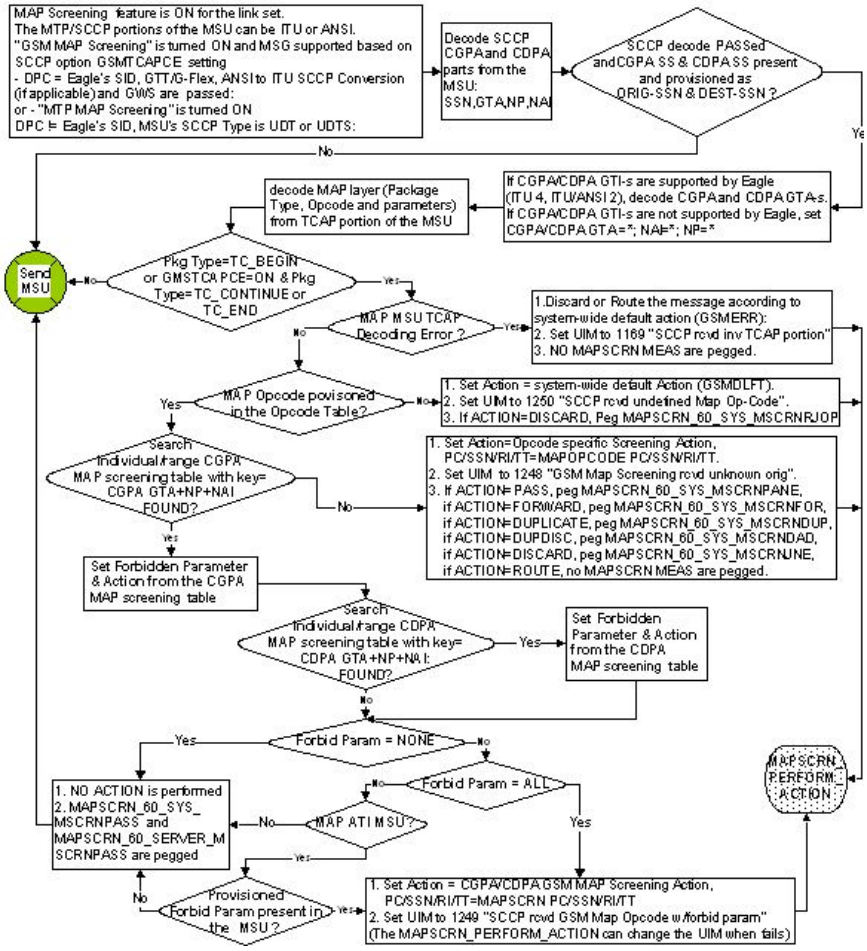
If the **CDPA** of the message is not targeted for screening, **GSM MAP** screening checks to see if the **ATI** request contains the forbidden parameter value provisioned for the **CGPA**. If there is no forbidden parameter in the **ATI** request, the message is not an **ATI** request, or the provisioned 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

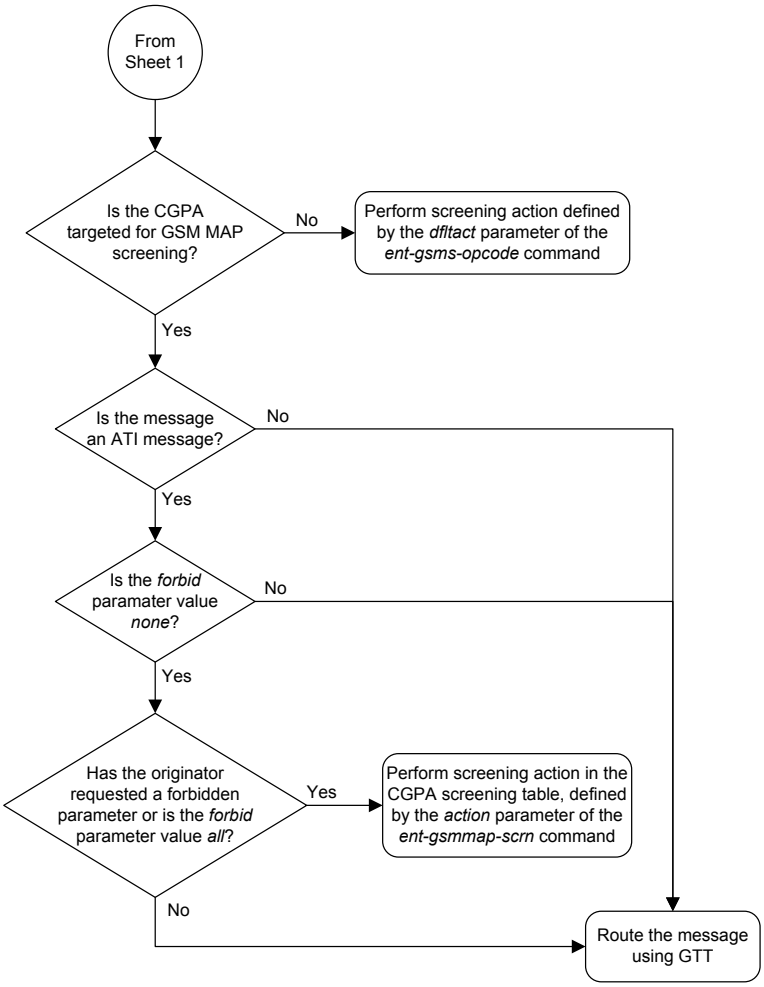
**ATI** request, the message is not an **ATI** request, or the provisioned forbidden parameter value for the **CGPA** is `none`, the message is routed to the destination. If the message is an **ATI** request and contains the forbidden parameter value provisioned for the **CGPA**, or the provisioned forbidden 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 5-1 shows overview of **GSM MAP** screening functionality.

**Figure 6-1 GSM MAP Screening Overview**




Sheet 1 of 2

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# 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 **MTPMAP** Screening is enabled and turned on, the **MSU** (**SCCP** message types 9 - **UDT**, or 10 - **UDTS** only) is sent to **GSMMAP** Screening even if the **MSU** does not require **GTT** and is **MTP** routed.

2. **GSMMAP** 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, **GSMMAP** screening is stopped and the message is routed to its destination using global title translation.
3. **GSMMAP** 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, **GSMMAP** screening is stopped and the message is routed to its destination using global title translation.
4. **GSMMAP** Screening checks to see if the **CGPA** and **CDPAGTI** values are supported in the **EAGLE**. The **EAGLE** 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 **CDPAGTI** values are supported, the **GTA** values are decoded. If the **GTI** values are not supported in the **EAGLE**, 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**/**CDPAMAP** 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 **GSMMAP** screening table).
5. The **MAP** operations code and parameters are extracted from the **MAP** message. If the **TCAP** Package Type of the message is **ITUTC-BEGIN**, **GSMMAP** 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:

   - **ITUTC-CONTINUE** messages must have an Invoke component type.
   - **ITUTC-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.

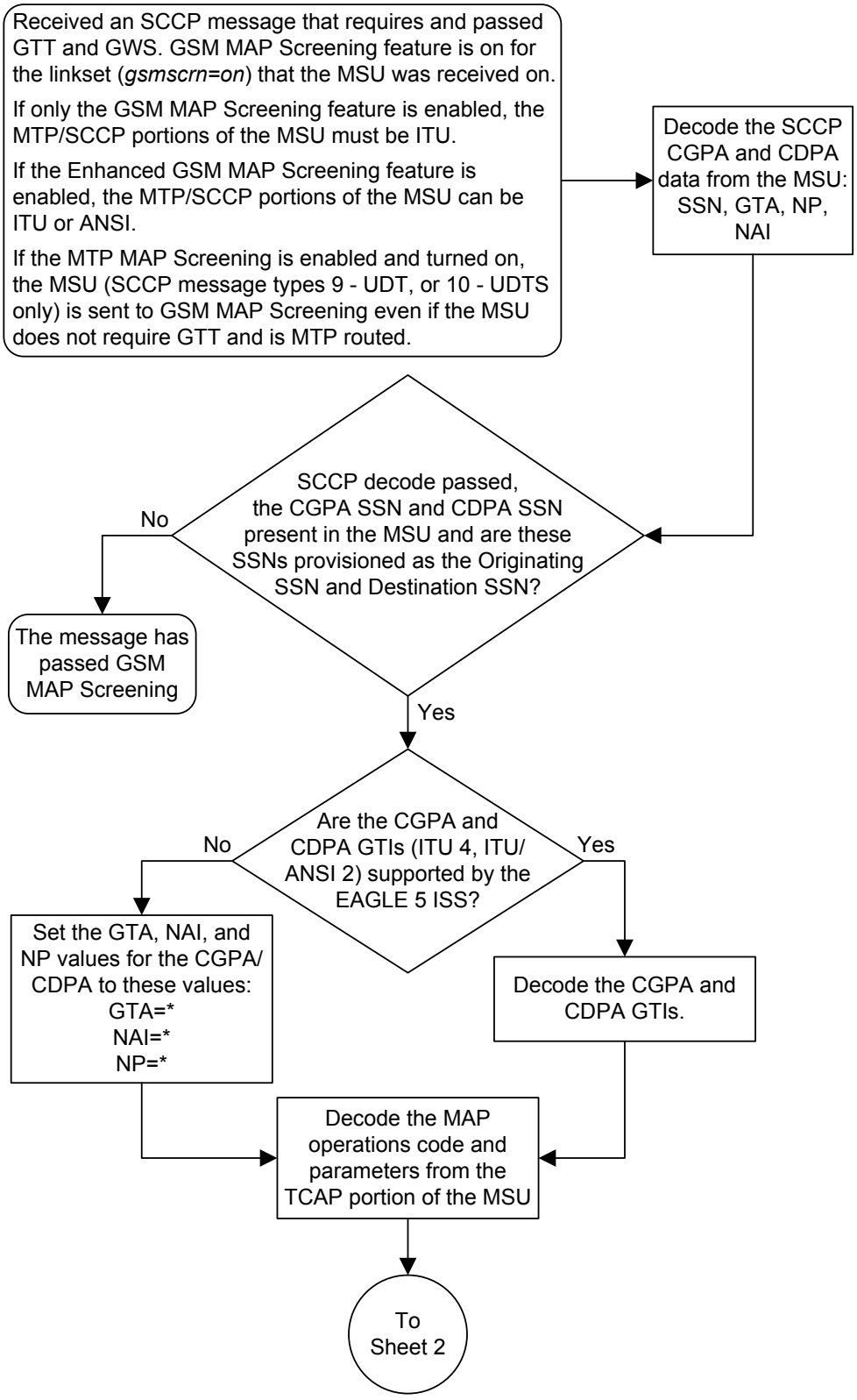
   If the **TCAP** portion is not in a valid format, the action defined by the **GSM MAP** screening decode error action from the **STP** option table (pass or discard) is performed and a **UIM** is generated indicating that an Invalid **TCAP** message received.
6. **GSMMAP** Screening performs a lookup 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.

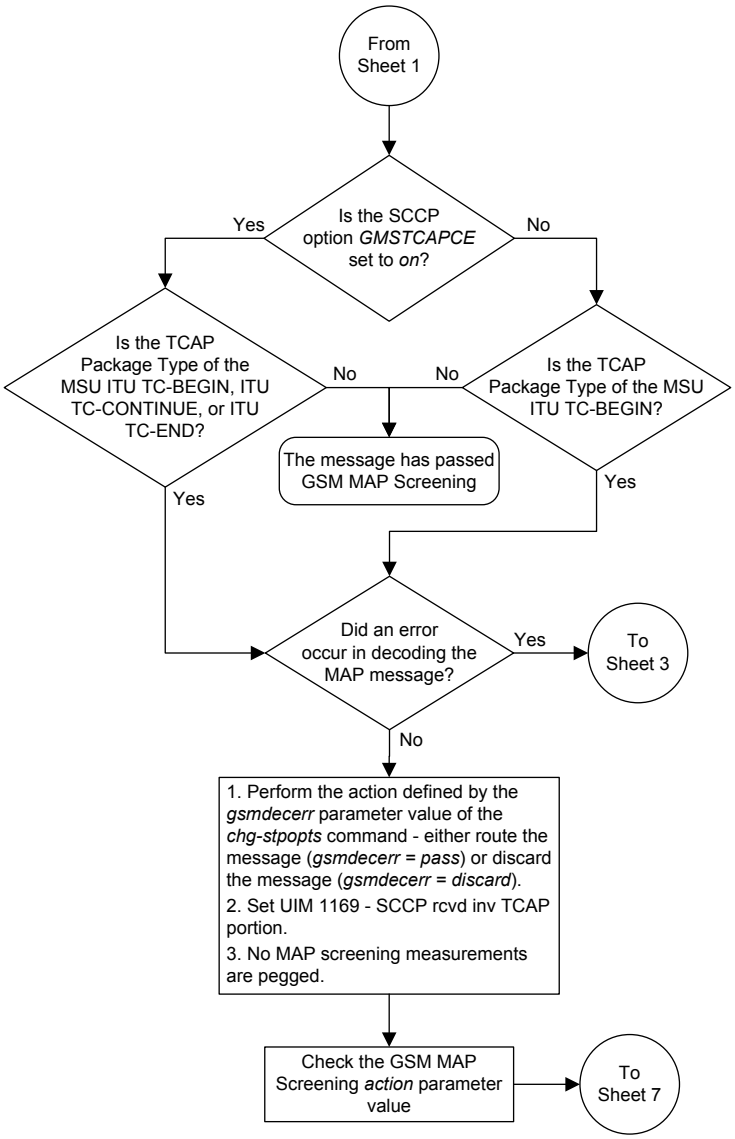
7. **GSMMAP** Screening performs a lookup in the **GSMMAP** screening table for an entry containing the global title address of the calling party address. If an entry is not found in the **GSMMAP** screening table, the screening action defined in the **GSMMAP** operations code table by the `dfltact` parameter of the `ent-gsms-opcode` command is performed.
8. If the Enhanced **GSMMAP** Screening feature is enabled and turned on, **GSMMAP** Screening performs a lookup for an entry for the called party address in the **GSMMAP** screening table.
9. If an entry is found in the **MAP** screening table, the forbidden parameter from the **GSMMAP** 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 **GSMMAP** 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 **GSMMAP** screening table by the `action` parameter of the `ent-gsmmap-scrn` command is performed.
   The screening actions defined by the `dfltact` 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 5-2 shows how **GSM MAP** screening is performed.

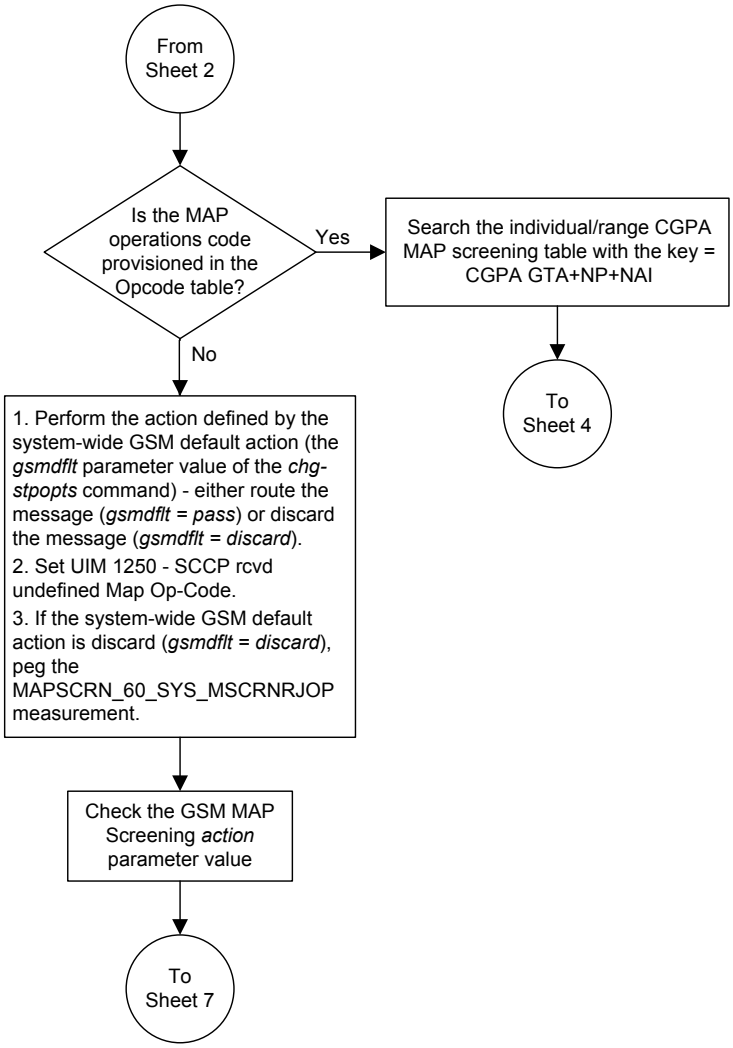
**Figure 6-2 GSM MAP Screening Details**



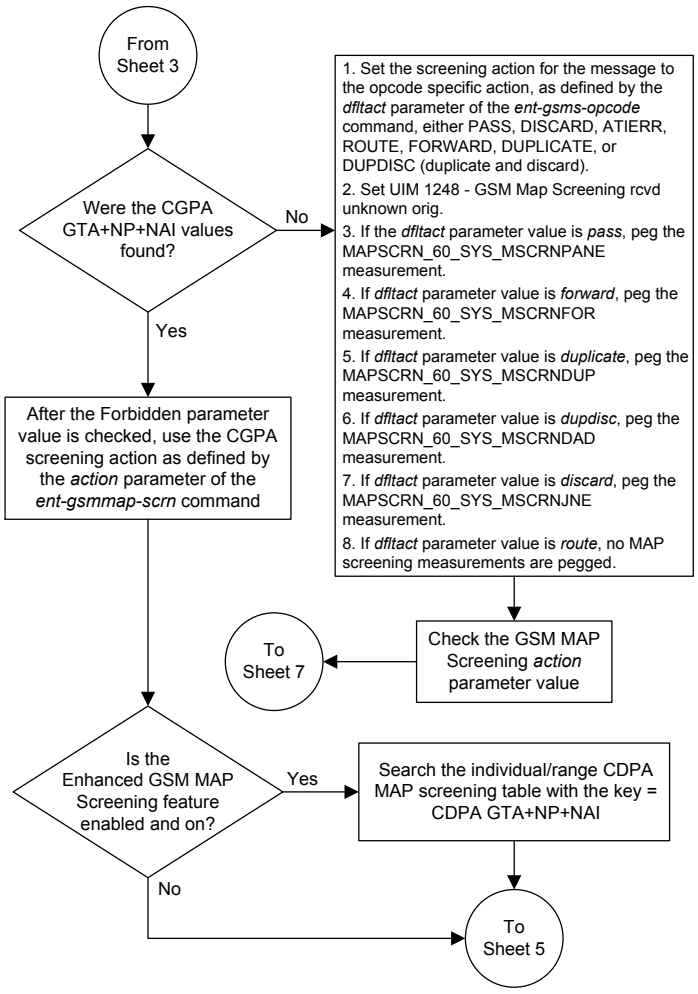
Sheet 1 of 15



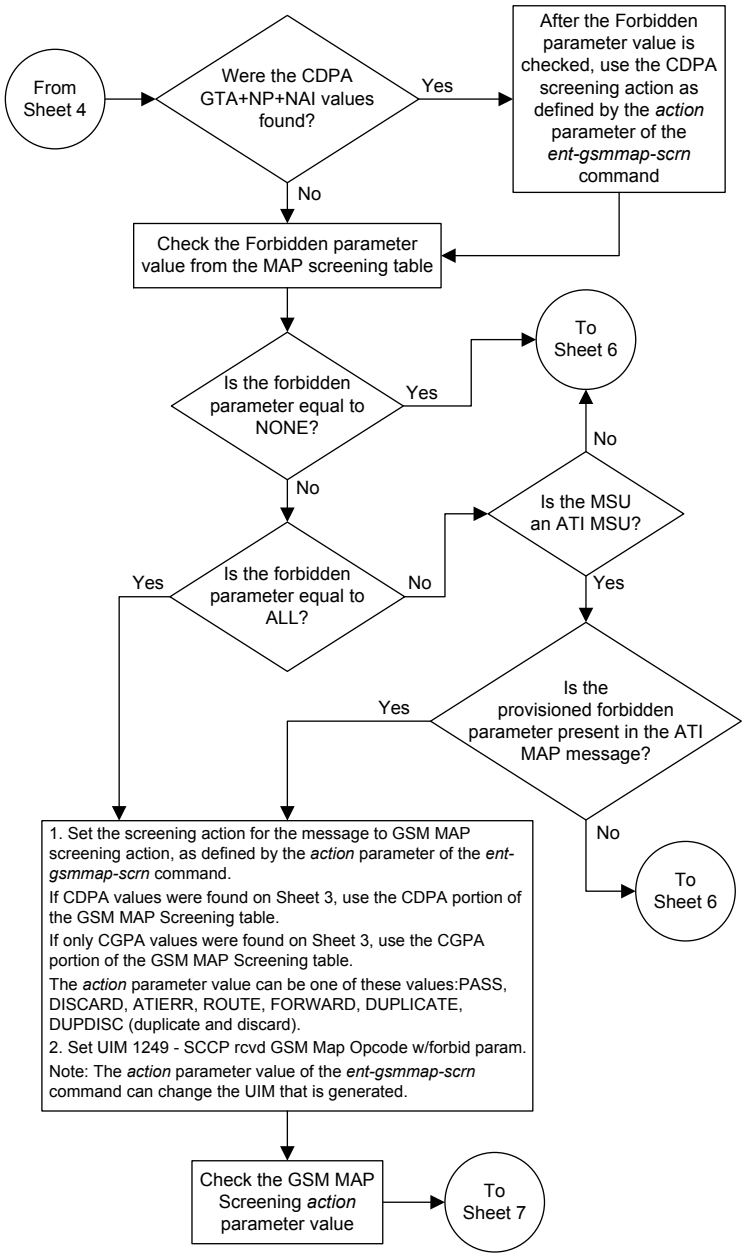

Sheet 2 of 15


From Sheet 2
Is the MAP operations code provisioned in the Opcode table?
Yes
Search the individual/range CGPA MAP screening table with the key = CGPA GTA+NP+NAI
To Sheet 4
No
1. Perform the action defined by the system-wide GSM default action (the gsmdflt parameter value of the chg-stpopts command) - either route the message (gsmdflt = pass) or discard the message (gsmdflt = discard).
2. Set UIM 1250 - SCCP rcvd undefined Map Op-Code.
3. If the system-wide GSM default action is discard (gsmdflt = discard), peg the MAPSCRN_60_SYS_MSCRNRJOP measurement.
Check the GSM MAP Screening action parameter value
To Sheet 7

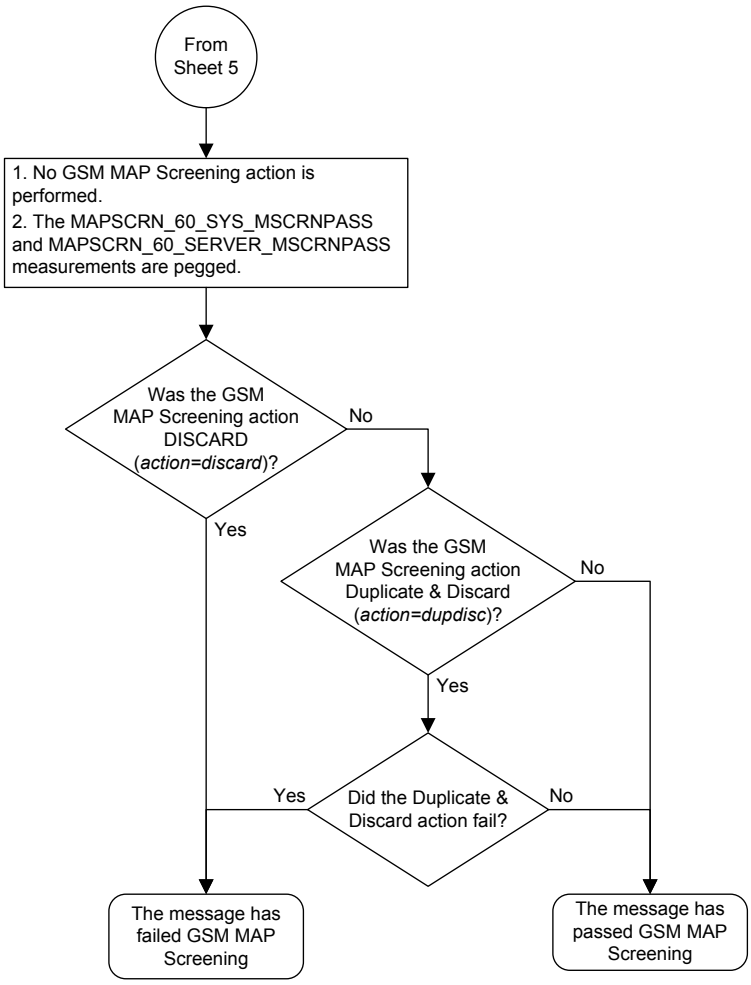
Sheet 3 of 15


From Sheet 3
Were the CGPA GTA+NP+NAI values found?
No
Yes
1. Set the screening action for the message to the opcode specific action, as defined by the dfltact parameter of the ent-gsms-opcode command, either PASS, DISCARD, ATIERR, ROUTE, FORWARD, DUPLICATE, or DUPDISC (duplicate and discard).
2. Set UIM 1248 - GSM Map Screening rcvd unknown orig.
3. If the dfltact parameter value is pass, peg the MAPSCRN_60_SYS_MSCRNPANE measurement.
4. If dfltact parameter value is forward, peg the MAPSCRN_60_SYS_MSCRNFOR measurement.
5. If dfltact parameter value is duplicate, peg the MAPSCRN_60_SYS_MSCRNDUP measurement.
6. If dfltact parameter value is dupdisc, peg the MAPSCRN_60_SYS_MSCRNDAD measurement.
7. If dfltact parameter value is discard, peg the MAPSCRN_60_SYS_MSCRNJNE measurement.
8. If dfltact parameter value is route, no MAP screening measurements are pegged.
After the Forbidden parameter value is checked, use the CGPA screening action as defined by the action parameter of the ent-gsmmap-scrn command
Check the GSM MAP Screening action parameter value
To Sheet 7
Is the Enhanced GSM MAP Screening feature enabled and on?
Yes
No
Search the individual/range CDPA MAP screening table with the key = CDPA GTA+NP+NAI
To Sheet 5

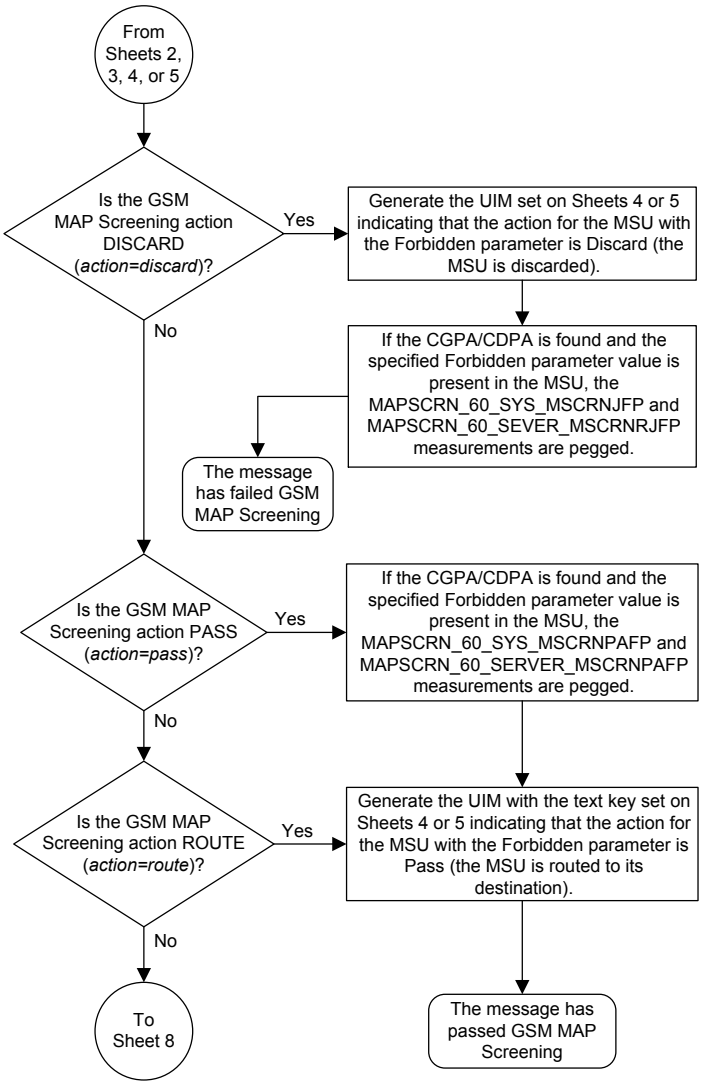
Sheet 4 of 15


From Sheet 4
Were the CDPA GTA+NP+NAI values found?
Yes
After the Forbidden parameter value is checked, use the CDPA screening action as defined by the action parameter of the ent-gsmmap-scrn command
No
Check the Forbidden parameter value from the MAP screening table
Is the forbidden parameter equal to NONE?
Yes
To Sheet 6
No
Is the MSU an ATI MSU?
No
Yes
Is the forbidden parameter equal to ALL?
Yes
No
Is the provisioned forbidden parameter present in the ATI MAP message?
Yes
No
To Sheet 6
1. Set the screening action for the message to GSM MAP screening action, as defined by the action parameter of the ent-gsmmap-scrn command.
If CDPA values were found on Sheet 3, use the CDPA portion of the GSM MAP Screening table.
If only CGPA values were found on Sheet 3, use the CGPA portion of the GSM MAP Screening table.
The action parameter value can be one of these values:PASS, DISCARD, ATIERR, ROUTE, FORWARD, DUPLICATE, DUPDISC (duplicate and discard).
2. Set UIM 1249 - SCCP rcvd GSM Map Opcode w/forbid param.
Note: The action parameter value of the ent-gsmmap-scrn command can change the UIM that is generated.
Check the GSM MAP Screening action parameter value
To Sheet 7

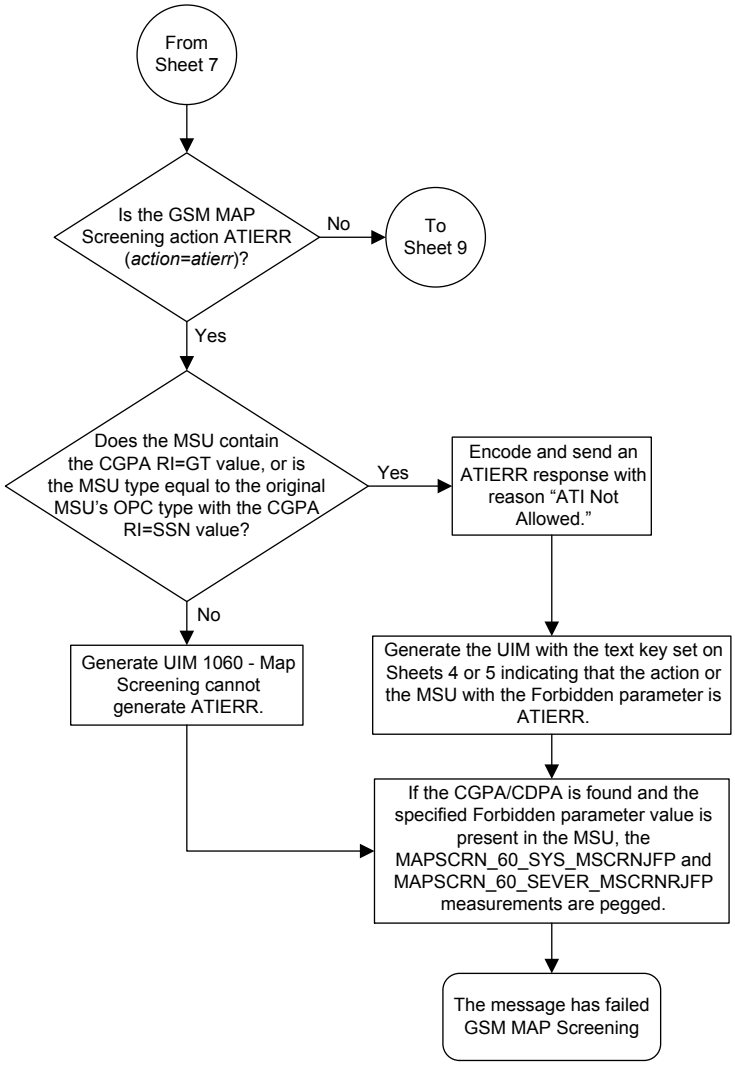
Sheet 5 of 15


From Sheet 5
1. No GSM MAP Screening action is performed.
2. The MAPSCRN_60_SYS_MSCRNPASS and MAPSCRN_60_SERVER_MSCRNPASS measurements are pegged.
Was the GSM MAP Screening action DISCARD (action=discard)?
No
Yes
Was the GSM MAP Screening action Duplicate & Discard (action=dupdisc)?
No
Yes
Did the Duplicate & Discard action fail?
Yes
No
The message has failed GSM MAP Screening
The message has passed GSM MAP Screening

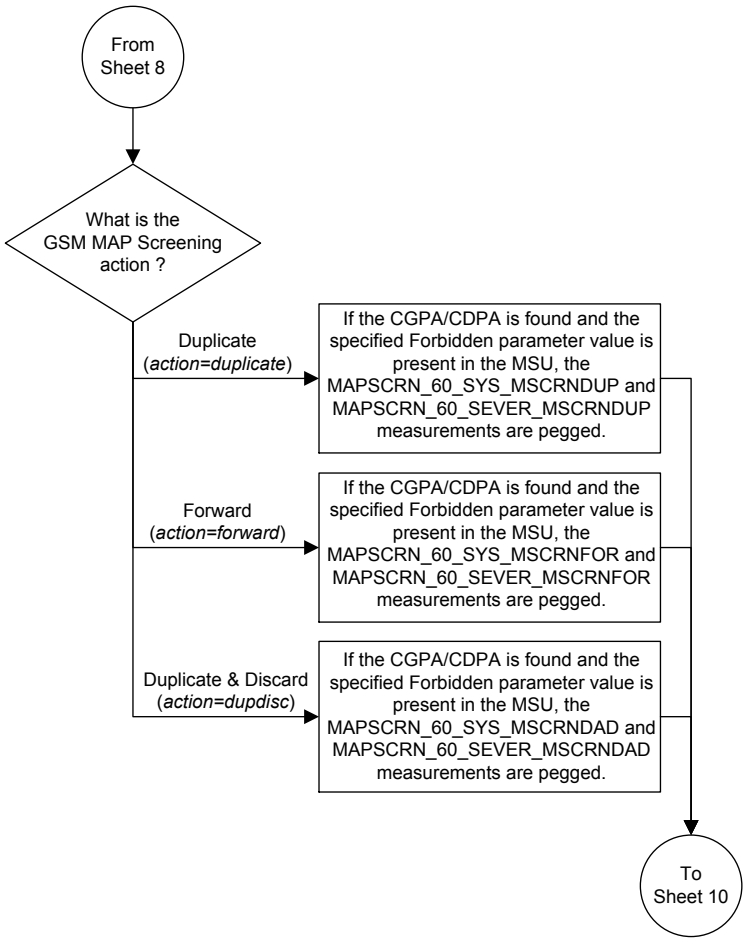
Sheet 6 of 15


From Sheets 2, 3, 4, or 5
Is the GSM MAP Screening action DISCARD (action=discard)?
Yes
Generate the UIM set on Sheets 4 or 5 indicating that the action for the MSU with the Forbidden parameter is Discard (the MSU is discarded).
No
If the CGPA/CDPA is found and the specified Forbidden parameter value is present in the MSU, the MAPSCRN_60_SYS_MSCRNJFP and MAPSCRN_60_SEVER_MSCRNRJFP measurements are pegged.
The message has failed GSM MAP Screening
Is the GSM MAP Screening action PASS (action=pass)?
Yes
If the CGPA/CDPA is found and the specified Forbidden parameter value is present in the MSU, the MAPSCRN_60_SYS_MSCRNPAFP and MAPSCRN_60_SERVER_MSCRNPAFP measurements are pegged.
No
Is the GSM MAP Screening action ROUTE (action=route)?
Yes
Generate the UIM with the text key set on Sheets 4 or 5 indicating that the action for the MSU with the Forbidden parameter is Pass (the MSU is routed to its destination).
No
To Sheet 8
The message has passed GSM MAP Screening

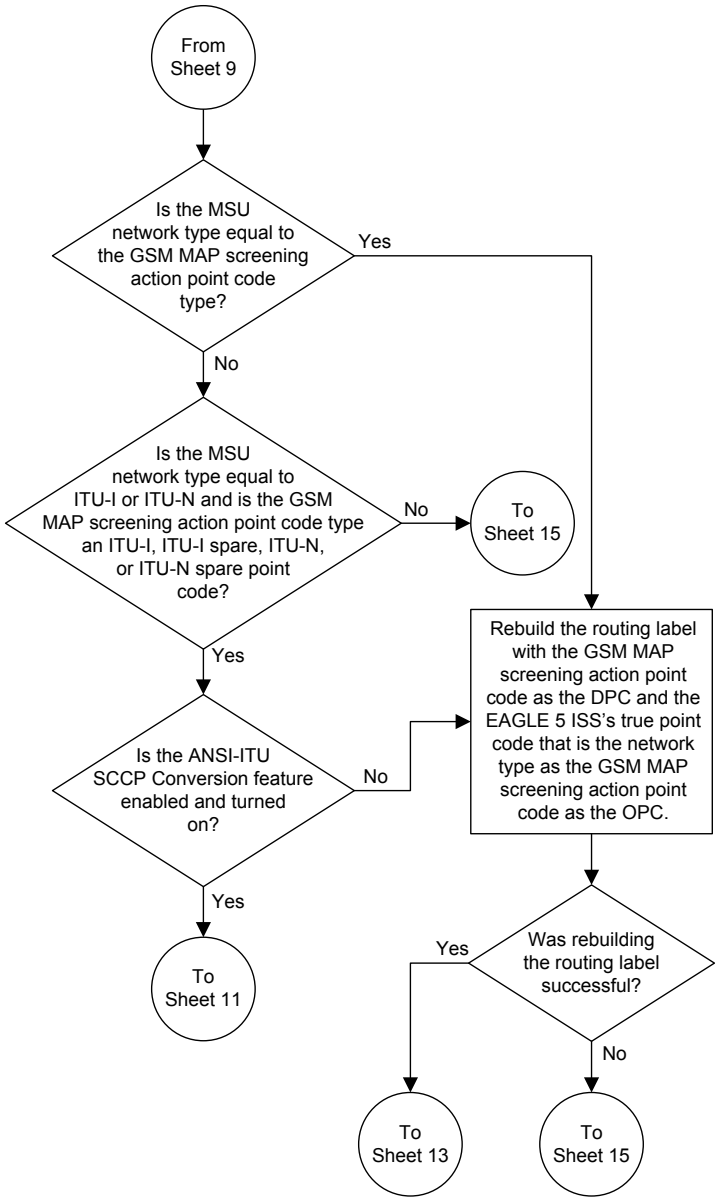
Sheet 7 of 15


From Sheet 7
Is the GSM MAP Screening action ATIERR (action=atierr)?
No
To Sheet 9
Yes
Does the MSU contain the CGPA RI=GT value, or is the MSU type equal to the original MSU's OPC type with the CGPA RI=SSN value?
Yes
Encode and send an ATIERR response with reason "ATI Not Allowed."
No
Generate UIM 1060 - Map Screening cannot generate ATIERR.
Generate the UIM with the text key set on Sheets 4 or 5 indicating that the action or the MSU with the Forbidden parameter is ATIERR.
If the CGPA/CDPA is found and the specified Forbidden parameter value is present in the MSU, the MAPSCRN_60_SYS_MSCRNJFP and MAPSCRN_60_SEVER_MSCRNRJFP measurements are pegged.
The message has failed GSM MAP Screening

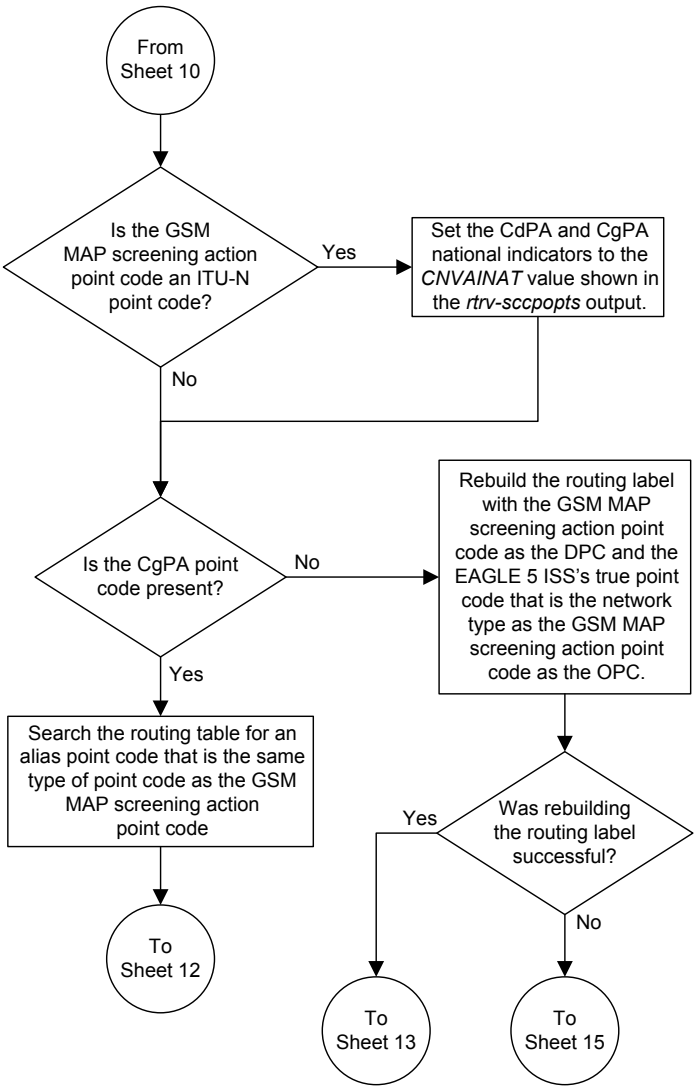
Sheet 8 of 15


From
Sheet 8
What is the
GSM MAP Screening
action ?
Duplicate
(action=duplicate)
If the CGPA/CDPA is found and the specified Forbidden parameter value is present in the MSU, the MAPSCRN_60_SYS_MSCRNDUP and MAPSCRN_60_SEVER_MSCRNDUP measurements are pegged.
Forward
(action=forward)
If the CGPA/CDPA is found and the specified Forbidden parameter value is present in the MSU, the MAPSCRN_60_SYS_MSCRNFOR and MAPSCRN_60_SEVER_MSCRNFOR measurements are pegged.
Duplicate & Discard
(action=dupdisc)
If the CGPA/CDPA is found and the specified Forbidden parameter value is present in the MSU, the MAPSCRN_60_SYS_MSCRNDAD and MAPSCRN_60_SEVER_MSCRNDAD measurements are pegged.
To
Sheet 10

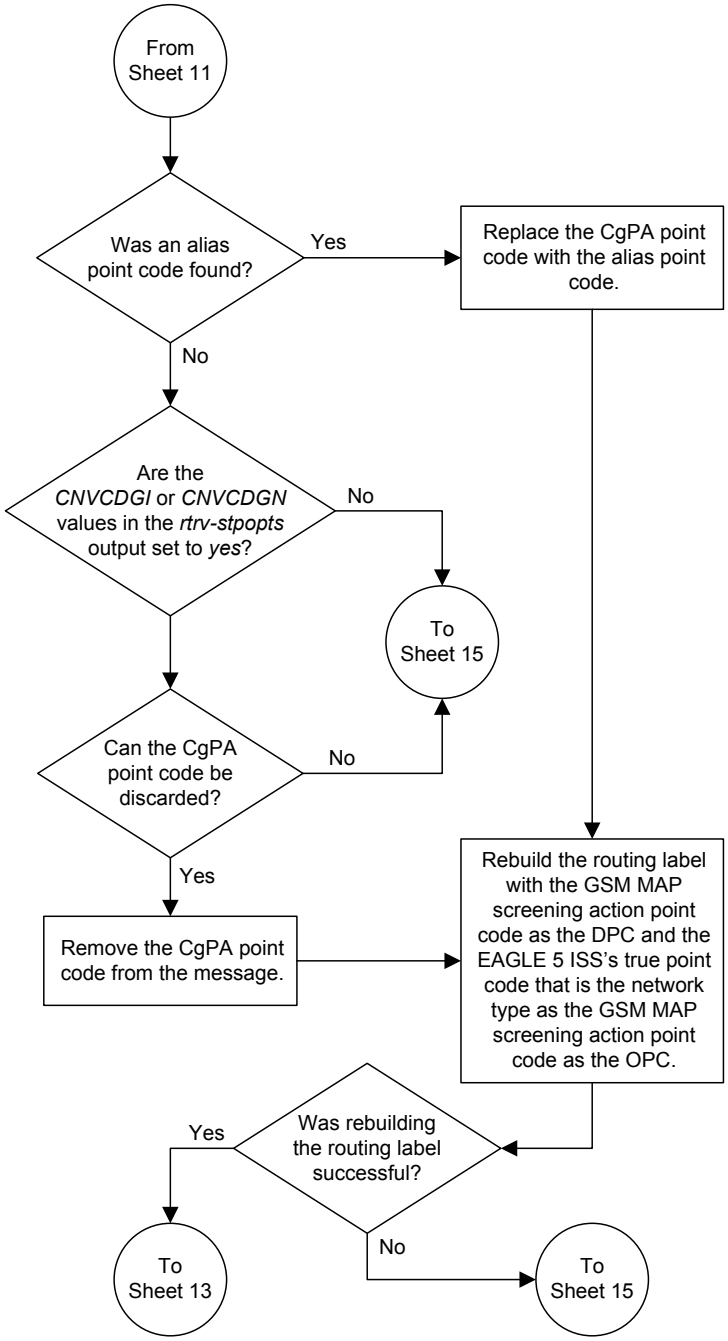
Sheet 9 of 15



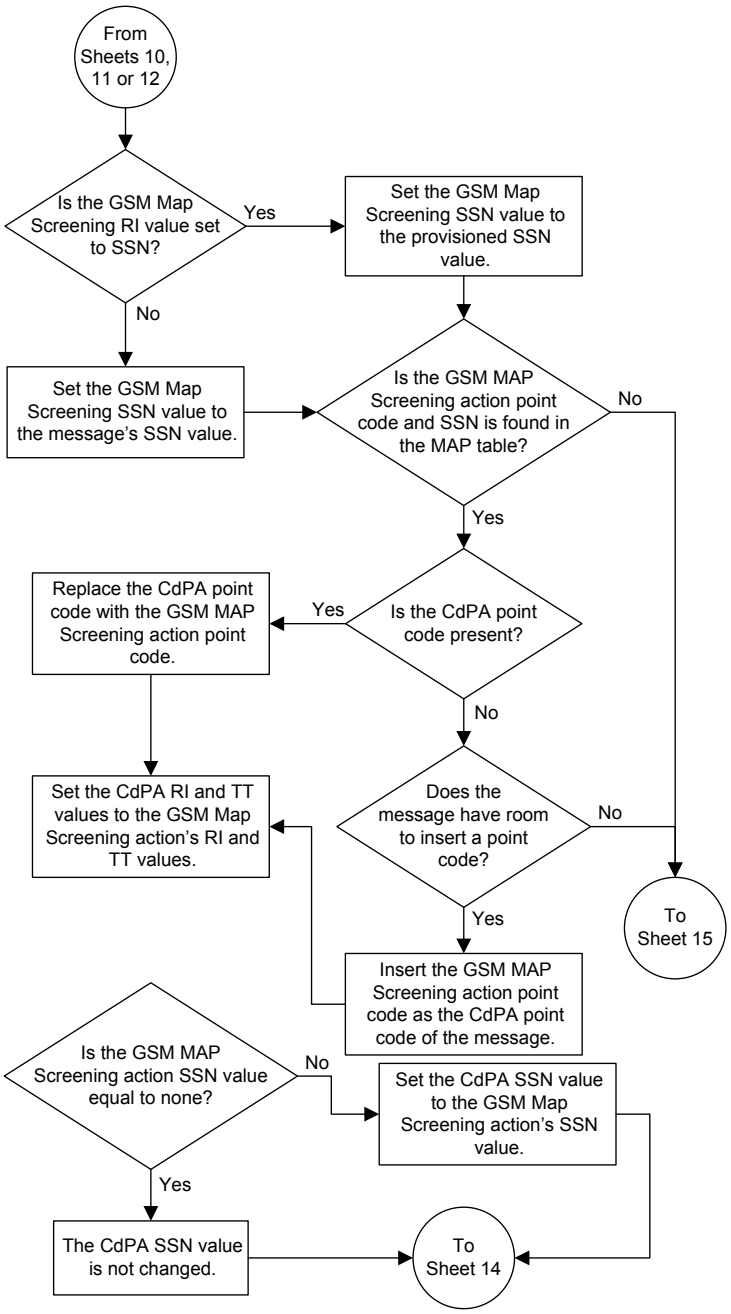

Sheet 10 of 15



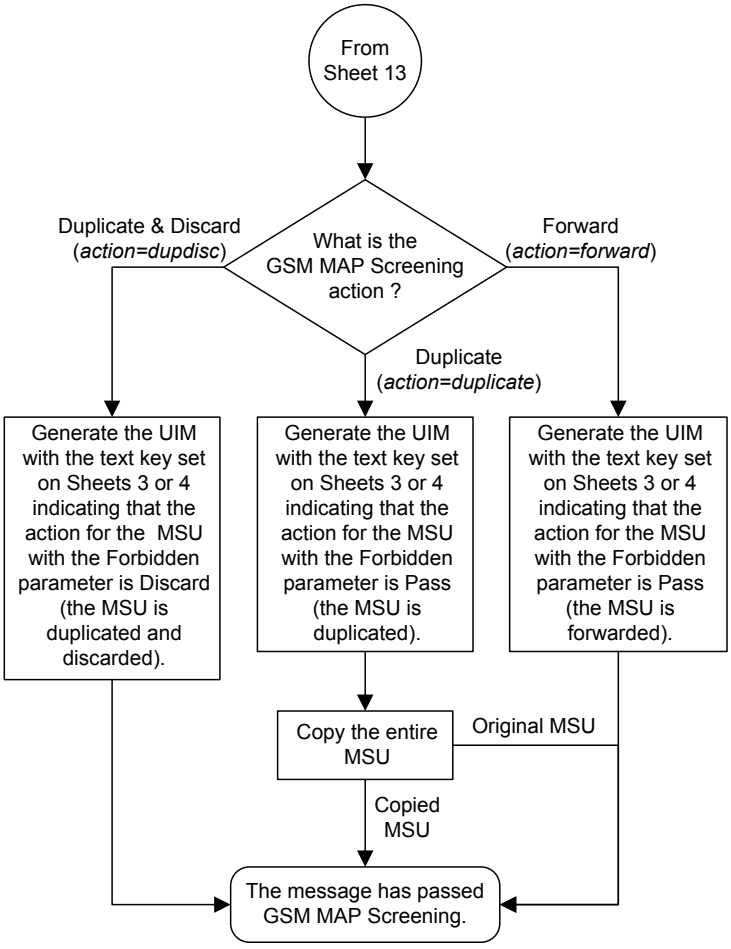

Sheet 11 of 15



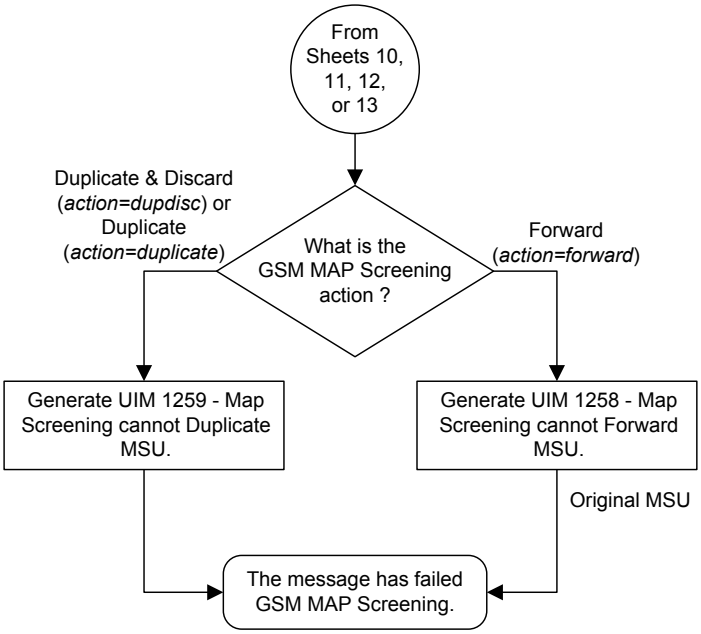

Sheet 12 of 15




Sheet 13 of 15




Sheet 14 of 15




Sheet 15 of 15

# GSM MAP Screening Example

Table 5-1 shows an example of the **GSM MAP** screening table.

**Table 6-1 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 5-2 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 6-2 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 **GSMMAP** Screening enabled
- **STP** options for **GSMMAP** Screening
- **GSM SSN**
- **GSM** Opcodes
- **GSMMAP** Screening entries
- An option to enable or disable the processing of **GSMMAP** 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 *Commands User's Guide*.

Figure 6-3 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 **GSMMAP** 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 Sales Representative or Account Representative.

2. The **GSMMAP** 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 **GSMMAP** Screening feature with the `rtrv-ctrl-feat` command.

> **Note:**
>
> Once the **GSMMAP** 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 procedure.
4. To use **GSMMAP** Screening on all types of linksets including **ANSI** linksets, or to provision **CDPA** entries in the **GSMMAP** Screening table, the Enhanced **GSMMAP** 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 **GSMMAP** Screening features with the `rtrv-ctrl-feat` command.

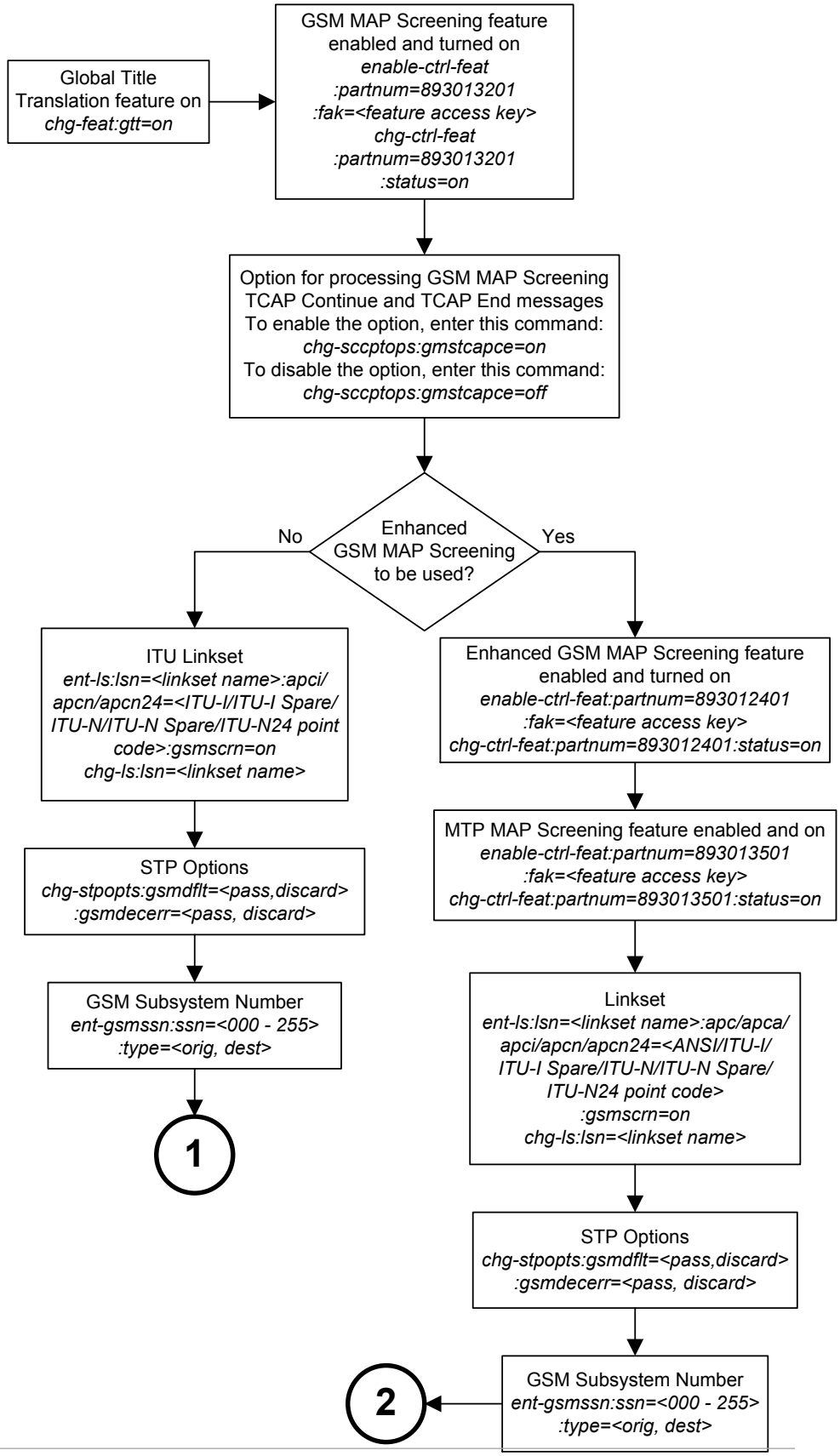
> **Note:**
>
> Once the Enhanced **GSMMAP** Screening feature is enabled and turned on, it cannot be disabled or turned off.

5. **MSUs** that do not require global title translation and are **MTP** routed can be sent to **GSMMAP** Screening only of the **MTPMAP** Screening feature is enabled with the `enable-ctrl-feat` command, and turned on with the `chg-ctrl-feat` command. The Enhanced **GSMMAP** Screening feature must be enabled and turned on to enable and turn on the **MTPMAP** 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 **GSMMAP** 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 **GSMMAP** screening feature is enabled and on, the adjacent point code of the linkset can be any type. If the Enhanced **GSMMAP** screening feature is not enabled and off, the adjacent point code of the linkset

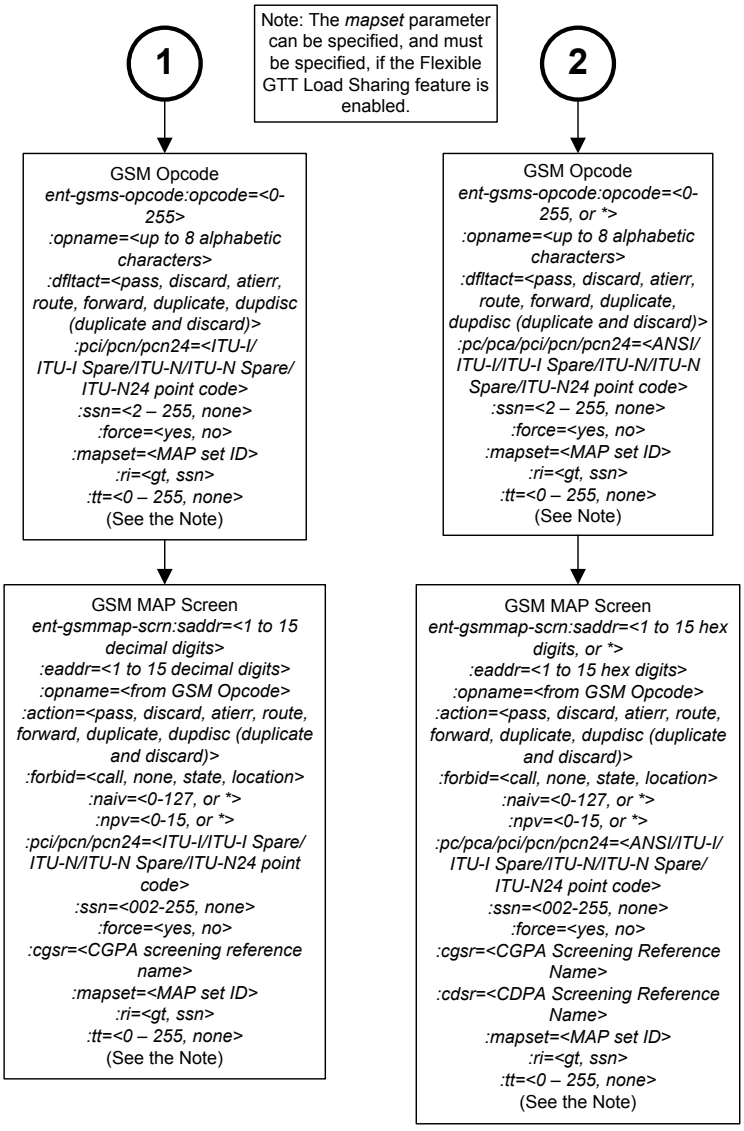
can be either an **ITU** international, **ITU** international spare, or 14 bit **ITU** national, 14-bit **ITU** national spare, or 24-bit **ITU** national point code. The **EAGLE** can contain either 14 bit or 24-bit **ITU** national point codes, but not both at the same time.

7. The **GSMMAP** screening options, `gsmdflt` (**GSMMAP** screening default action) and `gsmdecerr` (**GSMMAP** 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 **GSMMAP** 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 **GSMMAP** 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 **GSMMAP** 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** uses in performing **GSM** screening. If a point code and subsystem number is provisioned for the **GSMMAP** screening operation code, the point code and subsystem number must be shown in the `rtrv-map` output. If the flexible **GTTLoad Sharing** feature is enabled, a **MAP** set containing the point code and subsystem number must be assigned to the **GSMMAP** screening operation code. For more information on provisioning **GSMMAP** screening operation codes, see the Adding a GSM MAP Screening Operation Code procedure.
10. The **GSMMAP** screening entries that filter or allow **TCAP** messages for certain **MAP** operation codes need to be provisioned in the database. The **GSMMAP** 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 **GSMMAP** Screening feature is enabled and on, the **CGPA** and **CDPA** of the messages are checked by the **GSMMAP** Screening table. If the Enhanced **GSMMAP** Screening feature is not enabled and off, only the **CGPA** of the messages are checked by the **GSMMAP** Screening table. If a point code and subsystem number is provisioned for the **GSMMAP** screening entry, the point code and subsystem number must be shown in the `rtrv-map` output. If the Flexible **GTTLoad Sharing** feature is enabled, a **MAP** set containing the point code and subsystem number must be assigned to the **GSMMAP** screening entry. For more information on provisioning **GSMMAP** screening operation entries, see the Adding a GSM MAP Screening Entry procedure.

**Figure 6-3 GSM MAP Screening Database Relationships**



Sheet 1 of 2




Sheet 2 of 2

# 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 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 Oracle. The feature access key contains 13 alphanumeric characters and is not case sensitive.

`:partnum` – The Oracle-issued part number of the **GSM MAP** Screening and Enhanced **GSM MAP** Screening features.

- The **GSMMAP** Screening feature, 893013201
- The Enhanced **GSMMAP** Screening feature, 893012401

The `enable-ctrl-feat` command requires that the database contain a valid serial number for the **EAGLE**, and that this serial number is locked. This can be verified with the `rtrv-serial-num` command. The **EAGLE** 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** 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. 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**'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 turned on with the `chg-ctrl-feat` command. The `chg-ctrl-feat` command uses these parameters:

`:partnum` – The Oracle-issued part number of the **GSMMAP** Screening and Enhanced **GSM MAP** Screening features.

- The **GSMMAP** Screening feature, 893013201
- The Enhanced **GSMMAP** Screening feature, 893012401
  `:status=on` – used to turn on the features that customer has purchased and enabled.

> **Note:**
>
> Once the **GSMMAP** Screening and Enhanced **GSMMAP** Screening features are turned on, they cannot be turned off.

The status of the features in the **EAGLE** is shown with the `rtrv-ctrl-feat` command.

The **GSM MAP** Screening feature requires that (5-SM4G cards are installed and provisioned in the **EAGLE**. The Enhanced **GSM MAP** Screening feature requires that Service Module cards (E5-SM4G cards) are installed and provisioned in the **EAGLE**. 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.

1. Display the status of the controlled features by entering the `rtrv-ctrl-feat` command.

```
rlghncxa03w 06-10-28 21:15:37 GMT EAGLE5 36.0.0
The following features have been permanently enabled:

Feature Name              Partnum    Status  Quantity
HC-MIM SLK Capacity       893012707  on      64
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

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** using the `rtrv-card` command.

   The **GSMMAP** Screening feature requires that Service Module cards are in the database. The Enhanced **GSMMAP** Screening feature requires that E5-SM4G/E5-SM8G cards are in the database.

```
rlghncxa03w 09-05-25 09:58:31 GMT EAGLE5 45.0.0
CARD   TYPE      APPL      LSET NAME     LINK SLC LSET NAME     LINK SLC
1113   E5-MCAP   OAMHC
1114   E5-TDM-A
1115   E5-MCAP   OAMHC
1116   E5-TDM-B
1117   E5-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
1216   DCM       STPLAN
1308   LIMDS0    SS7ANSI   sp6           A    1   sp7           B    0
1314   LIMDS0    SS7ANSI   sp7           A    1   sp5           B    1
1317   DCM       STPLAN
```

   DSM and E5-SM4G cards are shown by the entry `DSM` in the `TYPE` column and `VSCCP` in the `APPL` column of the `rtrv-card` output.

   If no Service Module cards are shown in the `rtrv-card` output, perform the "Adding a Service Module" procedure in *Database Administration* - **GTT** *User's Guide* and add the required Service Module cards to the database.

   If E5-SM4G cards are in the **EAGLE**, 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 My Oracle Support (MOS) 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's correct serial number>
   ```

5. Verify that the serial number entered into step 4 was entered correctly using the `rtrv-serial-num` command.

   ```
   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's serial number>:lock=yes
   ```

7. Enable the **GSMMAP** Screening feature with the `enable-ctrl-feat` command specifying the part number for the **GSMMAP** 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 Oracle. If you do not have the feature access key for the GSMMAP Screening feature, contact your Oracle Sales Representative or Account Representative.

8. Turn the GSMMAP Screening feature on with the `chg-ctrl-feat` command specifying the part number for the GSMMAP Screening feature and the `status=on` parameter.

   Enter this command.
   chg-ctrl-feat:partnum=893013201:status=on

   > **Note:**
   >
   > Once the **GSMMAP** Screening feature is turned on, it cannot be turned off.

9. Verify the changes by entering the `rtrv-ctrl-feat`command with the **GSMMAP** Screening feature part number.

   Enter this command.

   ```
   rtrv-ctrl-feat:partnum=893013201
   ```

   ```
   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 **GSMMAP** Screening feature with the `enable-ctrl-feat` command specifying the part number for the Enhanced **GSMMAP** Screening feature and the feature access key.

    > **Note:**
    >
    > If you do not wish to enable and turn on the Enhanced **GSMMAP** 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 Oracle. If you do not have the feature access key for the Enhanced **GSMMAP** Screening feature, contact your Oracle Sales Representative or Account Representative.

11. Turn the Enhanced **GSMMAP** Screening feature on with the `chg-ctrl-feat` command specifying the part number for the Enhanced **GSMMAP** Screening feature and the `status=on` parameter.

    Enter this command.
    chg-ctrl-feat:partnum=893012401:status=on

> **Note:**
>
> After the Enhanced **GSMMAP** Screening feature is turned on, it cannot be turned off.

12. Verify the changes by entering the `rtrv-ctrl-feat`command with the Enhanced **GSMMAP** Screening feature part number.

    Enter this command.

    ```
    rtrv-ctrl-feat:partnum=893012401
    ```

    ```
    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.
    ```

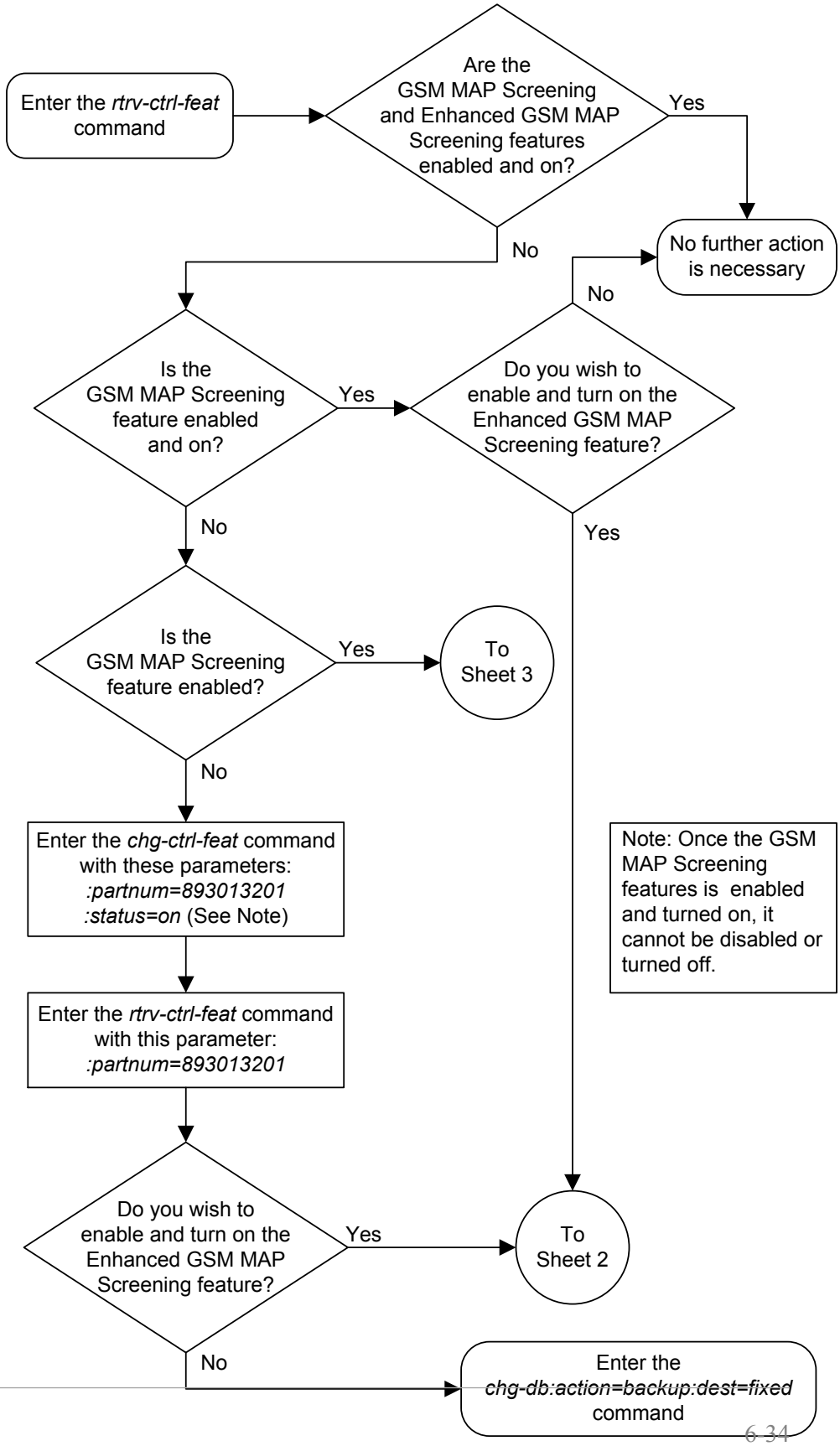
13. Back up the new changes using the `chg-db:action=backup:dest=fixed` command.

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

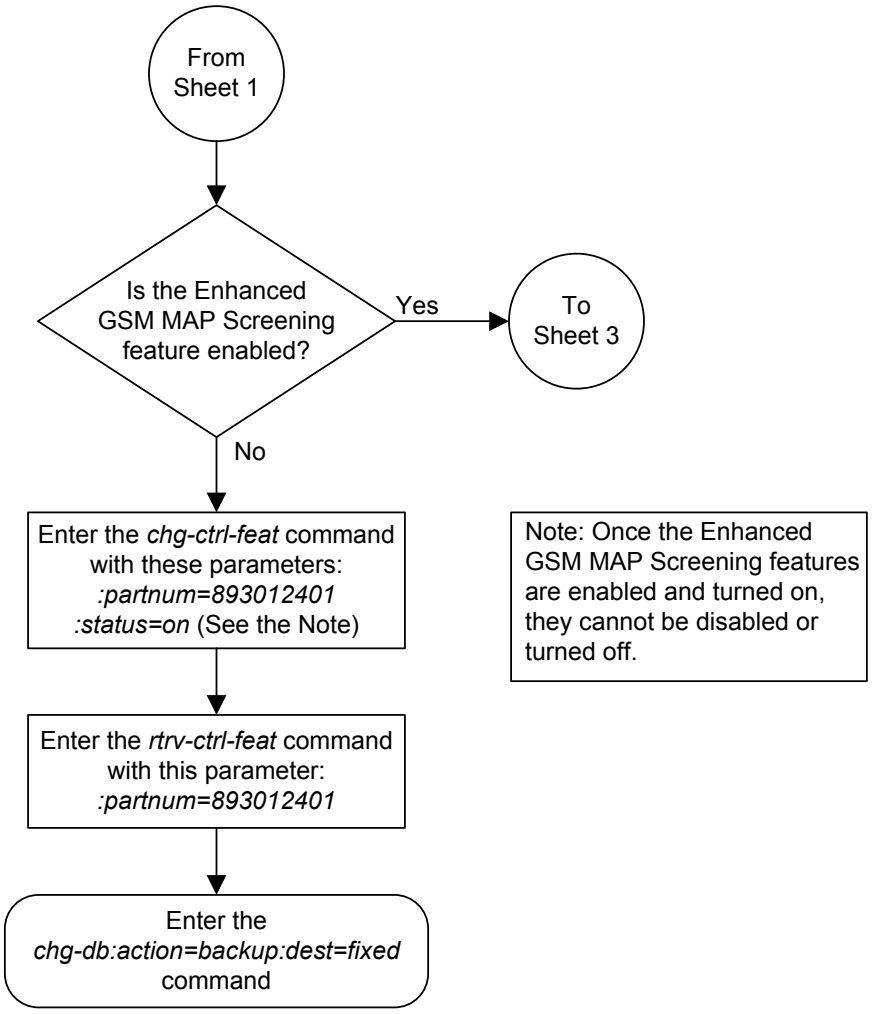
    ```
    BACKUP (FIXED): MASP A - Backup starts on active MASP.
    BACKUP (FIXED): MASP A - Backup on active MASP to fixed disk complete.
    ```

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

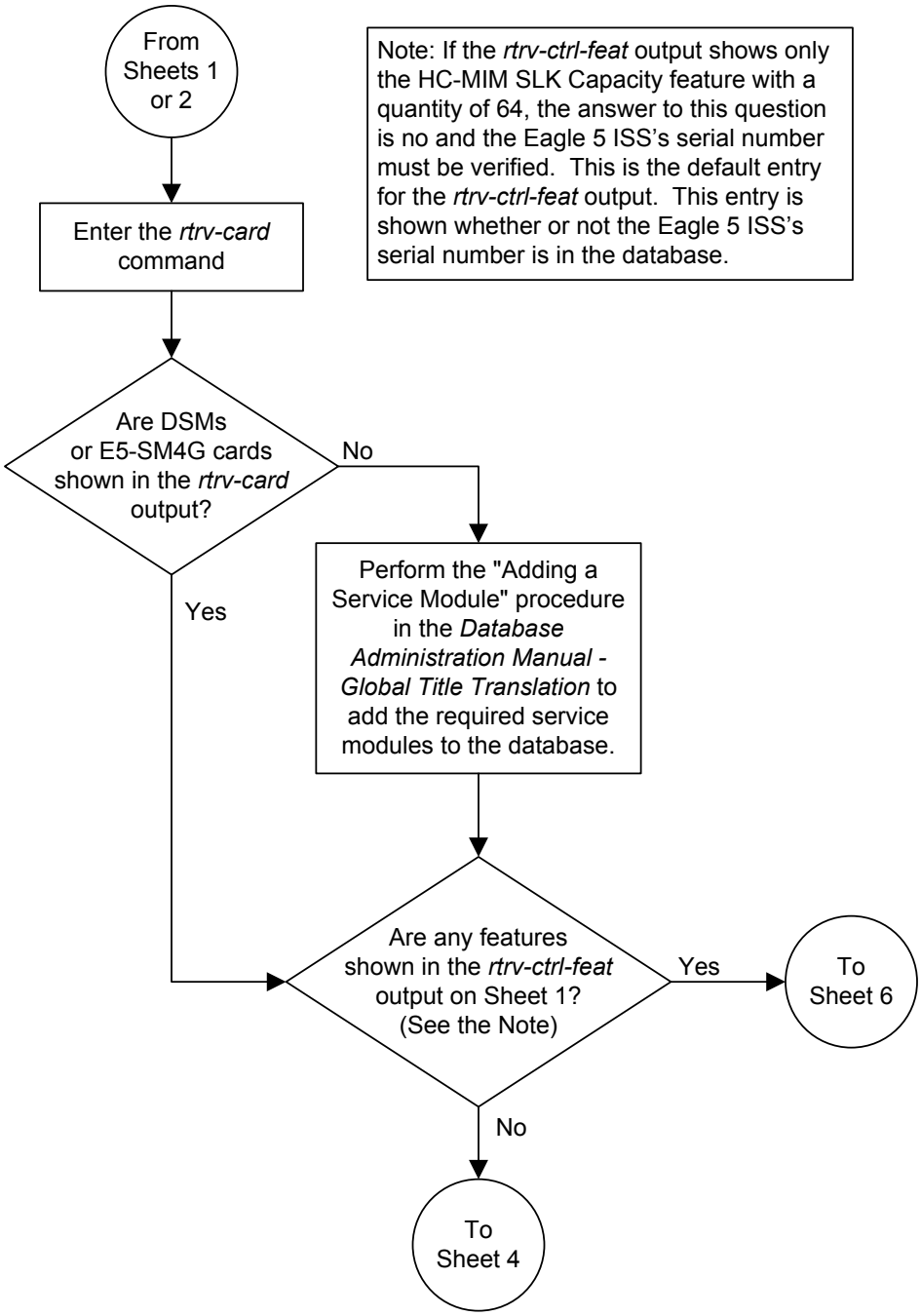
**Figure 6-4 Activating the GSM MAP Screening Feature**



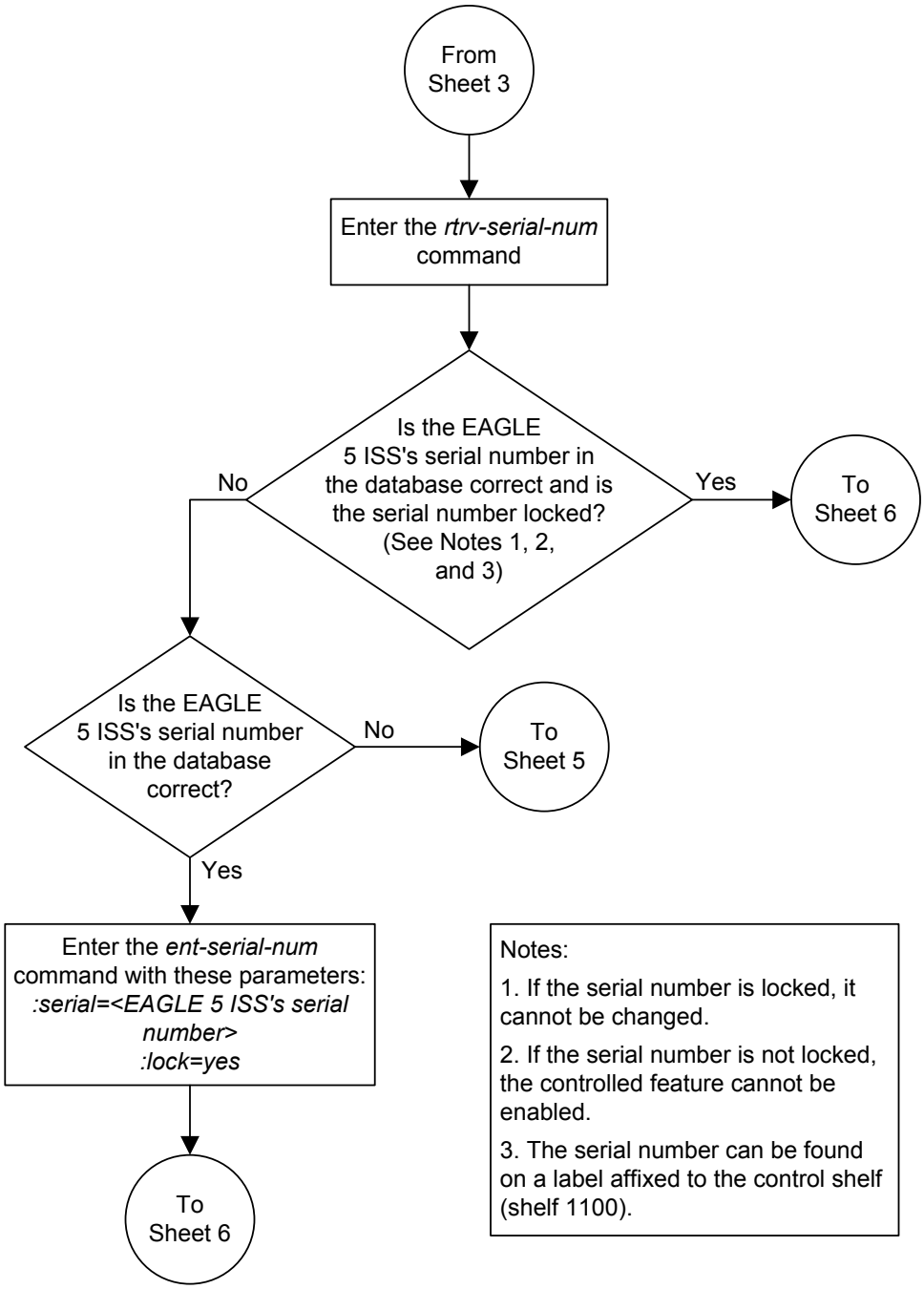
Sheet 1 of 6


From Sheet 1
Is the Enhanced GSM MAP Screening feature enabled?
Yes
To Sheet 3
No
Enter the *chg-ctrl-feat* command with these parameters: *:partnum=893012401* *:status=on* (See the Note)
Note: Once the Enhanced GSM MAP Screening features are enabled and turned on, they cannot be disabled or turned off.
Enter the *rtrv-ctrl-feat* command with this parameter: *:partnum=893012401*
Enter the *chg-db:action=backup:dest=fixed* command

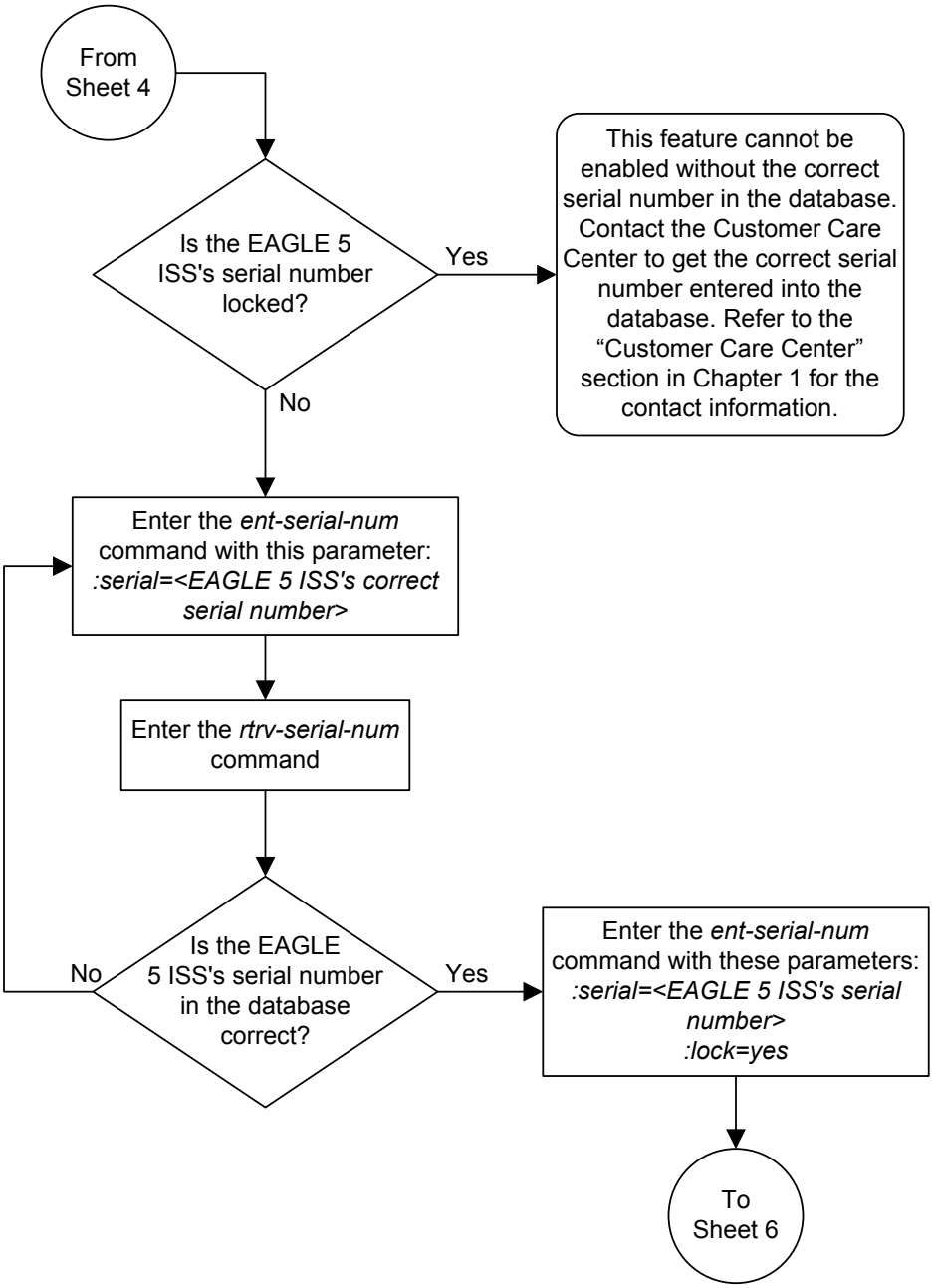
Sheet 2 of 6


From Sheets 1 or 2
Enter the *rtrv-card* command
Note: If the *rtrv-ctrl-feat* output shows only the HC-MIM SLK Capacity feature with a quantity of 64, the answer to this question is no and the Eagle 5 ISS's serial number must be verified. This is the default entry for the *rtrv-ctrl-feat* output. This entry is shown whether or not the Eagle 5 ISS's serial number is in the database.
Are DSMs or E5-SM4G cards shown in the *rtrv-card* output?
No
Yes
Perform the "Adding a Service Module" procedure in the *Database Administration Manual - Global Title Translation* to add the required service modules to the database.
Are any features shown in the *rtrv-ctrl-feat* output on Sheet 1? (See the Note)
Yes
To Sheet 6
No
To Sheet 4

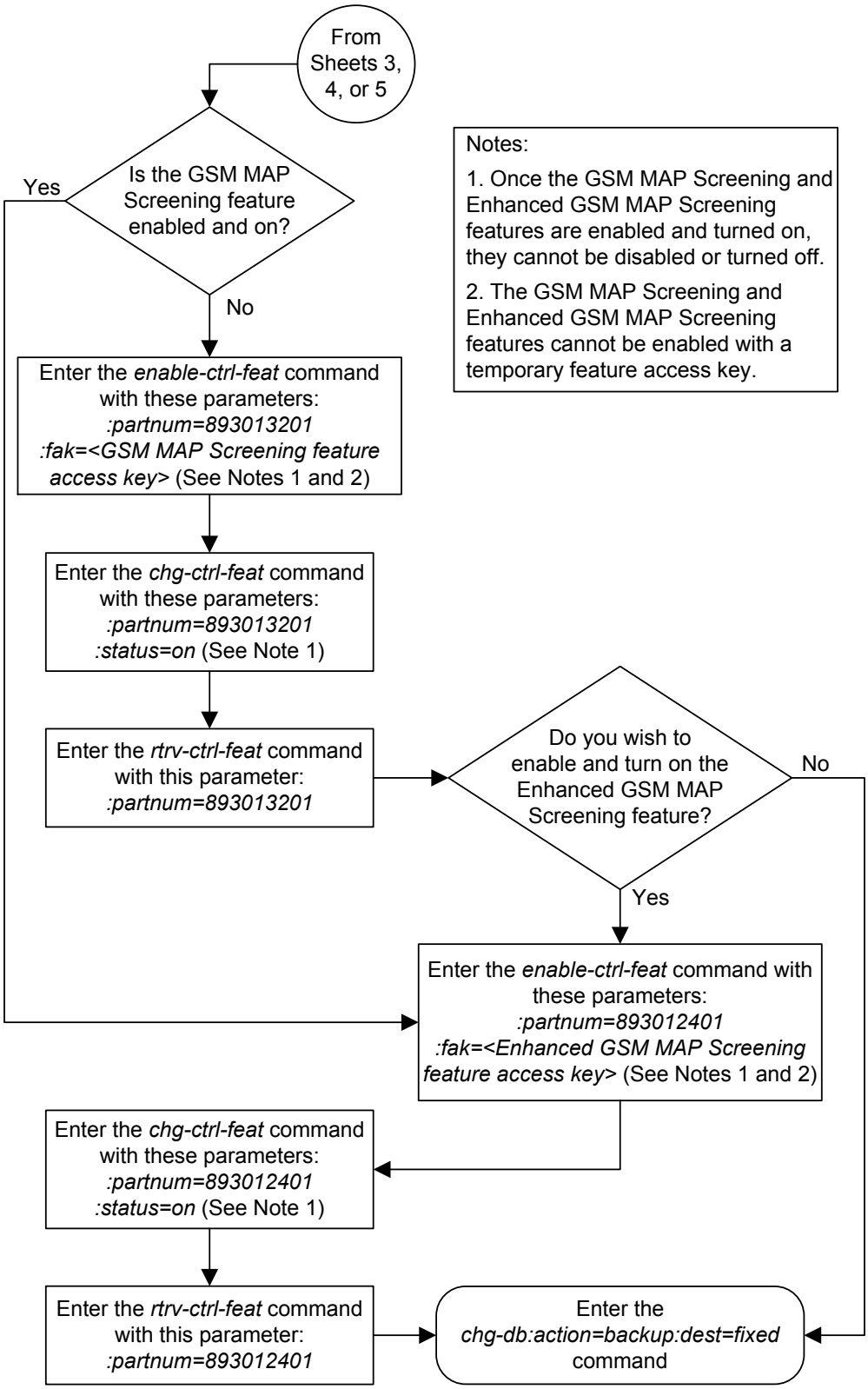
Sheet 3 of 6


From Sheet 3
Enter the rtrv-serial-num command
Is the EAGLE 5 ISS's serial number in the database correct and is the serial number locked? (See Notes 1, 2, and 3)
No
Yes
To Sheet 6
Is the EAGLE 5 ISS's serial number in the database correct?
No
To Sheet 5
Yes
Enter the ent-serial-num command with these parameters:
:serial=<EAGLE 5 ISS's serial number>
:lock=yes
To Sheet 6
Notes:
1. If the serial number is locked, it cannot be changed.
2. If the serial number is not locked, the controlled feature cannot be enabled.
3. The serial number can be found on a label affixed to the control shelf (shelf 1100).

Sheet 4 of 6


From Sheet 4
Is the EAGLE 5 ISS's serial number locked?
Yes
This feature cannot be enabled without the correct serial number in the database. Contact the Customer Care Center to get the correct serial number entered into the database. Refer to the "Customer Care Center" section in Chapter 1 for the contact information.
No
Enter the ent-serial-num command with this parameter: :serial=<EAGLE 5 ISS's correct serial number>
Enter the rtrv-serial-num command
Is the EAGLE 5 ISS's serial number in the database correct?
No
Yes
Enter the ent-serial-num command with these parameters: :serial=<EAGLE 5 ISS's serial number> :lock=yes
To Sheet 6

Sheet 5 of 6


From Sheets 3, 4, or 5
Is the GSM MAP Screening feature enabled and on?
Yes
No
Notes:
1. Once the GSM MAP Screening and Enhanced GSM MAP Screening features are enabled and turned on, they cannot be disabled or turned off.
2. The GSM MAP Screening and Enhanced GSM MAP Screening features cannot be enabled with a temporary feature access key.
Enter the *enable-ctrl-feat* command with these parameters: *:partnum=893013201* *:fak=<GSM MAP Screening feature access key>* (See Notes 1 and 2)
Enter the *chg-ctrl-feat* command with these parameters: *:partnum=893013201* *:status=on* (See Note 1)
Enter the *rtrv-ctrl-feat* command with this parameter: *:partnum=893013201*
Do you wish to enable and turn on the Enhanced GSM MAP Screening feature?
No
Yes
Enter the *enable-ctrl-feat* command with these parameters: *:partnum=893012401* *:fak=<Enhanced GSM MAP Screening feature access key>* (See Notes 1 and 2)
Enter the *chg-ctrl-feat* command with these parameters: *:partnum=893012401* *:status=on* (See Note 1)
Enter the *rtrv-ctrl-feat* command with this parameter: *:partnum=893012401*
Enter the *chg-db:action=backup:dest=fixed* command

Sheet 6 of 6

# Configuring the MTP MAP Screening Feature

> **Note:**
>
> When MTP routed messages are routed through **SCCP** Service Modules for **MTP MAP** screening, Eagle may replace the original **OPC** in message with secondary point code provisioned for the **DPC** (if a secondary point code is already provisioned for the DPC in the destination table), or with secondary point code provisioned for the linkset (if the linkset is uses MLS feature and the linkset is direct route to the destination), even if messages pass (no MAP screening action is performed) MAP screening.

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 be enabled if **MTP MAP** Screening measurements is desired.

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:

> **Note:**
>
> As of Release 46.3, the `fak` parameter is no longer required. This parameter is only used for backward compatibility.

`:fak` – The feature access key supplied by Oracle. The feature access key contains 13 alphanumeric characters and is not case sensitive.

`:partnum` – The Oracle-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 Oracle-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 **MTPMAP** Screening feature on allows **GSMMAP** 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 **MTPMAP** Screening feature off allows **GSMMAP** 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**.

**Note:**

When **MTP** routed messages are routed through **SCCP** Service Modules for **MTP MAP** Screening, Eagle may replace the original **OPC** in the message with a secondary point code provisioned for the **DPC** (if a secondary point code is already provisioned for the DPC in the destination table), or with a secondary point code provisioned for the linkset (if the linkset is uses **MLS** feature and the linkset is a direct route to the destination), even if messages pass (no MAP screening action is performed) **MAP** 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
HC-MIM SLK Capacity       893012707  on      64
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

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 **GSMMAP** 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 **GSMMAP** Screening Feature" procedure to enable and turn on the Enhanced **GSM MAP** Screening feature.

3. Verify whether or nor 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 User's Guide*.

If the Measurements Platform is not enabled, perform the "Configuring the Measurements Platform Feature" procedure in *Database Administration - System Management User's Guide* to enabled the Measurements Platform.

4. Enable the **MTPMAP** Screening feature with the `enable-ctrl-feat` command specifying the part number for the **MTPMAP** 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 Oracle. If you do not have the feature access key for the Enhanced **GSMMAP** Screening feature, contact your Oracle Sales Representative or Account Representative.

5. Turn the **MTPMAP** Screening feature on or off with the `chg-ctrl-feat` command specifying the part number for the Enhanced **GSMMAP** 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
   ```

6. Verify the changes by entering the `rtrv-ctrl-feat`command with the **MTPMAP** Screening feature part number.

   Enter this command.
   ```
   rtrv-ctrl-feat:partnum=893013501
   ```

   In the following example, the feature Status is `on`.

   ```
   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.
   ```

   In the following example, the feature Status is `off`

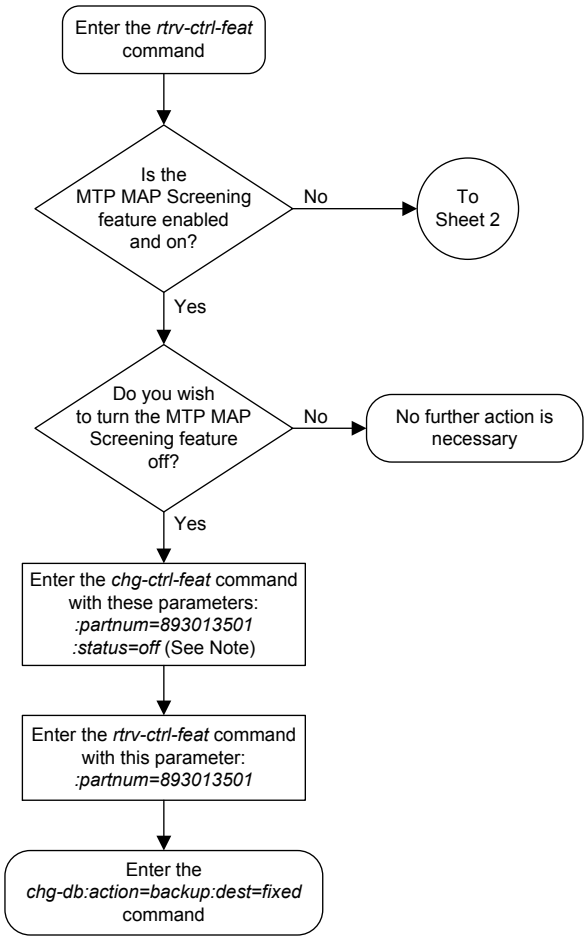
   ```
   rlghncxa03w 06-10-28 21:15:37 GMT EAGLE5 36.0.0
   The following features have been permanently enabled:

   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.
   ```

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

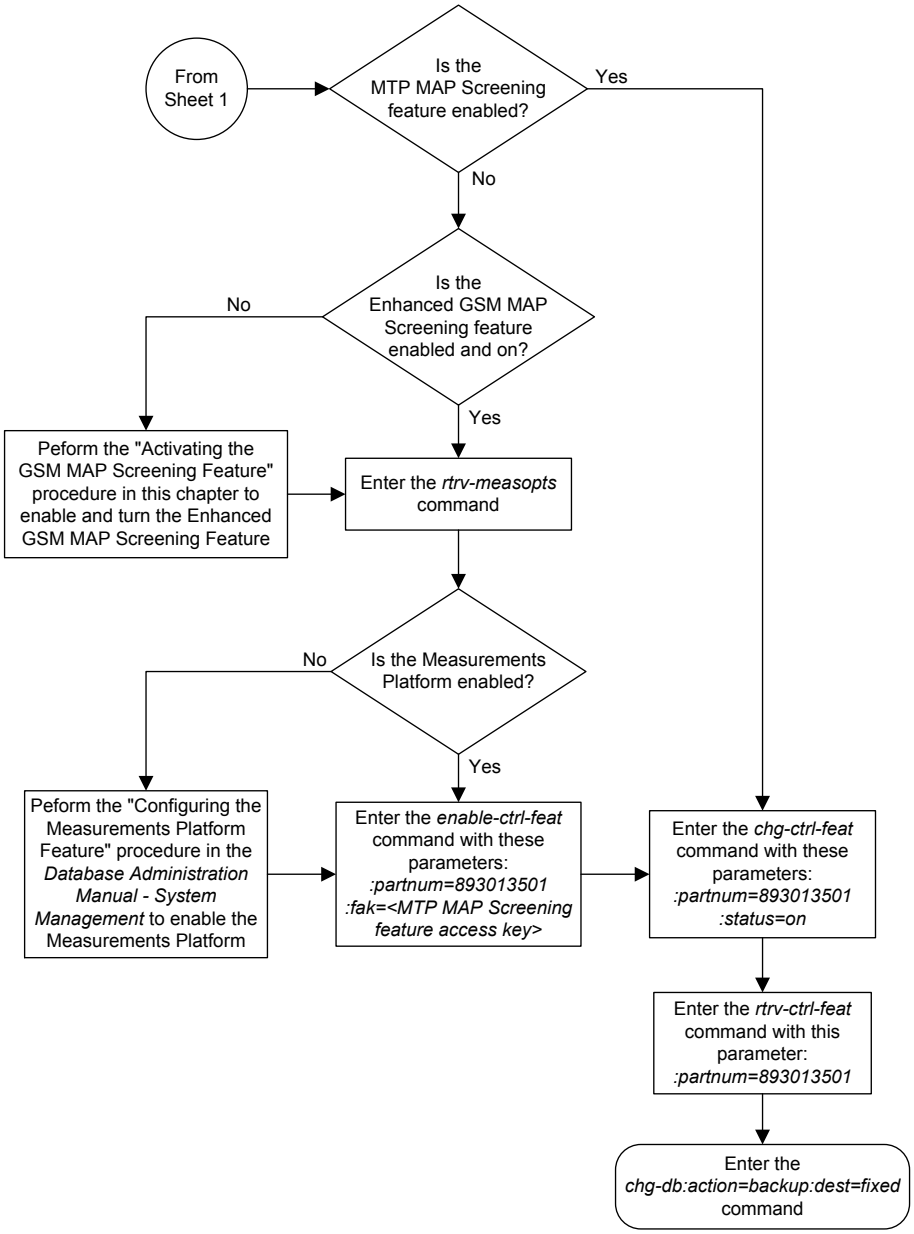
   These messages should appear, the active **Maintenance and Administration Subsystem** Processor (**MASP**) appears first.

```
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 6-5 Configuring the MTP MAP Screening Feature**




Sheet 1 of 2


From Sheet 1
Is the MTP MAP Screening feature enabled?
Yes
No
Is the Enhanced GSM MAP Screening feature enabled and on?
No
Yes
Peform the "Activating the GSM MAP Screening Feature" procedure in this chapter to enable and turn the Enhanced GSM MAP Screening Feature
Enter the rtrv-measopts command
Is the Measurements Platform enabled?
No
Yes
Peform the "Configuring the Measurements Platform Feature" procedure in the Database Administration Manual - System Management to enable the Measurements Platform
Enter the enable-ctrl-feat command with these parameters: :partnum=893013501 :fak=<MTP MAP Screening feature access key>
Enter the chg-ctrl-feat command with these parameters: :partnum=893013501 :status=on
Enter the rtrv-ctrl-feat command with this parameter: :partnum=893013501
Enter the chg-db:action=backup:dest=fixed command

Sheet 2 of 2

# 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` (**GSMMAP** 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 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**. This parameter is only mandatory for the `ent-ls` command.

**Note:**

See Chapter 2, Configuring Destination Tables in *Database Administration* - **SS7** *User's Guide* for a definition of the point code types that are used on the **EAGLE** and for a definition of the different formats that can be used for **ITU** national point codes.

**Note:**

The **EAGLE** 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 **GSMMAP** 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 *Database Administration* - **SS7** *User's Guide*, or in the `ent-ls` and `chg-ls` command descriptions in *Commands User's Guide*.

The **EAGLE** 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 6-3.

**Table 6-3 GSM MAP Screening Linkset Configuration Table**

| Linkset Names | Linkset APC | LST | GSMSCRN |
|---|---|---|---|
| | New Linksets Being Added | | |
| 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 that 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 *Commands User's Guide*.

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

   This is an example of the possible output.

```
rlghncxa03w 09-05-10 11:43:04 GMT EAGLE5 41.0.0

                                  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
ls04         001-002-003   scr2  1   1   no  a   4    on  off on  yes   off

                                L3T SLT             GWS GWS GWS
LSN          APCI   (SS7)  SCRN  SET SET 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 ---   ---

                                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    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 ( 10 of 1024)  1% full
```

2. Display the point code and capability point code of the **EAGLE** 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 **GSMMAP** 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** by performing the "Changing the Self-Identification of the **EAGLE**" procedure in *Database Administration* - **SS7** *User's Guide*.

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 10-12-10 11:43:04 GMT EAGLE5 43.0.0
DPCI          CLLI        BEI ELEI   ALIASA           ALIASN/N24    DMN
3-150-4       lsi7clli    yes --- --------------   --------------   SS7

SPCI         NCAI         RCAUSE NPRST SPLITIAM HMSMSC HMSCP SCCPMSGCNV
-----------  ----         none   off   none     no     no    none

Destination table is (28 of 2000) 1% full
Alias table is (5 of 8000) 1% full
```

`rtrv-dstn:dpcn=10685`

This is an example of the possible output.

```
rlghncxa03w 10-12-10 11:43:04 GMT EAGLE5 43.0.0
DPCN          CLLI        BEI ELEI   ALIASA           ALIASI        DMN
10685         lsn5clli    yes --- --------------   --------------   SS7

SPCI         NCAI         RCAUSE NPRST SPLITIAM HMSMSC HMSCP SCCPMSGCNV
-----------  ----         none   off   none     no     no    none

Destination table is (28 of 2000) 1% full
Alias table is (5 of 8000) 1% full
```

If the point code specified in the `rtrv-dstn` command in this step is not in the database, the following message is displayed.

```
rlghncxa03w 09-05-10 11:43:04 GMT EAGLE5 41.0.0

No destinations meeting the requested criteria were found

Destination table is (28 of 2000) 1% full
Alias table is (5 of 8000) 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 *Database Administration* - **SS7** *User's Guide* 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 **GSMMAP** Screening only if the Enhanced **GSMMAP** Screening feature is enabled and on.

4. 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 quanties 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 *Database Administration* - **SS7** *User's Guide*.

5. Verify that the **GSMMAP** Screening feature is enabled and on by entering the `rtrv-ctrl-feat` command with the part number of the **GSMMAP** 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 procedure to enable and turn on the **GSM MAP** screening feature.

6. Verify that the Enhanced **GSMMAP** Screening feature is enabled and on by entering the `rtrv-ctrl-feat` command with the part number of the Enhanced **GSMMAP** 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 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 09-07-17 11:43:04 GMT EAGLE5 41.1.0

LSN          APCN   (SS7)  SCRN  SET SET BEI LST LNKS ACT MES DIS SLSCI NIS
lsn4         09786         scr3  1   2   no  a   2    on  off off no    on

           CLLI         TFATCABMLQ MTPRSE ASL8 SLSRSB ITUTFR GSMSCRN
           lsn4clli     1          ---    ---  1      on     on

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

                                 L2T                 PCR  PCR
           LOC   LINK SLC TYPE    SET  BPS    ECM    N1   N2
           1205  b    0   LIMDS0  1    56000  BASIC  ---  -----
           1211  a    2   LIMDS0  1    56000  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:gsmscrn=on
```

```
ent-ls:lsn=lsi7:apci=3-150-4:lst=a:gsmscrn=on
```

> **Note:**
>
> An **ANSI** point code can be used as the **APC** of a linkset for **GSMMAP** Screening only if the Enhanced **GSMMAP** 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 `gsmscrn` 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:gsmscrn=on
```

> **Note:**
>
> The `gsmscrn` parameter can be specified for a linkset with an **ANSIAPC** only if the Enhanced **GSMMAP** 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 09-07-17 11:43:04 GMT EAGLE5 41.1.0

                                       L3T SLT          GWS GWS GWS
    LSN          APCN   (SS7)  SCRN  SET SET BEI LST LNKS ACT MES DIS SLSCI NIS
    lsn4         09786         scr3  1   2   no  a   2    on  off off no    on

              CLLI         TFATCABMLQ MTPRSE ASL8 SLSRSB ITUTFR GSMSCRN
              lsn4clli     1          ---    ---  1      on     on

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

                                    L2T              PCR  PCR
              LOC   LINK SLC TYPE   SET  BPS    ECM   N1   N2
              1205  b    0   LIMDS0 1    56000  BASIC ---  -----
              1211  a    2   LIMDS0 1    56000  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

                                       L3T SLT          GWS GWS GWS
    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 SLSRSB ITUTFR GSMSCRN
            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`

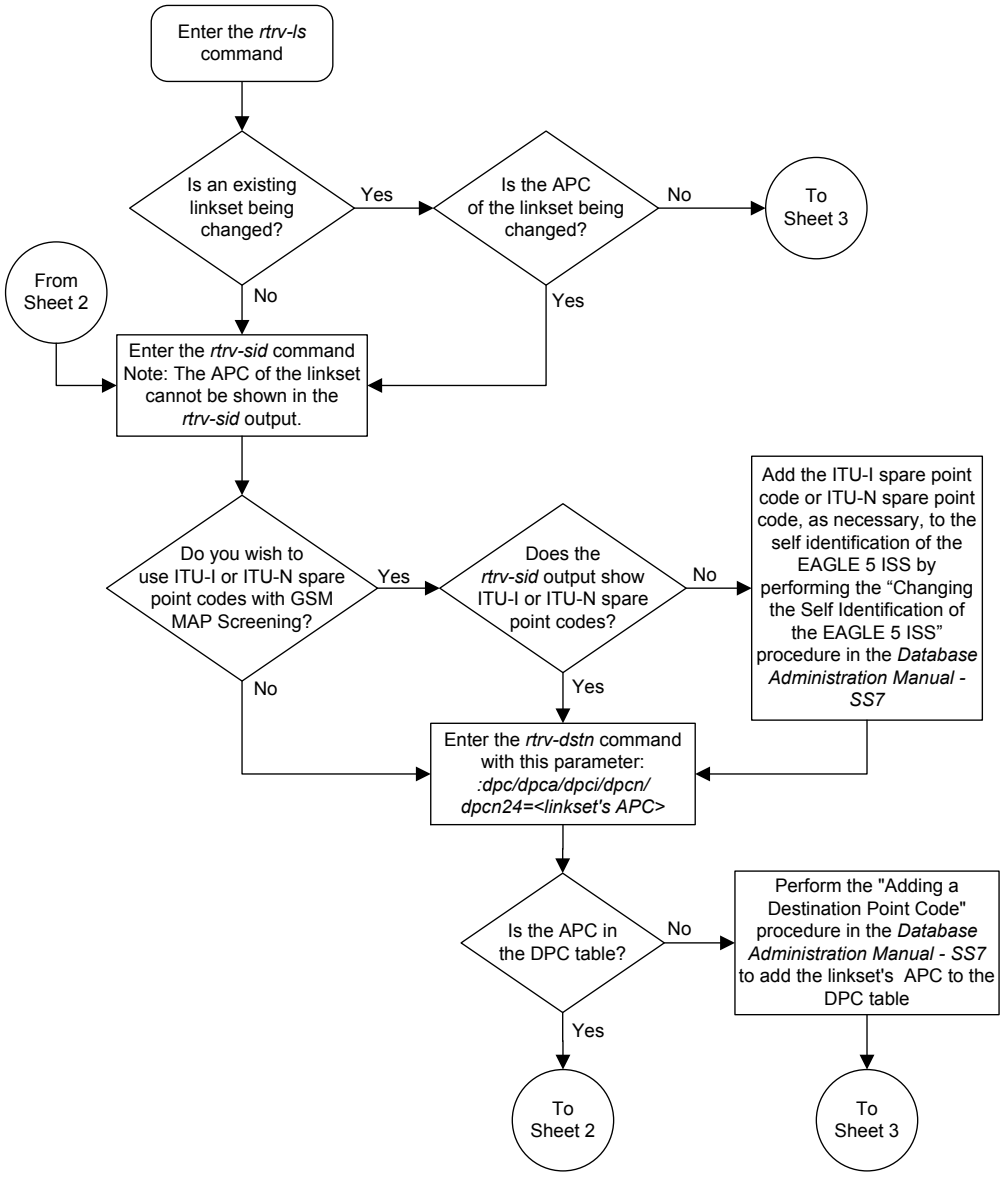
This is an example of the possible output.

```
rlghncxa03w 06-10-17 11:43:04 GMT EAGLE5 36.0.0

                                    L3T SLT          GWS GWS GWS
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 SLSRSB ITUTFR GSMSCRN
            lsn7clli     1          ---    ---  1      off    on

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

Link set table is ( 21 of 1024)  2% full
```

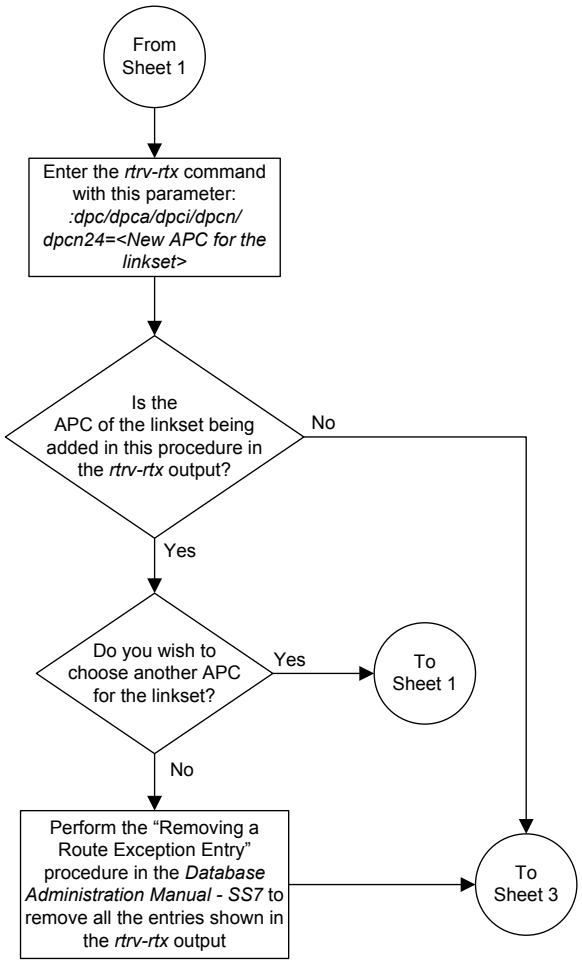
11. Back up the new changes using the `chg-db:action=backup:dest=fixed` command.

```
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.
```

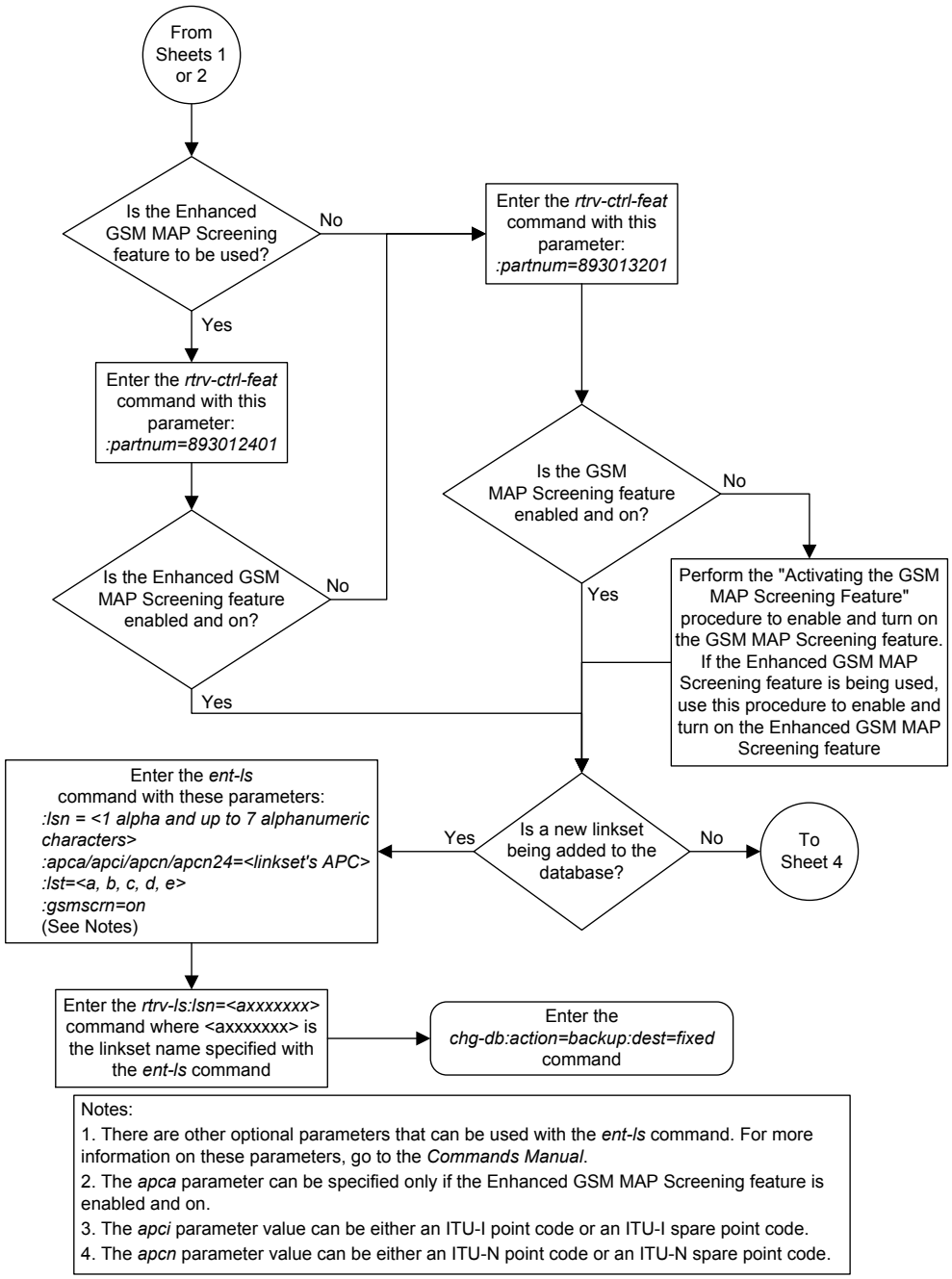
**Figure 6-6 Configuring a Linkset for the GSM MAP Screening Feature**



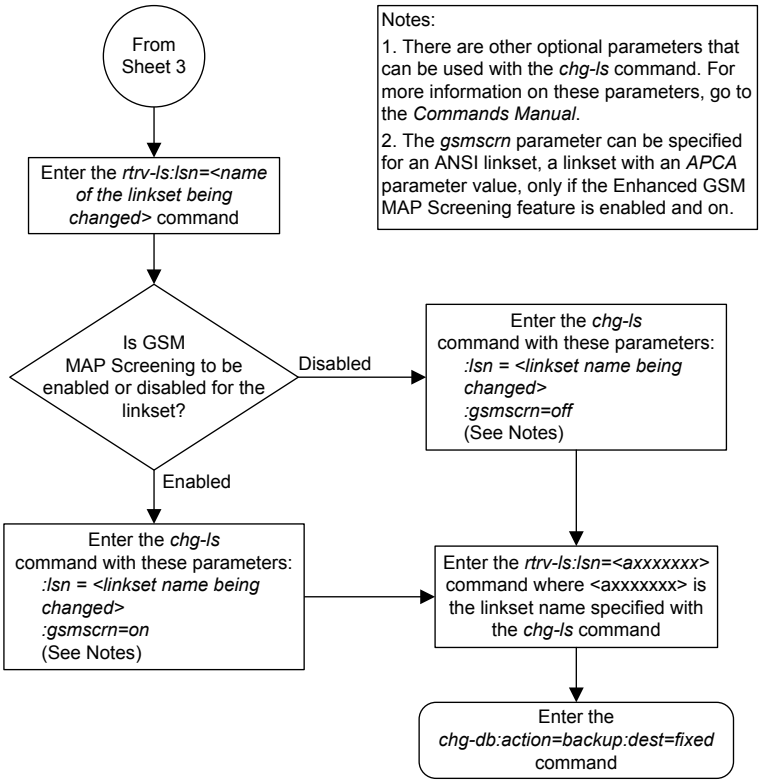

Sheet 1 of 4


From Sheet 1
Enter the rtrv-rtx command with this parameter: :dpc/dpca/dpci/dpcn/ dpcn24=<New APC for the linkset>
Is the APC of the linkset being added in this procedure in the rtrv-rtx output?
No
Yes
Do you wish to choose another APC for the linkset?
Yes
To Sheet 1
No
Perform the "Removing a Route Exception Entry" procedure in the Database Administration Manual - SS7 to remove all the entries shown in the rtrv-rtx output
To Sheet 3

Sheet 2 of 4


From Sheets 1 or 2
Is the Enhanced GSM MAP Screening feature to be used?
No
Yes
Enter the rtrv-ctrl-feat command with this parameter: :partnum=893012401
Is the Enhanced GSM MAP Screening feature enabled and on?
No
Yes
Enter the rtrv-ctrl-feat command with this parameter: :partnum=893013201
Is the GSM MAP Screening feature enabled and on?
No
Yes
Perform the "Activating the GSM MAP Screening Feature" procedure to enable and turn on the GSM MAP Screening feature. If the Enhanced GSM MAP Screening feature is being used, use this procedure to enable and turn on the Enhanced GSM MAP Screening feature
Is a new linkset being added to the database?
Yes
No
To Sheet 4
Enter the ent-ls command with these parameters:
:lsn = <1 alpha and up to 7 alphanumeric characters>
:apca/apci/apcn/apcn24=<linkset's APC>
:lst=<a, b, c, d, e>
:gsmscrn=on
(See Notes)
Enter the rtrv-ls:lsn=<axxxxxxx> command where <axxxxxxx> is the linkset name specified with the ent-ls command
Enter the chg-db:action=backup:dest=fixed command
Notes:
1. There are other optional parameters that can be used with the ent-ls command. For more information on these parameters, go to the Commands Manual.
2. The apca parameter can be specified only if the Enhanced GSM MAP Screening feature is enabled and on.
3. The apci parameter value can be either an ITU-I point code or an ITU-I spare point code.
4. The apcn parameter value can be either an ITU-N point code or an ITU-N spare point code.

Sheet 3 of 4


From Sheet 3
Enter the rtrv-ls:lsn=<name of the linkset being changed> command
Notes:
1. There are other optional parameters that can be used with the chg-ls command. For more information on these parameters, go to the Commands Manual.
2. The gsmscrn parameter can be specified for an ANSI linkset, a linkset with an APCA parameter value, only if the Enhanced GSM MAP Screening feature is enabled and on.
Is GSM MAP Screening to be enabled or disabled for the linkset?
Disabled
Enter the chg-ls command with these parameters:
:lsn = <linkset name being changed>
:gsmscrn=off
(See Notes)
Enabled
Enter the chg-ls command with these parameters:
:lsn = <linkset name being changed>
:gsmscrn=on
(See Notes)
Enter the rtrv-ls:lsn=<axxxxxxx> command where <axxxxxxx> is the linkset name specified with the chg-ls command
Enter the chg-db:action=backup:dest=fixed command

Sheet 4 of 4

# 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 **GSMMAP** Screening Feature" 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 **GSMMAP** Screening feature is enabled and on by entering the `rtrv-ctrl-feat` command with the part number of the **GSMMAP** 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 **GSMMAP** Screening Feature" 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
----------------------
GSMDFLT            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 **GSMMAP** screening default action (`gsmdflt`) and **GSMMAP** 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 **GSMMAP** 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
   ```

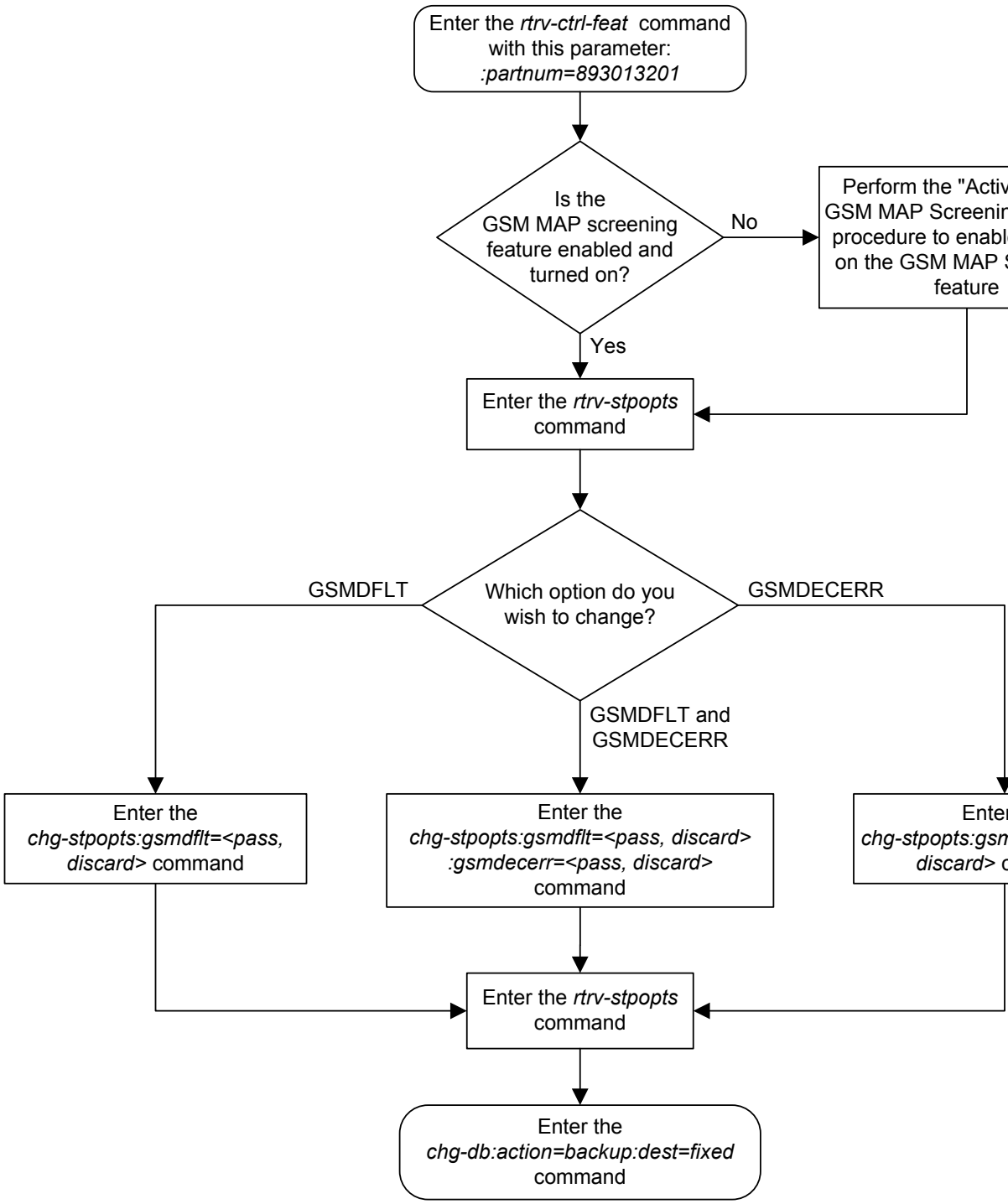
> **Note:**
>
> The `rtrv-stpopts` command output contains other fields that are not used by this procedure. If you wish to see all the fields displayed by the `rtrv-stpopts` command, see the `rtrv-stpopts` command description in the *Commands Manual*.

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 6-7 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 **GSMMAP** Screening Feature" procedure 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 5-4.

**Table 6-4 Example GSM MAP Screening SSN Configuration Table**

| SSN | TYPE |
|---|---|
| 250 | orig |
| 251 | dest |

1. Verify that the **GSMMAP** Screening feature is enabled and on by entering the `rtrv-ctrl-feat` command with the part number of the **GSMMAP** 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 **GSMMAP** Screening Feature" procedure to enable and turn on the **GSMMAP** screening feature.

2. Display the **GSMMAP** 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.

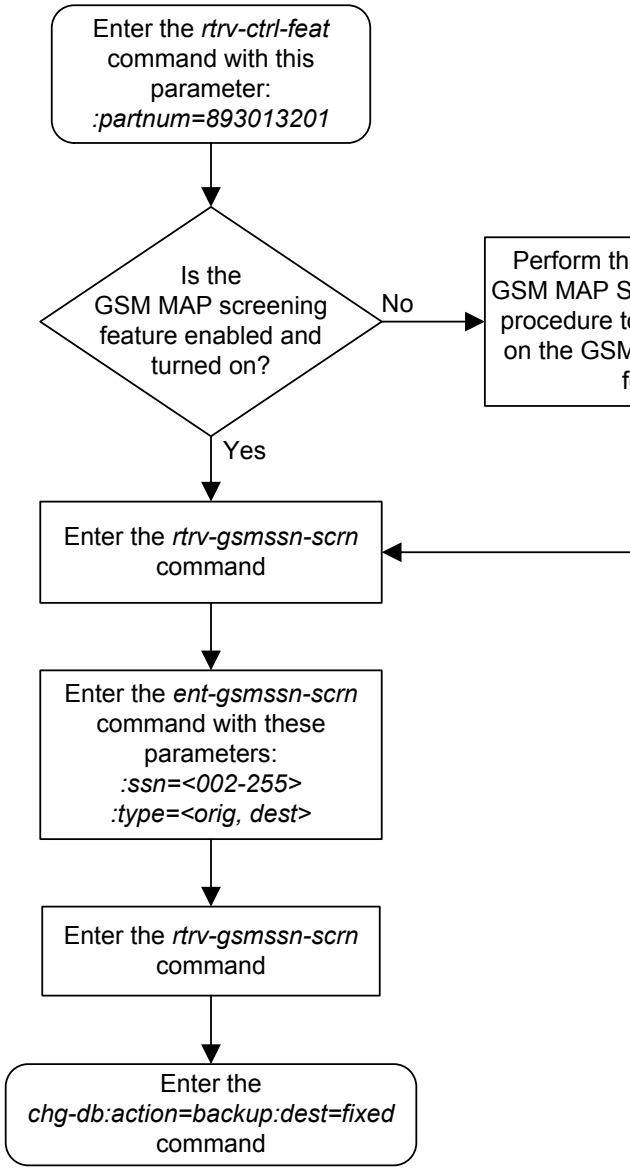
```
rlghncxa03w 06-10-07 00:28:31 GMT EAGLE5 36.0.0
SSN  ORIG  DEST
  2  Yes   No
 10  Yes   Yes
250  Yes   No
251  No    Yes
GSM Map Screening table is (4 of 512) 1% full
RTRV-GSMSSN-SCRN: MASP A - COMPLTD
```

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 6-8 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 **GSMMAP** 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.

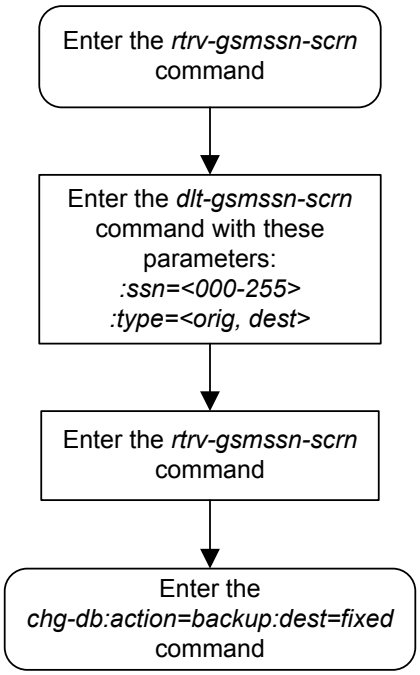
   ```
   rlghncxa03w 06-10-07 00:28:31 GMT EAGLE5 36.0.0
   SSN  ORIG  DEST
     2  Yes   No
    10  No    Yes
   250  Yes   No
   GSM Map Screening table is (3 of 512) 1% full
   RTRV-GSMSSN-SCRN: MASP A - COMPLTD
   ```

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 6-9 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** 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 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** 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 *Database Administration* - **GTT User's Guide**.

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 **GSMMAP** Screening Feature" procedure 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 **GSMMAP** Screening Feature" procedure 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 *Database Administration* - **GTT** *User's Guide* and add the required mDatabaseated 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 *Database Administration* - **SS7** *User's Guide* 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 5-5.

**Table 6-5 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 **GSMMAP** Screening feature is enabled and on by entering the `rtrv-ctrl-feat` command with the part number of the **GSMMAP** 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 **GSMMAP** Screening Feature" procedure 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, continue the procedure with 3.

2. Verify that the Enhanced **GSMMAP** Screening feature is enabled and on by entering the `rtrv-ctrl-feat` command with the part number of the Enhanced **GSMMAP** 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 **GSMMAP** screening feature is not enabled or off, go to the "Activating the **GSMMAP** Screening Feature" procedure to enable and turn on the Enhanced **GSMMAP** screening feature.

3. Display the **GSMMAP** 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`, continue the procedure with 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 3 , the Flexible GTT Load Sharing Feature must be enabled. Perform the "Activating the Flexible **GTTLoad Sharing** Feature" procedure in *Database Administration* - **GTT** *User's Guide* and enable the Flexible **GTTLoad Sharing** feature. After enabling the Flexible **GTTLoad Sharing** feature, continue the procedure with 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 3 , continue the procedure with 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 3 , skip continue the procedure with 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 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 10-12-10 11:43:04 GMT EAGLE5 43.0.0
Extended Processing Time may be Required

   DPCA          CLLI        BEI ELEI   ALIASI          ALIASN/N24    DMN
   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   ALIASA          ALIASN/N24    DMN
   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

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 *Database Administration - SS7 User's Guide* 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, perform the "Adding a Route Containing an SS7 DPC" procedure in *Database Administration - SS7 User's Guide* and add the required route to the database. After the route has been added, continue the procedure with 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 10-12-10 11:43:04 GMT EAGLE5 43.0.0
```

```
   DPCA          CLLI        BEI ELEI   ALIASI           ALIASN/N24    DMN
   010-020-005   ----------- no  ---  --------------   --------------   SS7

   PPCA         NCAI PRX     RCAUSE NPRST SPLITIAM HMSMSC HMSCP SCCPMSGCNV
   009-002-003  ---- no      50     on    20       no     no    none

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.

```
rlghncxa03w 09-05-10 11:43:04 GMT EAGLE5 41.0.0

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 *Database Administration* - **SS7** *User's Guide* and add the adjacent point code to the destination point code table.

After the new point code has been added, perform the "Adding a Route Containing an SS7 DPC" procedure in *Database Administration* - *SS7 User's Guide* and add the required route to the database. After the route has been added, continue the procedure with 9.

7. The point code and subsystem number being assigned to the **GSMOPCODE** 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 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 09-07-25 09:42:31  GMT  EAGLE5 41.1.0

PCI          Mate PCI     SSN RC MULT SRM MRC GRP NAME SSO
3-159-7                   128 10  SOL *N  *N  GRP01    OFF

MAP TABLE IS (20 of 1024) 2 % FULL
```

   `rtrv-map:pcn=11519:ssn=79`

   This is an example of the possible output.

```
rlghncxa03w 09-07-25 09:42:31  GMT  EAGLE5 41.1.0

PCN          Mate PCN     SSN RC MULT SRM MRC GRP NAME SSO
11519                      79 10  SOL *N  *N  GRP01    ON
```

```
MAP TABLE IS (20 of 1024) 2 % FULL
```

`rtrv-map:pci=5-25-3:ssn=200`

This is an example of the possible output.

```
rlghncxa03w 09-07-25 09:42:31  GMT  EAGLE5 41.1.0

PCI          Mate PCI     SSN RC MULT SRM MRC GRP NAME SSO
5-025-3                   200 10  SOL *N  *N  GRP01    ON

MAP TABLE IS (20 of 1024) 2 % FULL
```

`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 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 09-07-25 09:42:31  GMT  EAGLE5 41.1.0

MAPSET ID=DFLT
PCI          Mate PCI     SSN RC MULT SRM MRC GRP NAME SSO
3-159-7                   128 10  SOL *N  *N  GRP01    OFF

MAP TABLE IS (20 of 36000) 1 % FULL
```

`rtrv-map:pcn=11519:ssn=79`

This is an example of the possible output.

```
rlghncxa03w 09-07-25 09:42:31  GMT  EAGLE5 41.1.0

MAPSET ID=10
PCN          Mate PCN     SSN RC MULT SRM MRC GRP NAME SSO
11519                      79 10  SOL *N  *N  GRP01    ON

MAP TABLE IS (20 of 36000) 1 % FULL
```

`rtrv-map:pci=5-25-3:ssn=200`

This is an example of the possible output.

```
rlghncxa03w 09-07-25 09:42:31  GMT  EAGLE5 41.1.0
```

```
MAPSET ID=20
PCI          Mate PCI     SSN RC MULT SRM MRC GRP NAME SSO
5-025-3                   200 10  SOL *N  *N  GRP01    ON

MAP TABLE IS (20 of 36000) 1 % FULL
```

`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 *Database Administration - **GTT** User's Guide* 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
                                        ls100002   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=idp1
```

   `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
                                        ls200002   10    11112
                                        ls200003   20    11113
                                        ls200004   30    11114
                                        ls200005   40    11115
                                        ls200006   50    11116
                                            RTX:No  CLLI=ndp1
```

   `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
                                        ls100002   10    3-250-6
                                        ls100003   20    7-34-7
                                        ls100004   30    6-98-1
                                        ls100005   40    3-142-2
                                        ls100006   50    1-178-3
                                            RTX:No  CLLI=idp1
```

```
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 *Database Administration* - **SS7** *User's Guide* and add the required route to the database.

9. Add the new **GSMMAP** 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
   ```

   These are the rules that apply to adding a GSM MAP screening operation code.

   a. The word "none" cannot be used as a value for the `opname` parameter.

b. The pc/pca/pci/pcn/pcn24 value must be shown in the rtrv-rte output on 8 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.

c. The EAGLE can contain 14-bit ITU-N point codes or 24-bit ITU-N point codes, but not both.

d. To specify the opcode=* or pc/pca parameters, the Enhanced GSM MAP Screening feature must be enabled and on.

e. If the Flexible GTT Load Sharing feature is not enabled, shown on 3, the mapset parameter cannot be used. The pc/pca/pci/pcn/pcn24 and ssn values must be shown in the rtrv-map output on 7, otherwise, the force=yes parameter must be specified.

f. If the Flexible GTT Load Sharing feature is enabled, shown on 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.

g. 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.

h. If the ri=ssn parameter is specified, a numerical value must be specified for the ssn parameter.

10. Verify the changes using the rtrv-gsms-opcode command and specifying the opcode parameter value used in 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

GSMMS 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 -

GSMMS 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

GSMMS 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 -

GSMMS 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 -
```

```
GSMMS OPCODE Table (11 of 257) is 4% full
```

`rtrv-gsms-opcode:opcode=*`

This is an example of the possible output.

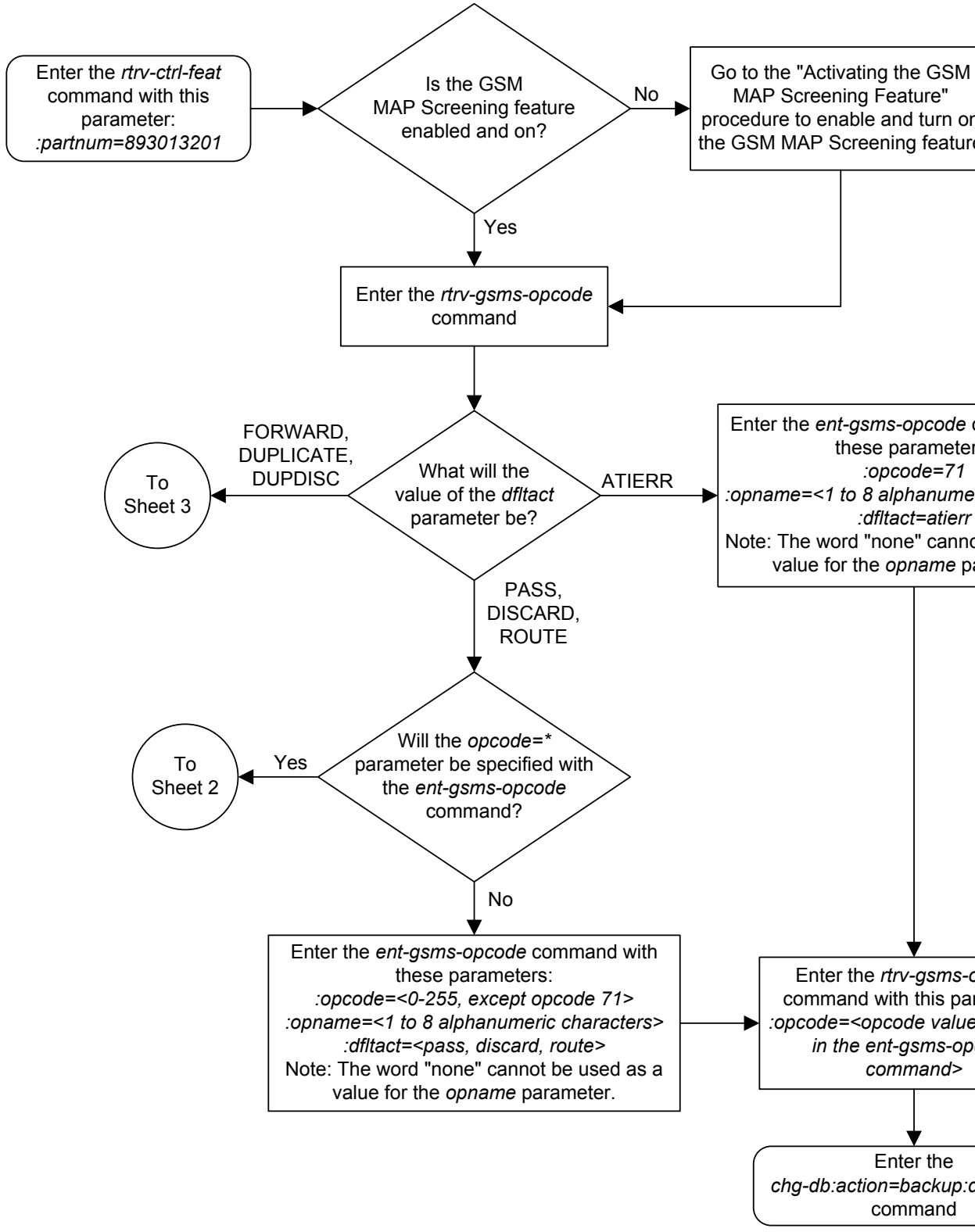
```
rlghncxa03w 06-10-10 11:43:04 GMT EAGLE5 36.0.0
OPCODE  OPNAME    DFLTACT
 *      star      pass

GSMMS OPCODE Table (11 of 257) is 4% full
```

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

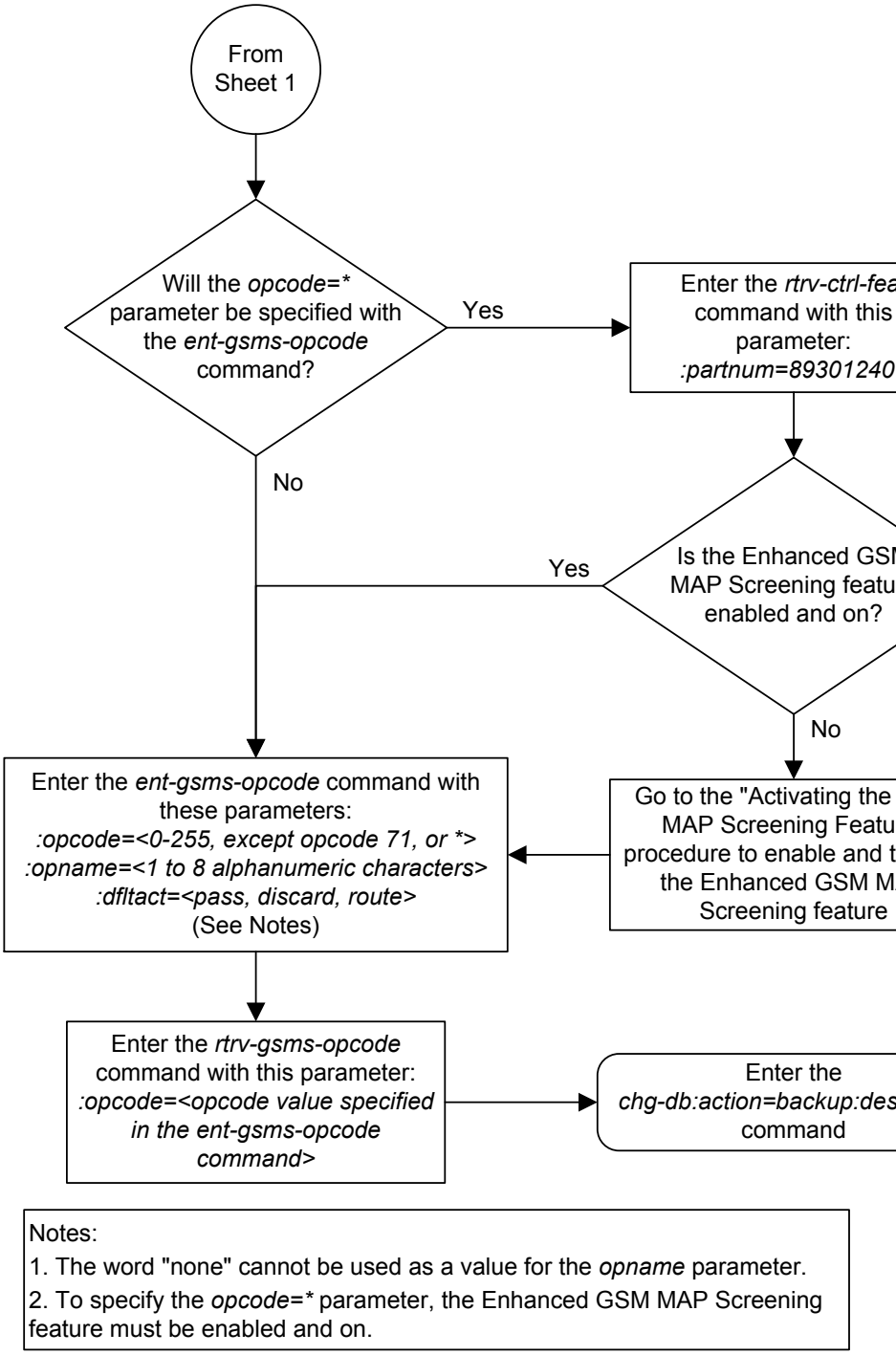
    These messages should appear, the active **Maintenance and Administration Subsystem** Processor (**MASP**) appears first.

```
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.
```

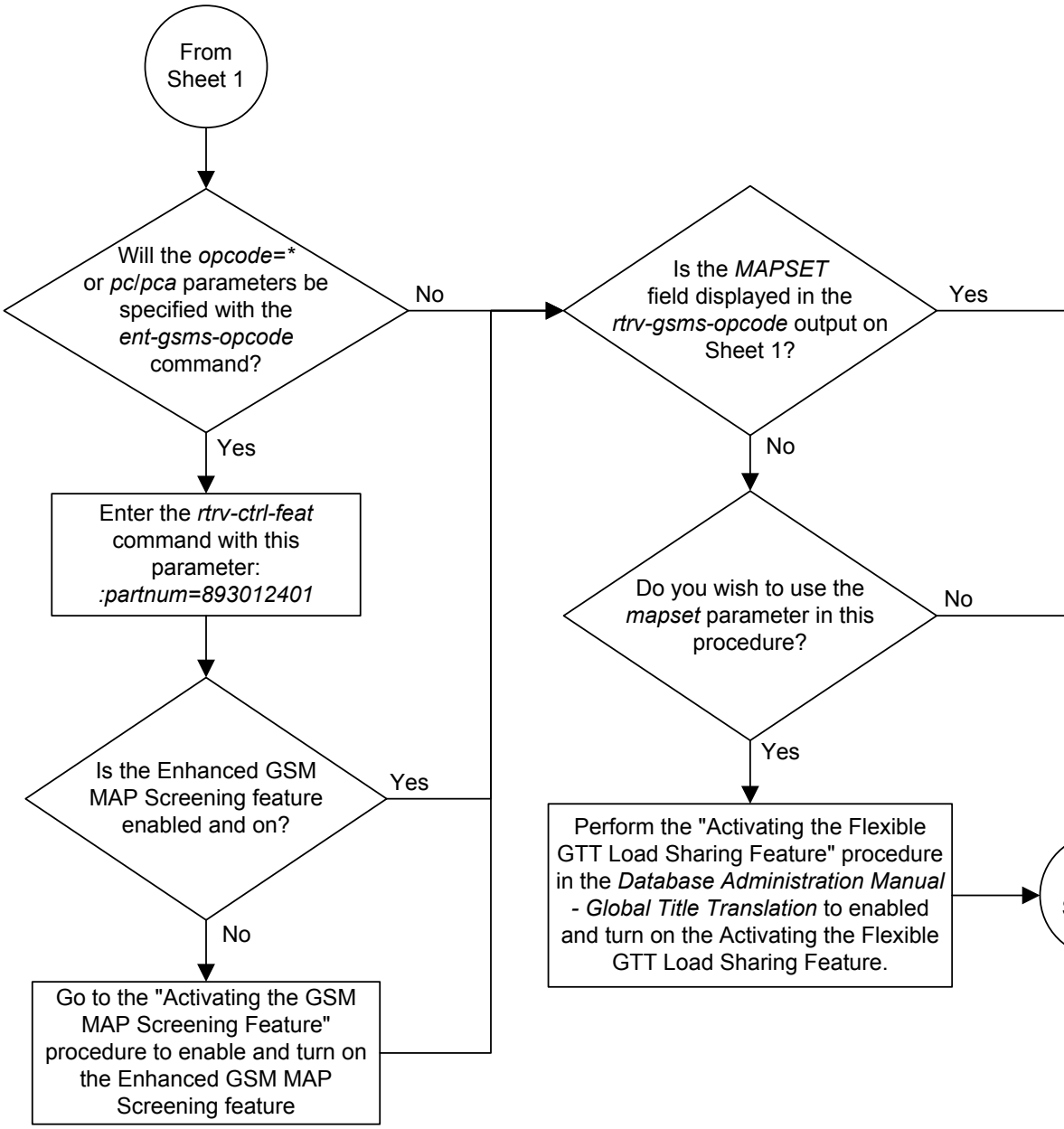
**Figure 6-10 Adding a GSM MAP Screening Operation Code**



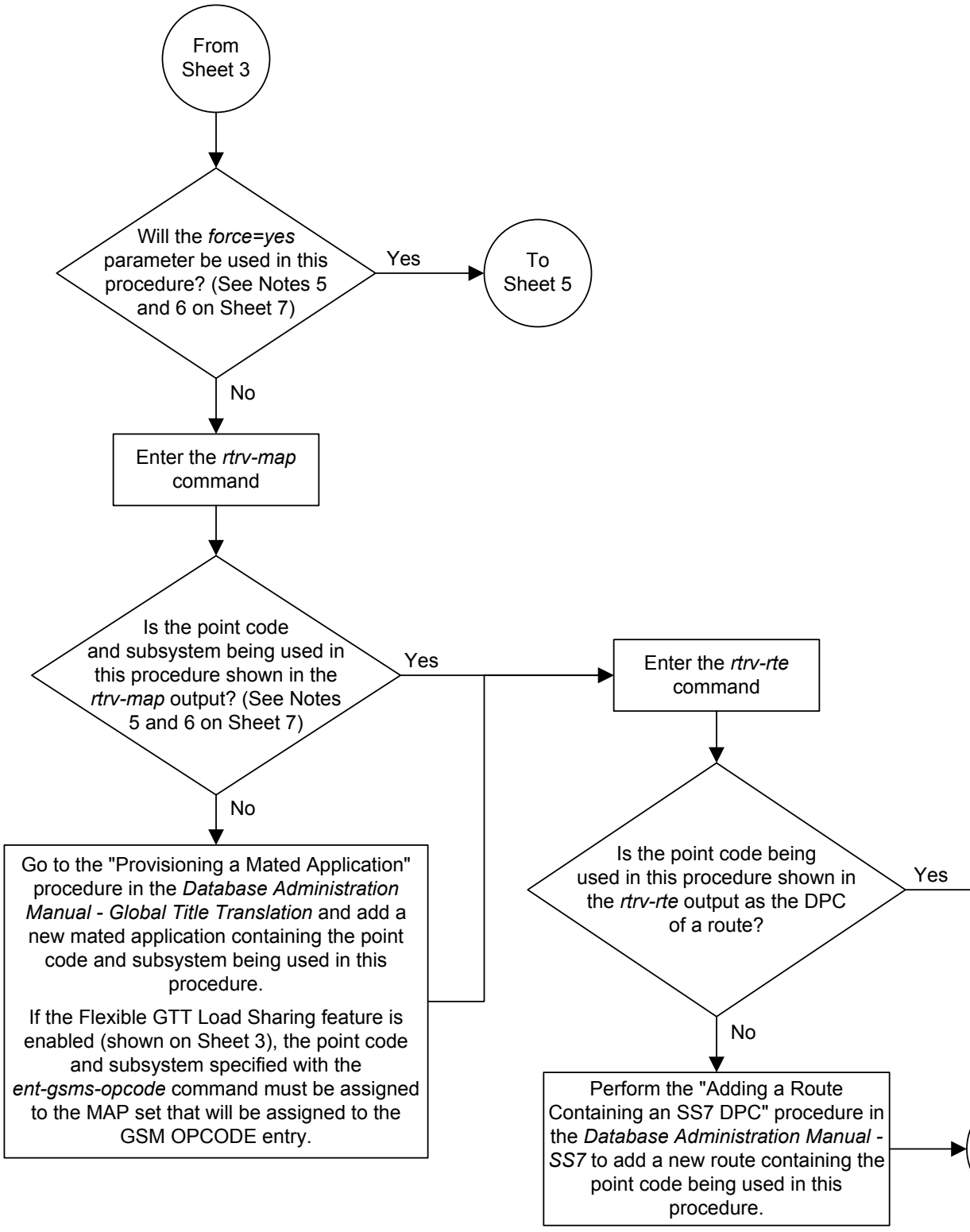
Sheet 1 of 7


From Sheet 1
Will the opcode=* parameter be specified with the ent-gsms-opcode command?
Yes
Enter the rtrv-ctrl-fea command with this parameter: :partnum=89301240
No
Is the Enhanced GSM MAP Screening featu enabled and on?
Yes
No
Enter the ent-gsms-opcode command with these parameters: :opcode=<0-255, except opcode 71, or *> :opname=<1 to 8 alphanumeric characters> :dfltact=<pass, discard, route> (See Notes)
Go to the "Activating the MAP Screening Featu procedure to enable and t the Enhanced GSM M Screening feature
Enter the rtrv-gsms-opcode command with this parameter: :opcode=<opcode value specified in the ent-gsms-opcode command>
Enter the chg-db:action=backup:des command
Notes:
1. The word "none" cannot be used as a value for the opname parameter.
2. To specify the opcode=* parameter, the Enhanced GSM MAP Screening feature must be enabled and on.

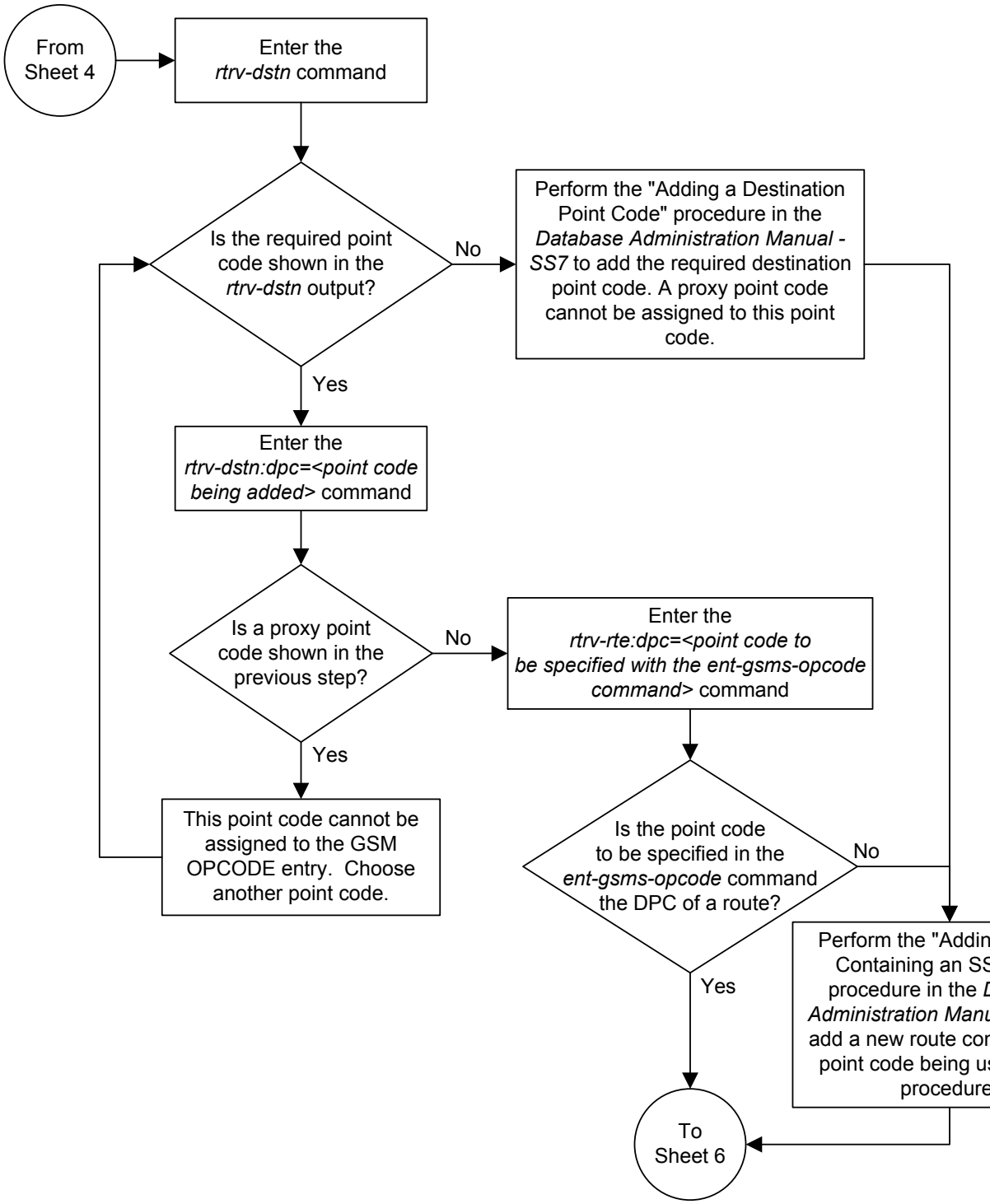
Sheet 2 of 7


From Sheet 1
Will the opcode=* or pc/pca parameters be specified with the ent-gsms-opcode command?
No
Yes
Is the MAPSET field displayed in the rtrv-gsms-opcode output on Sheet 1?
Yes
No
Enter the rtrv-ctrl-feat command with this parameter: :partnum=893012401
Do you wish to use the mapset parameter in this procedure?
No
Yes
Is the Enhanced GSM MAP Screening feature enabled and on?
Yes
No
Perform the "Activating the Flexible GTT Load Sharing Feature" procedure in the Database Administration Manual - Global Title Translation to enabled and turn on the Activating the Flexible GTT Load Sharing Feature.
Go to the "Activating the GSM MAP Screening Feature" procedure to enable and turn on the Enhanced GSM MAP Screening feature

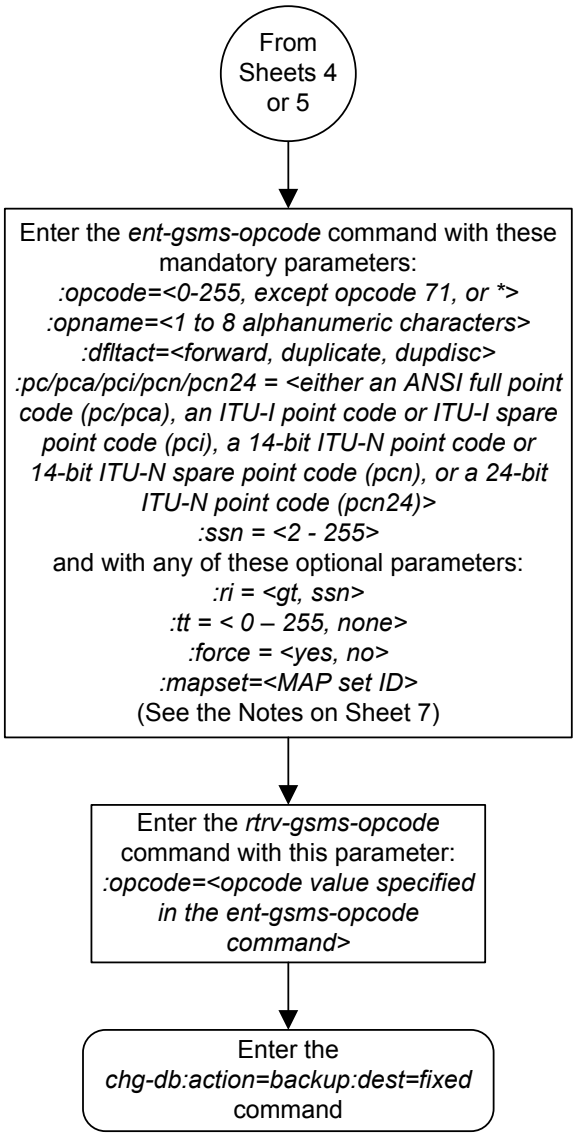
Sheet 3 of 7


From Sheet 3
Will the *force=yes* parameter be used in this procedure? (See Notes 5 and 6 on Sheet 7)
Yes
To Sheet 5
No
Enter the *rtrv-map* command
Is the point code and subsystem being used in this procedure shown in the *rtrv-map* output? (See Notes 5 and 6 on Sheet 7)
Yes
Enter the *rtrv-rte* command
No
Go to the "Provisioning a Mated Application" procedure in the *Database Administration Manual - Global Title Translation* and add a new mated application containing the point code and subsystem being used in this procedure.
If the Flexible GTT Load Sharing feature is enabled (shown on Sheet 3), the point code and subsystem specified with the *ent-gsms-opcode* command must be assigned to the MAP set that will be assigned to the GSM OPCODE entry.
Is the point code being used in this procedure shown in the *rtrv-rte* output as the DPC of a route?
Yes
No
Perform the "Adding a Route Containing an SS7 DPC" procedure in the *Database Administration Manual - SS7* to add a new route containing the point code being used in this procedure.

Sheet 4 of 7


From Sheet 4
Enter the *rtrv-dstn* command
Is the required point code shown in the *rtrv-dstn* output?
No
Perform the "Adding a Destination Point Code" procedure in the *Database Administration Manual - SS7* to add the required destination point code. A proxy point code cannot be assigned to this point code.
Yes
Enter the *rtrv-dstn:dpc=<point code being added>* command
Is a proxy point code shown in the previous step?
No
Enter the *rtrv-rte:dpc=<point code to be specified with the ent-gsms-opcode command>* command
Yes
This point code cannot be assigned to the GSM OPCODE entry. Choose another point code.
Is the point code to be specified in the *ent-gsms-opcode* command the DPC of a route?
No
Yes
Perform the "Addin
Containing an SS
procedure in the *D*
*Administration Manu*
add a new route cor
point code being us
procedure
To Sheet 6

Sheet 5 of 7


From Sheets 4 or 5
Enter the ent-gsms-opcode command with these mandatory parameters:
:opcode=<0-255, except opcode 71, or *>
:opname=<1 to 8 alphanumeric characters>
:dfltact=<forward, duplicate, dupdisc>
:pc/pca/pci/pcn/pcn24 = <either an ANSI full point code (pc/pca), an ITU-I point code or ITU-I spare point code (pci), a 14-bit ITU-N point code or 14-bit ITU-N spare point code (pcn), or a 24-bit ITU-N point code (pcn24)>
:ssn = <2 - 255>
and with any of these optional parameters:
:ri = <gt, ssn>
:tt = < 0 – 255, none>
:force = <yes, no>
:mapset=<MAP set ID>
(See the Notes on Sheet 7)
Enter the rtrv-gsms-opcode command with this parameter:
:opcode=<opcode value specified in the ent-gsms-opcode command>
Enter the chg-db:action=backup:dest=fixed command

Sheet 6 of 7

Notes:

1. The word "none" cannot be used as a value for the *opname* parameter.

2. The *pc/pca/pci/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/pci/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.

Sheet 7 of 7

# 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 procedure to remove any **GSM MAP** screening entries that reference the `opname` name value being removed from the database.

1. Display the **GSMMAP** 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 **GSMMAP** 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 procedure to remove the **CGPA** entries shown in this step.

3. Remove the **GSMMAP** 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.

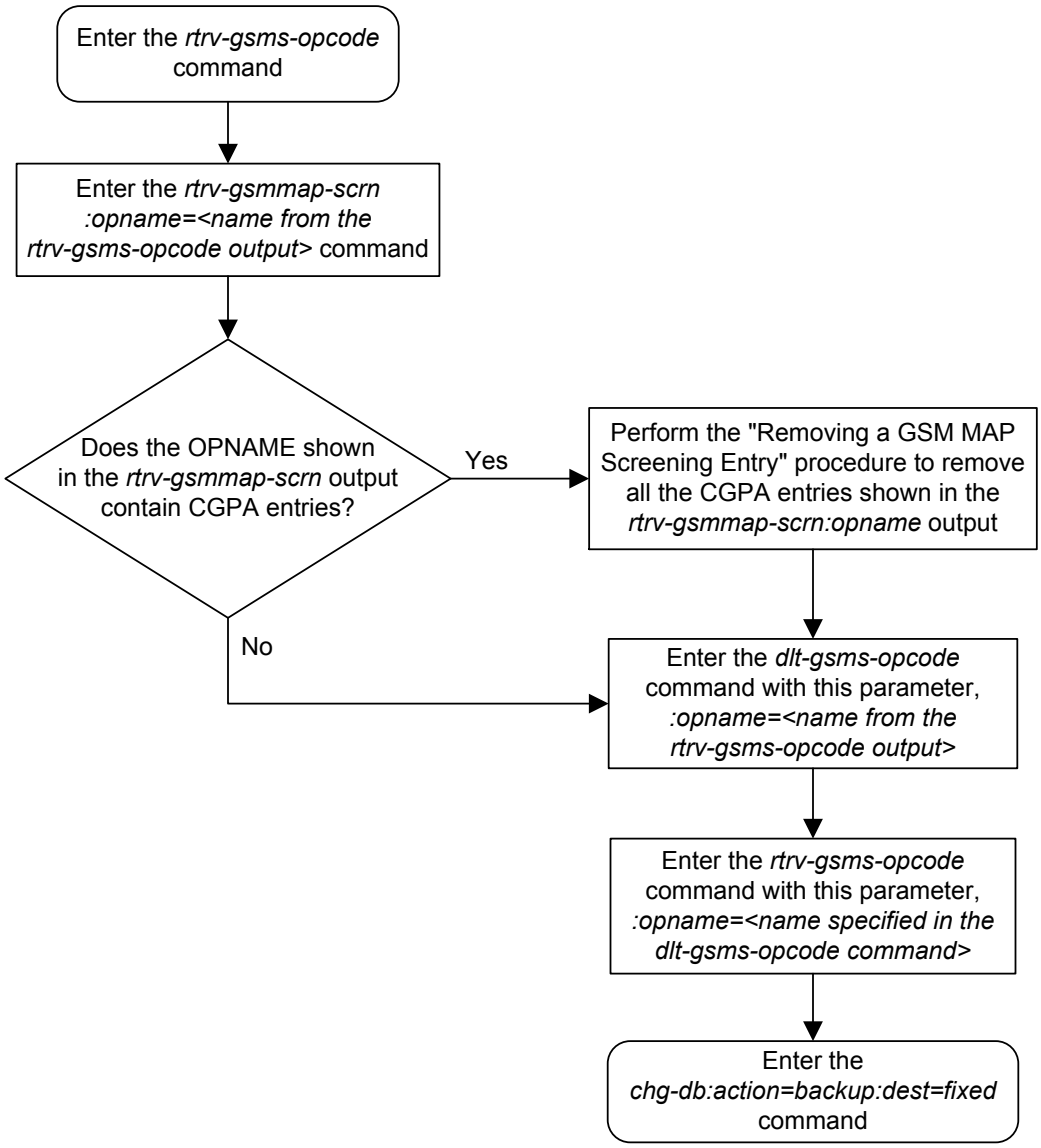
```
rlghncxa03w 06-10-10 11:43:04 GMT EAGLE5 36.0.0
E3892 Cmd Rej: OPNAME does not exist in the database
```

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 6-11 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** 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 *Database Administration* - **GTT** *User's Guide*.

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 *Database Administration* - **GTT** *User's Guide* 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 *Database Administration* - **SS7** *User's Guide* 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

GSMMS 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, continue the procedure with 8.

**Note:**

If the `npc/npca` parameters are not being used in this procedure, or if the `rtrv-gsms-opcode` output in 1 shows **ANSI** point code values (`pc/pca` parameter values) or the `opcode=*` parameter value, continue the procedure with 3.

2. Verify that the Enhanced **GSMMAP** Screening feature is enabled and on by entering the `rtrv-ctrl-feat` command with the part number of the Enhanced **GSMMAP** 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 **GSMMAP** Screening Feature" procedure 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`, continue the procedure with 8.

- If the point code is not being changed, continue the procedure with 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 1 , the Flexible GTT Load Sharing Feature must be enabled. Perform the "Activating the Flexible GTT Load Sharing Feature" procedure in the *Database Administration - GTT User's Guide* and enable the Flexible GTT Load Sharing feature. After enabling the Flexible GTT Load Sharing feature, continue the procedure with 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 1 , skip steps 4 and 5 and continue the procedure with 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 1 , continue the procedure with 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 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 10-12-10 11:43:04 GMT EAGLE5 43.0.0
Extended Processing Time may be Required

   DPCA          CLLI        BEI ELEI   ALIASI          ALIASN/N24    DMN
   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   ALIASA          ALIASN/N24    DMN
   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

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 - SS7 User's Guide* 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, perform the "Adding a Route Containing an SS7 DPC" procedure in *Database Administration - SS7 User's Guide* and add the required route to the database. After the route has been added, continue the procedure with 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 10-12-10 11:43:04 GMT EAGLE5 43.0.0

   DPCA          CLLI        BEI ELEI   ALIASI           ALIASN/N24    DMN
   010-020-005   ----------- no  ---  --------------   --------------   SS7

   PPCA         NCAI PRX     RCAUSE NPRST SPLITIAM HMSMSC HMSCP SCCPMSGCNV
   009-002-003  ---- no      50     on    20       no     no    none

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.

```
rlghncxa03w 09-05-10 11:43:04 GMT EAGLE5 41.0.0

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 *Database Administration* - **SS7** *User's Guide* and add the adjacent point code to the destination point code table.

   After the new point code has been added, perform the "Adding a Route Containing an SS7 DPC" procedure in *Database Administration - SS7 User's Guide* and add the required route to the database. After the route has been added, continue the procedure with 8 .

6. 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 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 09-07-25 09:42:31  GMT  EAGLE5 41.1.0

PCI          Mate PCI     SSN RC MULT SRM MRC GRP NAME SSO
4-038-1                    50 10  SOL *N  *N  GRP01    ON

MAP TABLE IS (20 of 1024) 2 % FULL
```

> **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 8 .

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).

7. 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 ls300001   10    4-038-1
                                           ls300002   10    2-066-7
                                           ls300003   20    5-087-4
                                               RTX:No  CLLI=idp1
   ```

   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 *Database Administration* - **SS7** *User's Guide* and add the required route to the database.

8. Change the attributes of **GSMMAP** 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 :nm
apset=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
```

These are the rules that apply to changing a GSM MAP screening operation code.

a. The word "none" cannot be used as a value for the `opname` or `nopname` parameters.

b. The EAGLE can contain 14-bit ITU-N point codes or 24-bit ITU-N point codes, but not both.

c. If the point code and subsystem number values are not being changed, the `npc/npca/npci/npcn/npcn24` and `nssn` parameters must be specified with the current values for these parameters.

d. The `npc/npca/npci/npcn/npcn24` value must be shown in the `rtrv-rte` output on 7 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.

e. If the Flexible GTT Load Sharing feature is not enabled, shown on 1, the `npc/npca/npci/npcn/npcn24` and `nssn` values must be shown in the `rtrv-map` output on 6. If the `npc/npca/npci/npcn/npcn24` or `nssn` values are not shown in the `rtrv-map` output, the `force=yes` parameter must be specified.

f. If the Flexible GTT Load Sharing feature is enabled, shown on 1, 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).

g. If the Flexible GTT Load Sharing feature is enabled, shown on 1, and 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 on 6. 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.

h. If the Flexible GTT Load Sharing feature is enabled, shown on 1, and 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 on 6.

i. To specify the `npc/npca` parameters, the Enhanced GSM MAP Screening feature must be enabled and turned on.

j. 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).

k. If the Flexible GTT Load Sharing feature is enabled, shown on 1, 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.

l. If an optional parameter is not specified, the value for that parameter is not changed.

m. 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.

n. 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.

9. Verify the changes using the `rtrv-gsms-opcode` command with the `opname` parameter value specified in 8 .

If the `opname` parameter value was changed in 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.

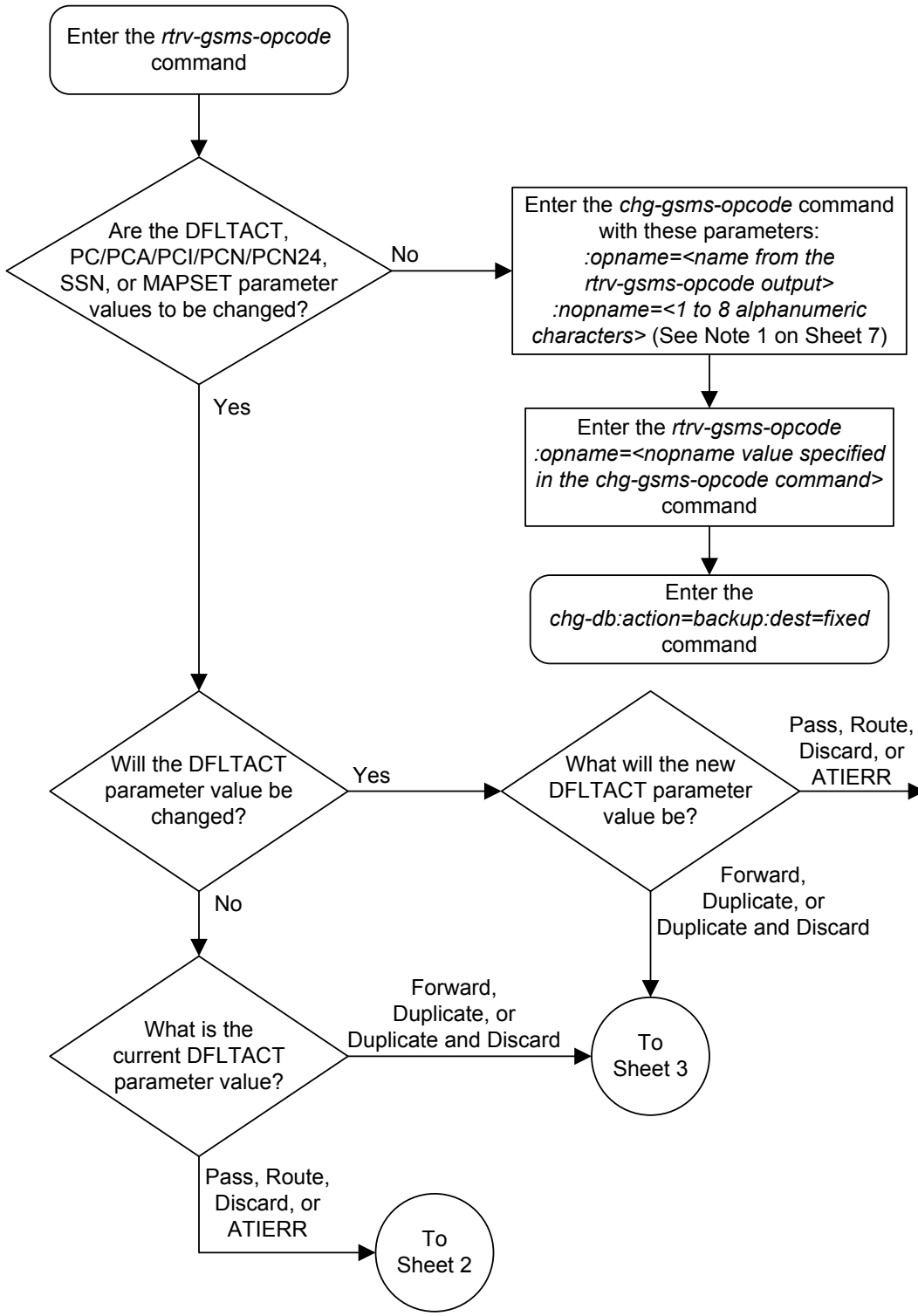
```
rlghncxa03w 08-09-10 11:43:04 GMT EAGLE5 39.2.0
OPCODE  OPNAME    DFLTACT    PCI          SSN   MAPSET RI  TT
139     fwd1000   fwd        4-38-1       50    18     gt  60

GSMMS OPCODE Table (10 of 257) is 4% full
```

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

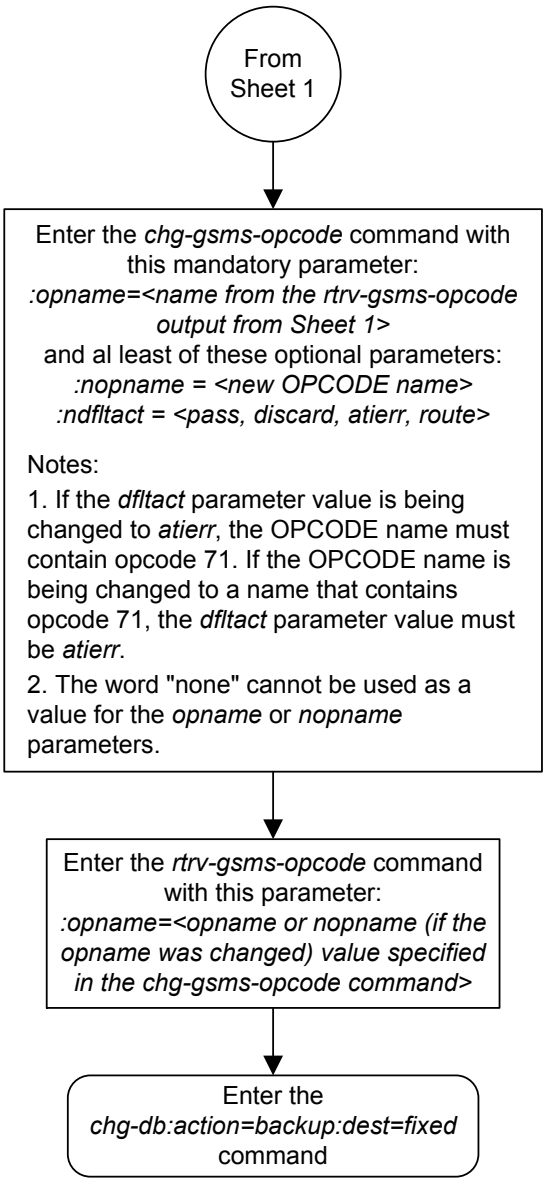
    These messages should appear, the active **Maintenance and Administration Subsystem** Processor (**MASP**) appears first.

```
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.
```

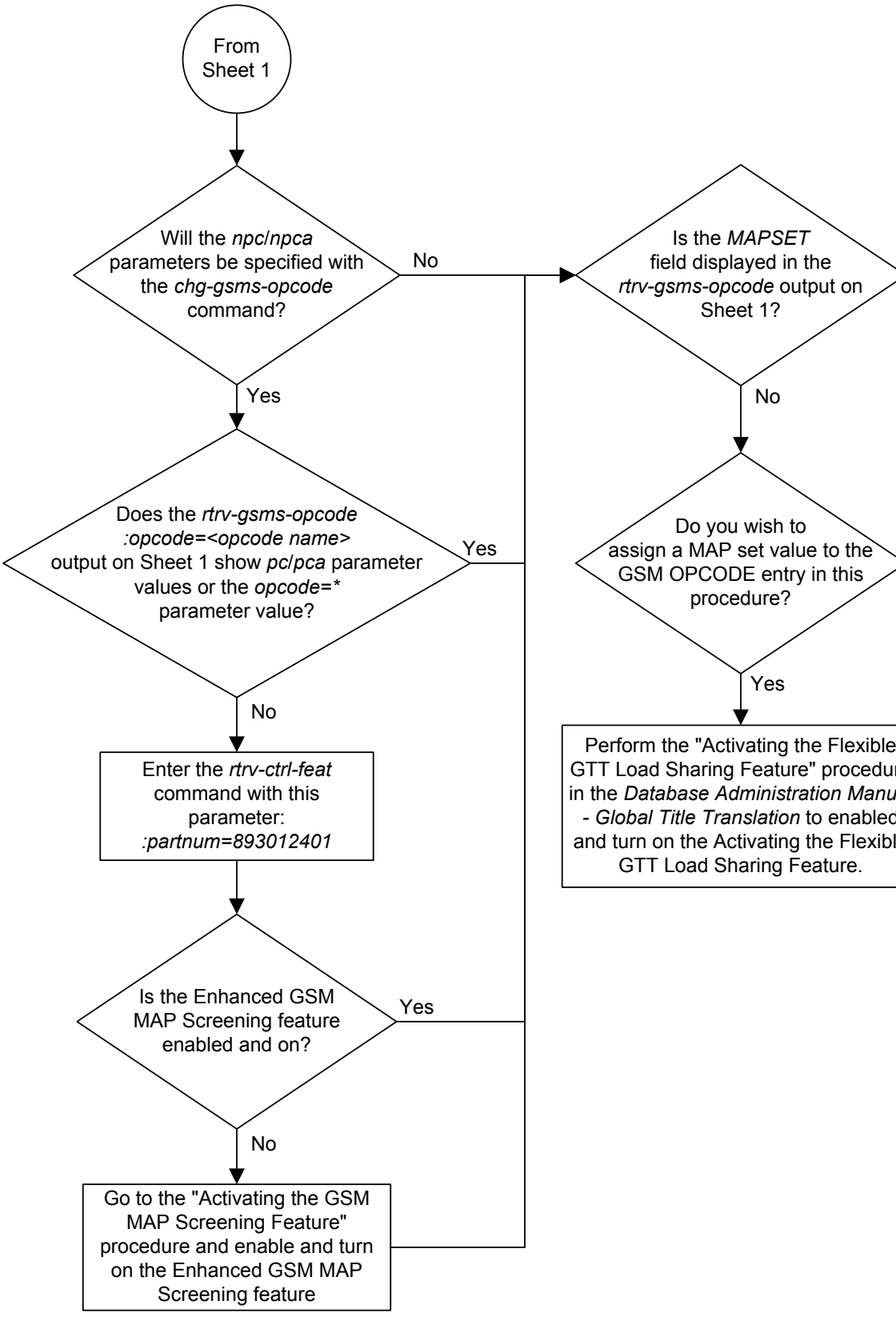
**Figure 6-12 Changing a GSM MAP Screening Operation Code**



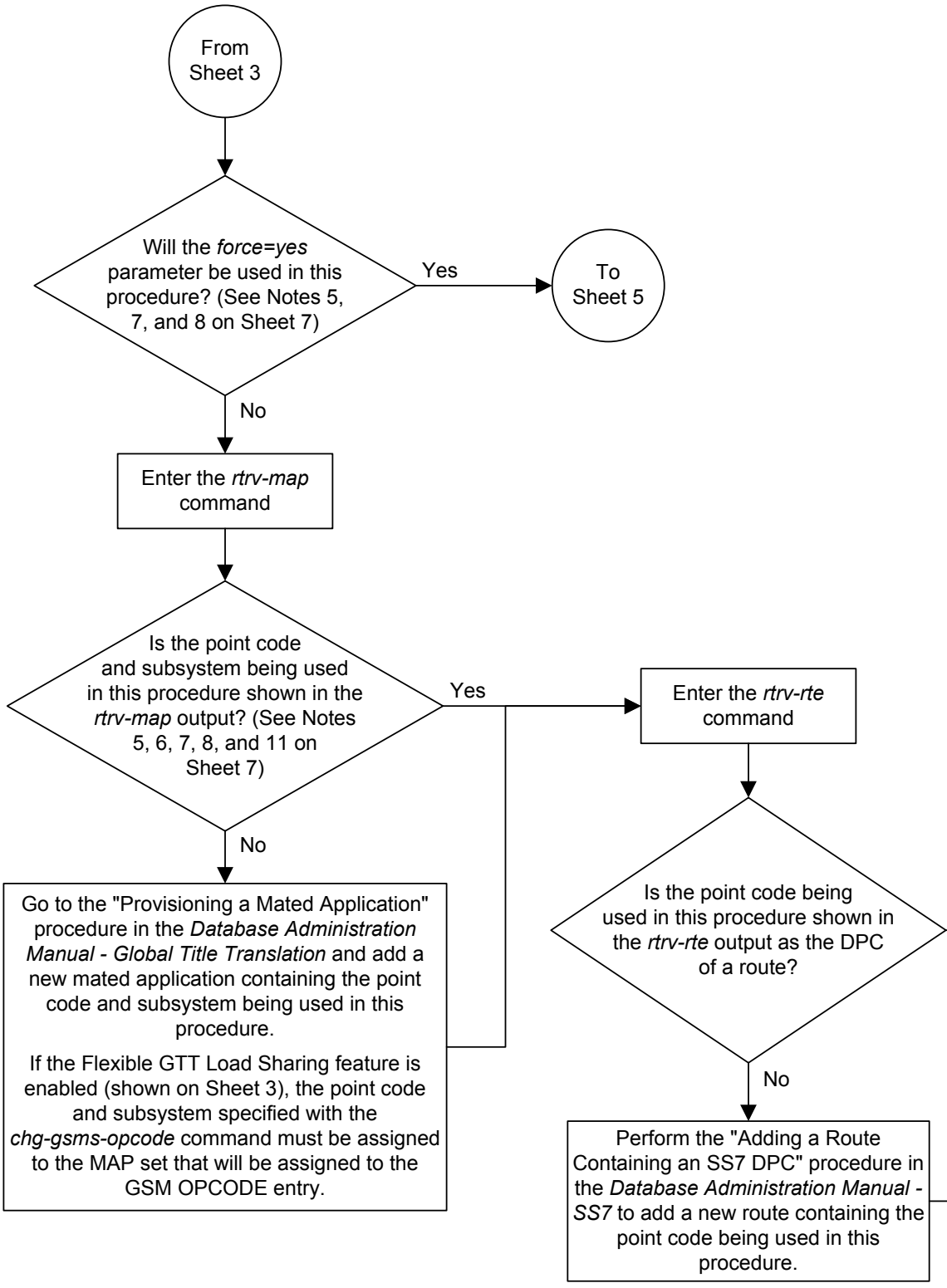
Sheet 1 of 7


From Sheet 1
Enter the chg-gsms-opcode command with this mandatory parameter:
:opname=<name from the rtrv-gsms-opcode output from Sheet 1>
and al least of these optional parameters:
:nopname = <new OPCODE name>
:ndfltact = <pass, discard, atierr, route>
Notes:
1. If the dfltact parameter value is being changed to atierr, the OPCODE name must contain opcode 71. If the OPCODE name is being changed to a name that contains opcode 71, the dfltact parameter value must be atierr.
2. The word "none" cannot be used as a value for the opname or nopname parameters.
Enter the rtrv-gsms-opcode command with this parameter:
:opname=<opname or nopname (if the opname was changed) value specified in the chg-gsms-opcode command>
Enter the chg-db:action=backup:dest=fixed command

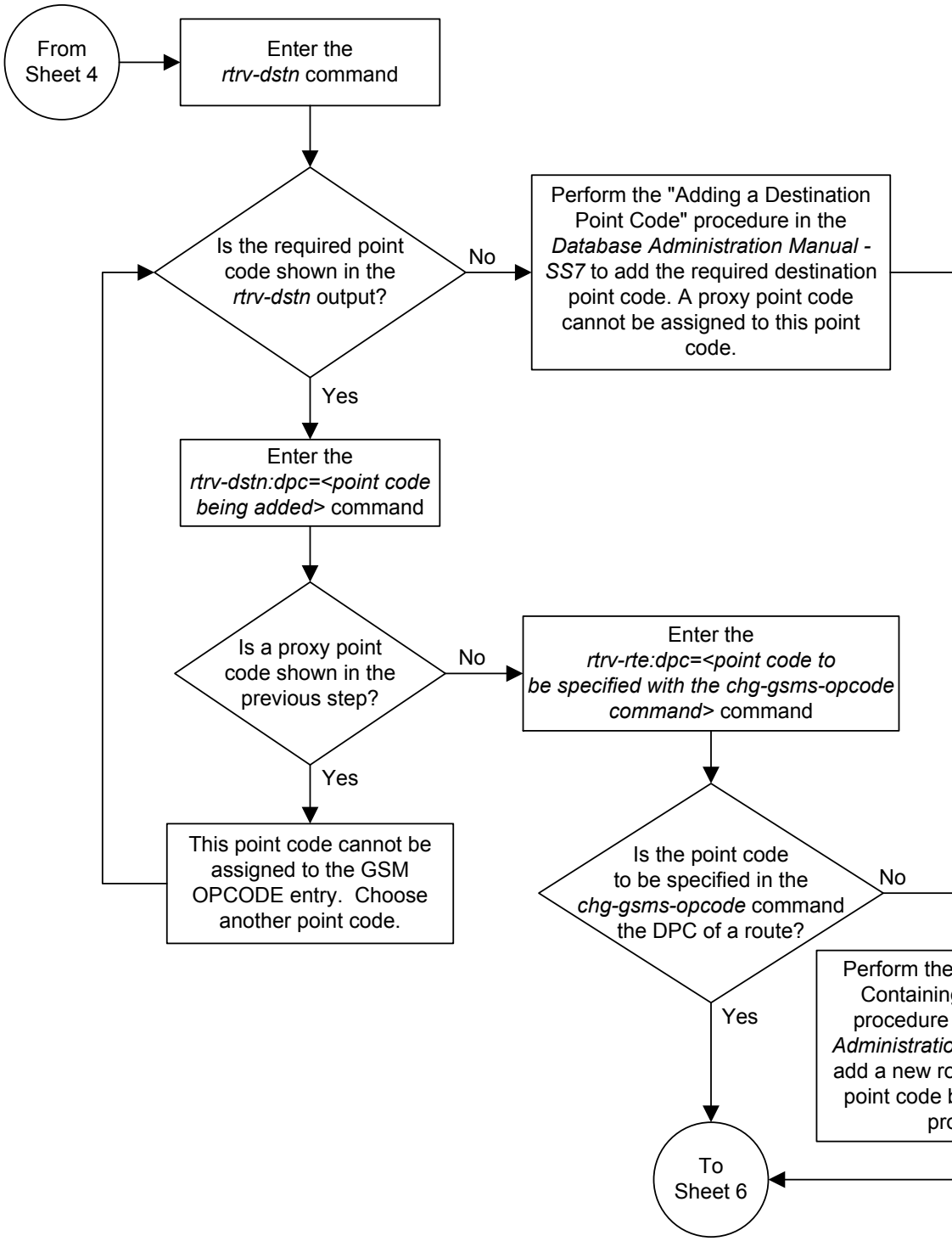
Sheet 2 of 7


From Sheet 1
Will the *npc/npca* parameters be specified with the *chg-gsms-opcode* command?
No
Yes
Is the *MAPSET* field displayed in the *rtrv-gsms-opcode* output on Sheet 1?
No
Yes
Does the *rtrv-gsms-opcode :opcode=<opcode name>* output on Sheet 1 show *pc/pca* parameter values or the *opcode=** parameter value?
Yes
No
Do you wish to assign a MAP set value to the GSM OPCODE entry in this procedure?
Yes
Perform the "Activating the Flexible GTT Load Sharing Feature" procedu in the *Database Administration Manu - Global Title Translation* to enable and turn on the Activating the Flexibl GTT Load Sharing Feature.
Enter the *rtrv-ctrl-feat* command with this parameter: *:partnum=893012401*
Is the Enhanced GSM MAP Screening feature enabled and on?
Yes
No
Go to the "Activating the GSM MAP Screening Feature" procedure and enable and turn on the Enhanced GSM MAP Screening feature

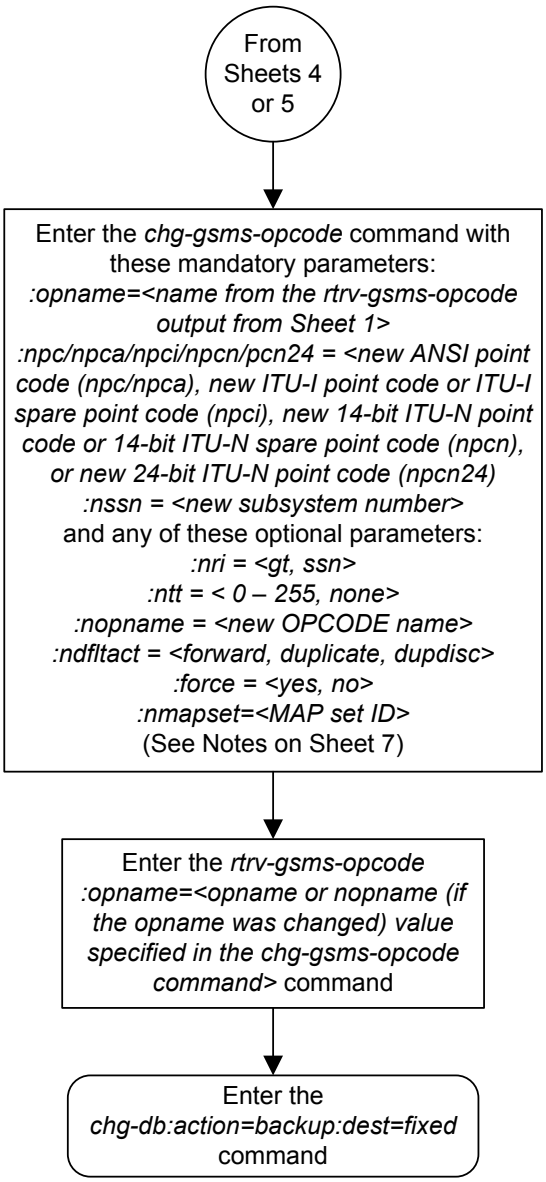
Sheet 3 of 7


From Sheet 3
Will the *force=yes* parameter be used in this procedure? (See Notes 5, 7, and 8 on Sheet 7)
Yes
To Sheet 5
No
Enter the *rtrv-map* command
Is the point code and subsystem being used in this procedure shown in the *rtrv-map* output? (See Notes 5, 6, 7, 8, and 11 on Sheet 7)
Yes
Enter the *rtrv-rte* command
No
Go to the "Provisioning a Mated Application" procedure in the *Database Administration Manual - Global Title Translation* and add a new mated application containing the point code and subsystem being used in this procedure.
If the Flexible GTT Load Sharing feature is enabled (shown on Sheet 3), the point code and subsystem specified with the *chg-gsms-opcode* command must be assigned to the MAP set that will be assigned to the GSM OPCODE entry.
Is the point code being used in this procedure shown in the *rtrv-rte* output as the DPC of a route?
No
Perform the "Adding a Route Containing an SS7 DPC" procedure in the *Database Administration Manual - SS7* to add a new route containing the point code being used in this procedure.

Sheet 4 of 7


From Sheet 4
Enter the rtrv-dstn command
Is the required point code shown in the rtrv-dstn output?
No
Perform the "Adding a Destination Point Code" procedure in the Database Administration Manual - SS7 to add the required destination point code. A proxy point code cannot be assigned to this point code.
Yes
Enter the rtrv-dstn:dpc=<point code being added> command
Is a proxy point code shown in the previous step?
No
Enter the rtrv-rte:dpc=<point code to be specified with the chg-gsms-opcode command> command
Yes
This point code cannot be assigned to the GSM OPCODE entry. Choose another point code.
Is the point code to be specified in the chg-gsms-opcode command the DPC of a route?
No
Yes
Perform the Containin procedure Administratio add a new ro point code b pro
To Sheet 6

Sheet 5 of 7


From Sheets 4 or 5
Enter the chg-gsms-opcode command with these mandatory parameters:
:opname=<name from the rtrv-gsms-opcode output from Sheet 1>
:npc/npca/npci/npcn/pcn24 = <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)
:nssn = <new subsystem number>
and any of these optional parameters:
:nri = <gt, ssn>
:ntt = < 0 – 255, none>
:nopname = <new OPCODE name>
:ndfltact = <forward, duplicate, dupdisc>
:force = <yes, no>
:nmapset=<MAP set ID>
(See Notes on Sheet 7)
Enter the rtrv-gsms-opcode :opname=<opname or nopname (if the opname was changed) value specified in the chg-gsms-opcode command> command
Enter the chg-db:action=backup:dest=fixed command

Sheet 6 of 7

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*/*npci*/*npcn*/*npcn24* and *nssn* parameters must be specified with the current values for these parameters.

4. The *npc*/*npca*/*npci*/*npcn*/*npcn24* 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*/*npci*/*npcn*/*npcn24* and *nssn* values must be shown in the *rtrv-map* output on Sheet 4. If the *npc*/*npca*/*npci*/*npcn*/*npcn24* 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 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*/*npci*/*npcn*/*npcn24* and *nssn* values must be shown in the default MAP set in the *rtrv-map* output on Sheet 4. 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.

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*/*npci*/*npcn*/*npcn24* 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 substem 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.

Sheet 7 of 7

# 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 **ATIMAP** 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** 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 **GSMMAP** 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 **GSMMAP** 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 **GSMATI** 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. **GSMMAP** 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 **GTTLoad Sharing** feature is enabled. The status of the Flexible **GTTLoad Sharing** feature is shown in the `rtrv-ctrl-feat` output. To enable the Flexible **GTTLoad Sharing** feature, perform the "Activating the Flexible **GTTLoad Sharing** Feature" procedure in *Database Administration* - **GTT** *User's Guide*.

`: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 6-6 shows the parameter combinations that can be used in this procedure.

**Table 6-6 Add GSM MAP Screening Entry Parameter Combinations**

| 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 |
|---|---|---|---|---|---|
| **Mandatory Parameters** | | | | | |
| :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 |
| :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) | | |

**Table 6-6 (Cont.) Add GSM MAP Screening Entry Parameter Combinations**

| 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 |
|---|---|---|---|---|---|
| :naiv = 0 - 127, or * (See Note 8)<br>:pc/pca/pci/pcn/ pcn24 = point code value (See Notes 10, 11, 12, 13, and 14)<br>:ssn = 0 - 255, none (See Notes 13, 14, and 16)<br>:force=yes (See Notes 13 and 14)<br>:mapset = dflt or numbered MAP set ID (See Notes 13 and 14)<br>:ri = gt, ssn (See Note 16)<br>:tt = 0 - 255, none | :naiv = 0 - 127, or * (See Note 8) | :naiv = 0 - 127, or * (See Note 8) | :ssn = 0 - 255, none (See Notes 13, 14, and 16)<br>:force=yes (See Notes 13 and 14)<br>:mapset= dflt or numbered **MAP** set **ID** (See Notes 13 and 14)<br>:ri = gt, ssn (See Note 16)<br>:tt = 0 - 255, none | | |

**Table 6-6 (Cont.) Add GSM MAP Screening Entry Parameter Combinations**

| 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:

1. When a **CGPA** entry (`cgsr` parameter is specified without the `cdsr` 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 `rtrv-gsmmap-scrn` 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.

2. The `opname` parameter value must be shown in either the `rtrv-gsms-opcode` or `rtrv-gsmmap-scrn` output.

3. The `cgsr` and `cdsr` parameter values consist of 1 alphabetic character and up to 3 optional alphanumeric characters. If the `cdsr` 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 `cdsr` parameter is specified, a **CDPA** entry is created in the GSM MAP Screening table.

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.

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.

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.

7. The `eaddr` parameter cannot be specified with the `saddr=*` parameter.

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.

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.

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 *Database Administration - SS7 User's Guide* and add a new route containing the point code value.

**Table 6-6 (Cont.) Add GSM MAP Screening Entry Parameter Combinations**

| 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 |
|---|---|---|---|---|---|

11. The EAGLE can contain 14-bit **ITU**-N point codes or 24-bit ITU-N point codes, but not both at the same time.

12. If either the point code or `ssn` parameters are specified, then both the point code and `ssn` parameters must be specified.

13. If the Flexible GTT Load Sharing feature is not enabled:

- 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. If the point code and subsystem number 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 *Database Administration - GTT User's Guide* and add the required mated application with the point code and subsystem number values.

14. If the Flexible GTT Load Sharing feature is enabled:

- The `mapset` parameter must be specified.
- • The `force=yes` 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 `force=yes` 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 `force=yes` parameter is not specified, the point code and subsystem contained in the GSM MAP screening entry must be in the default MAP set.

15. If the `forbid=none` parameter is specified, then the `action=pass` parameter must be specified.

16. If the `ri=ssn` parameter is specified, a numerical value must be specified for the `ssn` parameter.

**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 Tables 5-7 and 5-8.

**Table 6-7 Example CGPA GSM MAP Screening Configuration Table**

| CGSR | SADDR | EADDR | NPV | NAIV | OPNAME | FORBID |
|---|---|---|---|---|---|---|
| cg01 | 9194600000 | --- | 5 | 75 | pass50 | none |
| cg02 | 2525551000000 | 2527000000000 | 12 | 37 | discard1 | all |
| cg03 | 8284540000 | 8284600000 | --- | --- | ati | state |
| cg04 | 2416546464 | --- | 0 | 127 | route25 | none |
| cg05 | 854000000 | 857000000 | 3 | 99 | dd93 | all |
| cg06 | 1543630000000 | 1550000000000 | 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 6-8 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 |
| 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 **GSMMAP** 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  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     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

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 **GSMMAP** Screening Operation Code" procedure 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 **GSMMAP** screening entries in the database.

   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

   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
   ```

   This is an example of the possible output.

   ```
   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 ati1

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
919461888888888 919461900000000 4  1   locat atier ati2
919462000000000 919463000000000 *  *   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.

`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 **GSMMAP** Screening feature is enabled and on by entering the `rtrv-ctrl-feat` command with the part number of the Enhanced **GSMMAP** 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 **GSMMAP** Screening Feature" procedure 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 **GTTLoad Sharing** Feature" procedure in *Database Administration* - **GTT** *User's Guide* and enable the Flexible **GTTLoad Sharing** feature. After enabling the Flexible **GTTLoad 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 10-12-10 11:43:04 GMT EAGLE5 43.0.0
Extended Processing Time may be Required

   DPCA          CLLI        BEI ELEI   ALIASI          ALIASN/N24    DMN
   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   ALIASA          ALIASN/N24    DMN
   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

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 *Database Administration - SS7 User's Guide* 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 anDatabased perform the "Adding a Route Containing an SS7 DPC" procedure in *Database Administration* - **SS7** *User's Guide* 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 10-12-10 11:43:04 GMT EAGLE5 43.0.0

      DPCA          CLLI        BEI ELEI   ALIASI           ALIASN/N24    DMN
      010-020-005   ----------- no  --- --------------   --------------   SS7

      PPCA         NCAI PRX     RCAUSE NPRST SPLITIAM HMSMSC HMSCP SCCPMSGCNV
      009-002-003  ---- no      50     on    20       no     no    none

   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.

   ```
   rlghncxa03w 09-05-10 11:43:04 GMT EAGLE5 41.0.0

   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 *Database Administration* - **SS7** *User's Guide* 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 *Database Administration* - **SS7** *User's Guide* and add the required route to the database. After the route has been added, continue the procedure with step 9.

7. 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 09-07-25 09:42:31  GMT  EAGLE5 41.1.0

PCI          Mate PCI     SSN RC MULT SRM MRC GRP NAME SSO
3-201-5                   100 10  SOL *N  *N  GRP01    ON

MAP TABLE IS (20 of 1024) 2 % FULL
```

`rtrv-map:pcn=9384:ssn=30`

This is an example of the possible output.

```
rlghncxa03w 09-07-25 09:42:31  GMT  EAGLE5 41.1.0

PCN          Mate PCN     SSN RC MULT SRM MRC GRP NAME SSO
9384                       30 10  SOL *N  *N  GRP01    ON

MAP TABLE IS (20 of 1024) 2 % FULL
```

`rtrv-map:pci=4-102-6:ssn=150`

This is an example of the possible output.

```
rlghncxa03w 09-07-25 09:42:31  GMT  EAGLE5 41.1.0

PCI          Mate PCI     SSN RC MULT SRM MRC GRP NAME SSO
4-102-6                   150 10  SOL *N  *N  GRP01    ON

MAP TABLE IS (20 of 1024) 2 % FULL
```

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 09-07-25 09:42:31  GMT  EAGLE5 41.1.0

MAPSET ID=DFLT
PCI          Mate PCI     SSN RC MULT SRM MRC GRP NAME SSO
3-201-5                   100 10  SOL *N  *N  GRP01    ON

MAP TABLE IS (20 of 1024) 2 % FULL
```

`rtrv-map:pcn=9384:ssn=30`

This is an example of the possible output.

```
rlghncxa03w 09-07-25 09:42:31  GMT  EAGLE5 41.1.0

MAPSET ID=10
PCN          Mate PCN     SSN RC MULT SRM MRC GRP NAME SSO
```

```
9384                      30 10  SOL *N  *N  GRP01    ON

MAP TABLE IS (20 of 1024) 2 % FULL
```

`rtrv-map:pci=4-102-6:ssn=150`

This is an example of the possible output.

```
rlghncxa03w 09-07-25 09:42:31  GMT  EAGLE5 41.1.0

MAPSET ID=20
PCI          Mate PCI     SSN RC MULT SRM MRC GRP NAME SSO
4-102-6                   150 10  SOL *N  *N  GRP01    ON

MAP TABLE IS (20 of 1024) 2 % FULL
```

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 *Database Administration* - **GTT** *User's Guide* 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 ls100001   10    1-234-5
                                        ls100002   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=idp1
```

`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
                                        ls200002   10    11112
                                        ls200003   20    11113
                                        ls200004   30    11114
                                        ls200005   40    11115
                                        ls200006   50    11116
                                            RTX:No  CLLI=ndp1
```

`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
                                        ls100002   10    3-250-6
                                        ls100003   20    7-34-7
                                        ls100004   30    6-98-1
                                        ls100005   40    3-142-2
                                        ls100006   50    1-178-3
                                            RTX:No  CLLI=idp1
```

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 *Database Administration* - **SS7** *User's Guide* and add the required route to the database.

9. Add the new **CGPAGSMMAP** 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 6-6 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=non
e:action=pass:cgsr=cg01
```

```
ent-gsmmap-
scrn:saddr=252555100000:eaddr=252700000000:npv=12:naiv=37 :op
name=discard1:forbid=all :action=discard:cgsr=cg02
```

```
ent-gsmmap-
scrn:saddr=8284540000:eaddr=8284600000:opname=ati :forbid=sta
te: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 :m
apset=dflt
```

```
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=al
```

```
l: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-GSMMAP-SCRN: MASP A - COMPLTD
```

10. 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   155000000000    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 **CDPAGSMMAP** screening entries to the database with the `ent-gsmmap-scrn` command.

> **Note:**
>
> If a **CDPA** entry is not being added, or if the Enhanced **GSMMAP** 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 6-6 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=dup187: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-GSMMAP-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=dup187:cgsr=cg07:cdsr=cd10`

This is an example of the possible output.

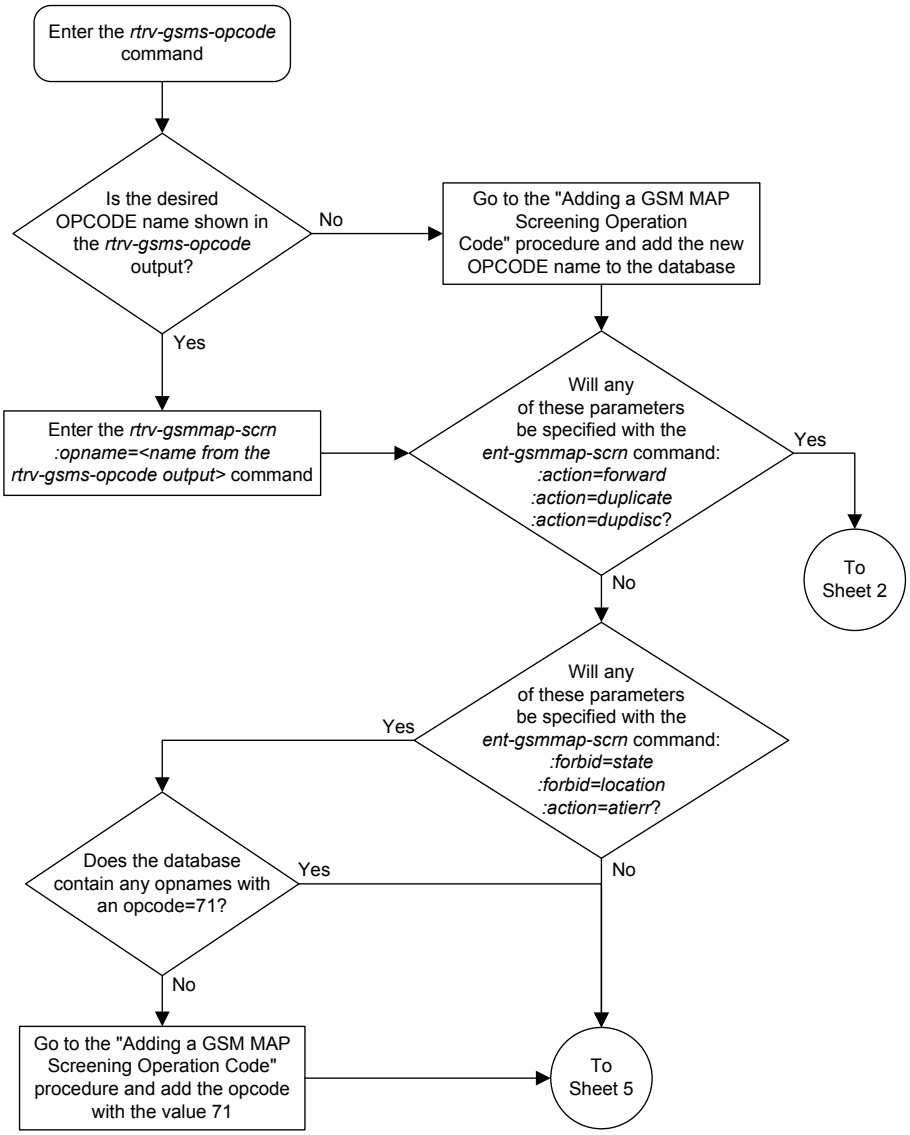
```
rlghncxa03w 08-09-20 09:07:58 GMT  EAGLE5 39.2.0

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.

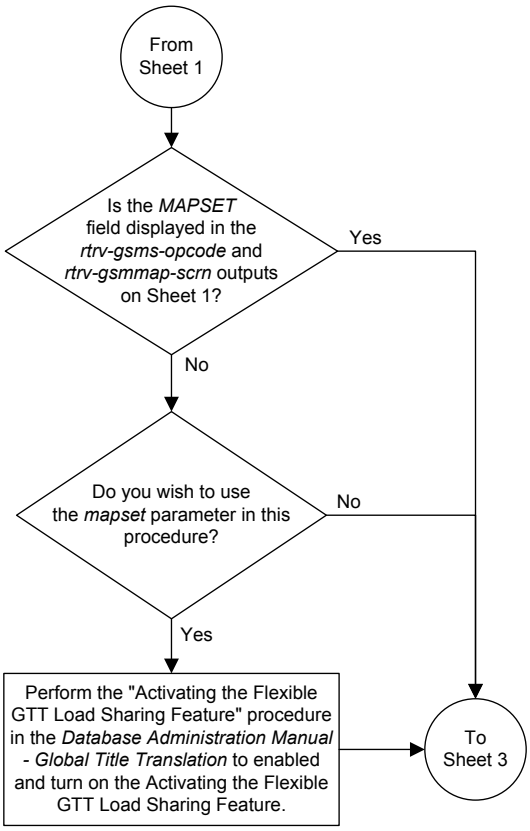
    These messages should appear, the active **Maintenance and Administration Subsystem** Processor (**MASP**) appears first.

```
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.
```

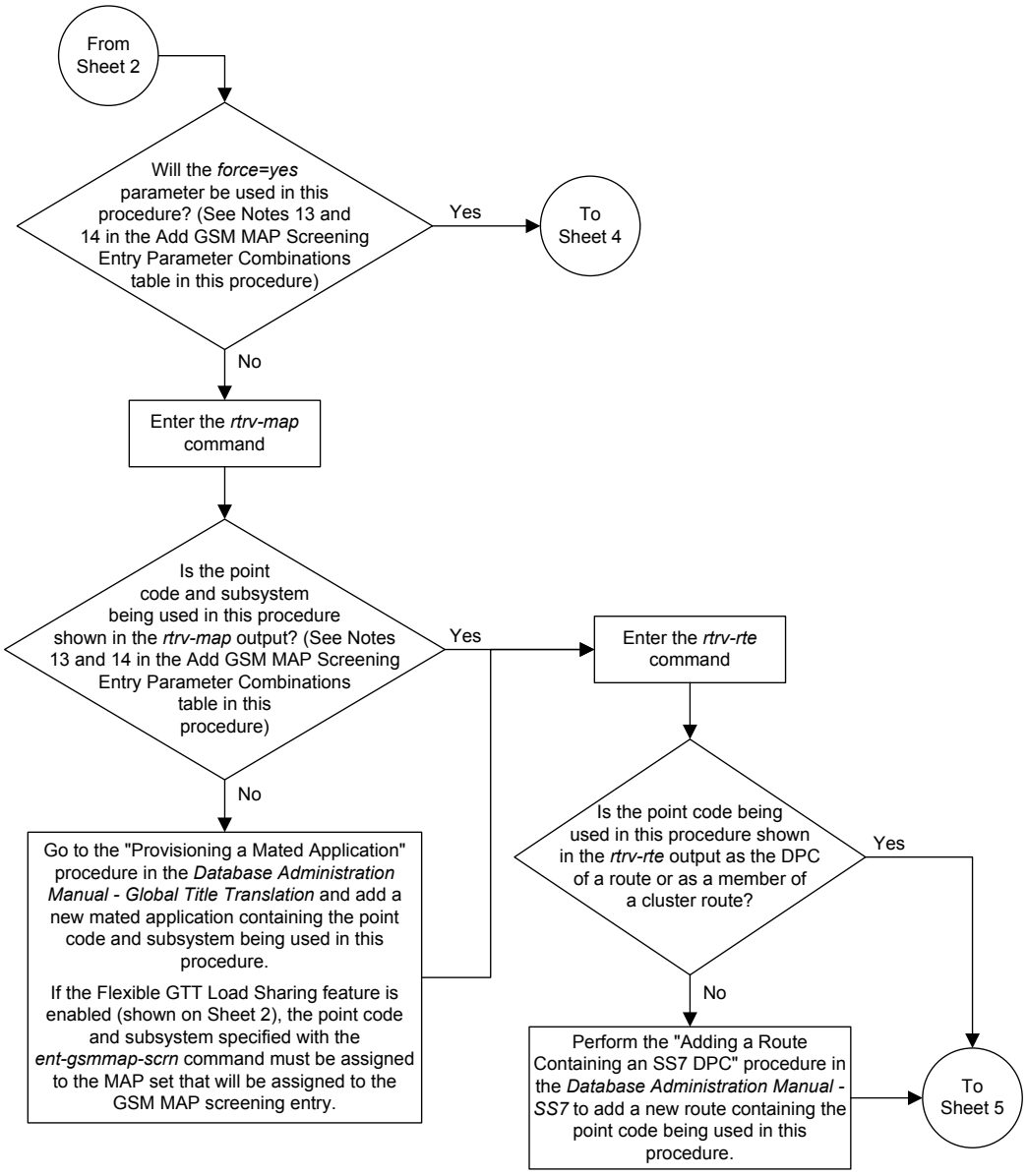
**Figure 6-13 Adding a GSM MAP Screening Entry**



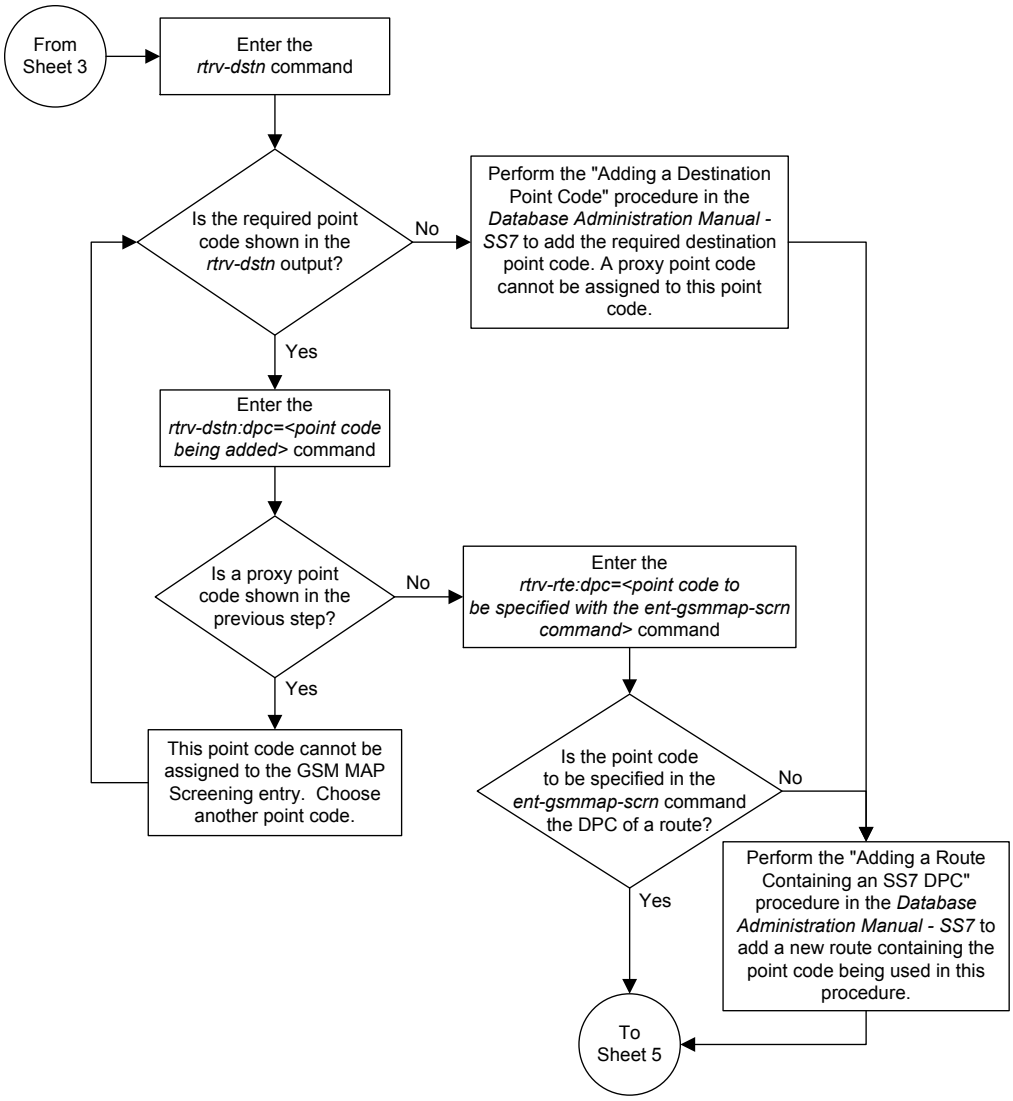

Sheet 1 of 8


From Sheet 1
Is the *MAPSET* field displayed in the *rtrv-gsms-opcode* and *rtrv-gsmmap-scrn* outputs on Sheet 1?
Yes
No
Do you wish to use the *mapset* parameter in this procedure?
No
Yes
Perform the "Activating the Flexible GTT Load Sharing Feature" procedure in the *Database Administration Manual - Global Title Translation* to enabled and turn on the Activating the Flexible GTT Load Sharing Feature.
To Sheet 3

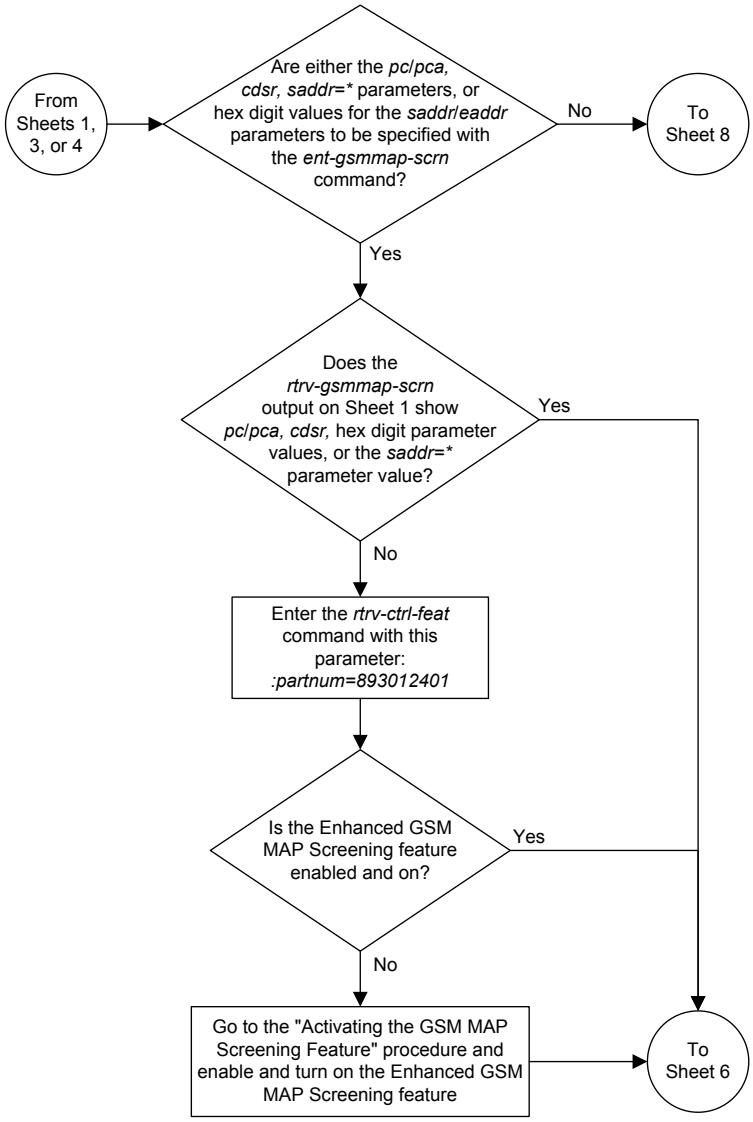
Sheet 2 of 8


From Sheet 2
Will the *force=yes* parameter be used in this procedure? (See Notes 13 and 14 in the Add GSM MAP Screening Entry Parameter Combinations table in this procedure)
Yes
To Sheet 4
No
Enter the *rtrv-map* command
Is the point code and subsystem being used in this procedure shown in the *rtrv-map* output? (See Notes 13 and 14 in the Add GSM MAP Screening Entry Parameter Combinations table in this procedure)
Yes
Enter the *rtrv-rte* command
No
Go to the "Provisioning a Mated Application" procedure in the *Database Administration Manual - Global Title Translation* and add a new mated application containing the point code and subsystem being used in this procedure.
If the Flexible GTT Load Sharing feature is enabled (shown on Sheet 2), the point code and subsystem specified with the *ent-gsmmap-scrn* command must be assigned to the MAP set that will be assigned to the GSM MAP screening entry.
Is the point code being used in this procedure shown in the *rtrv-rte* output as the DPC of a route or as a member of a cluster route?
Yes
No
Perform the "Adding a Route Containing an SS7 DPC" procedure in the *Database Administration Manual - SS7* to add a new route containing the point code being used in this procedure.
To Sheet 5

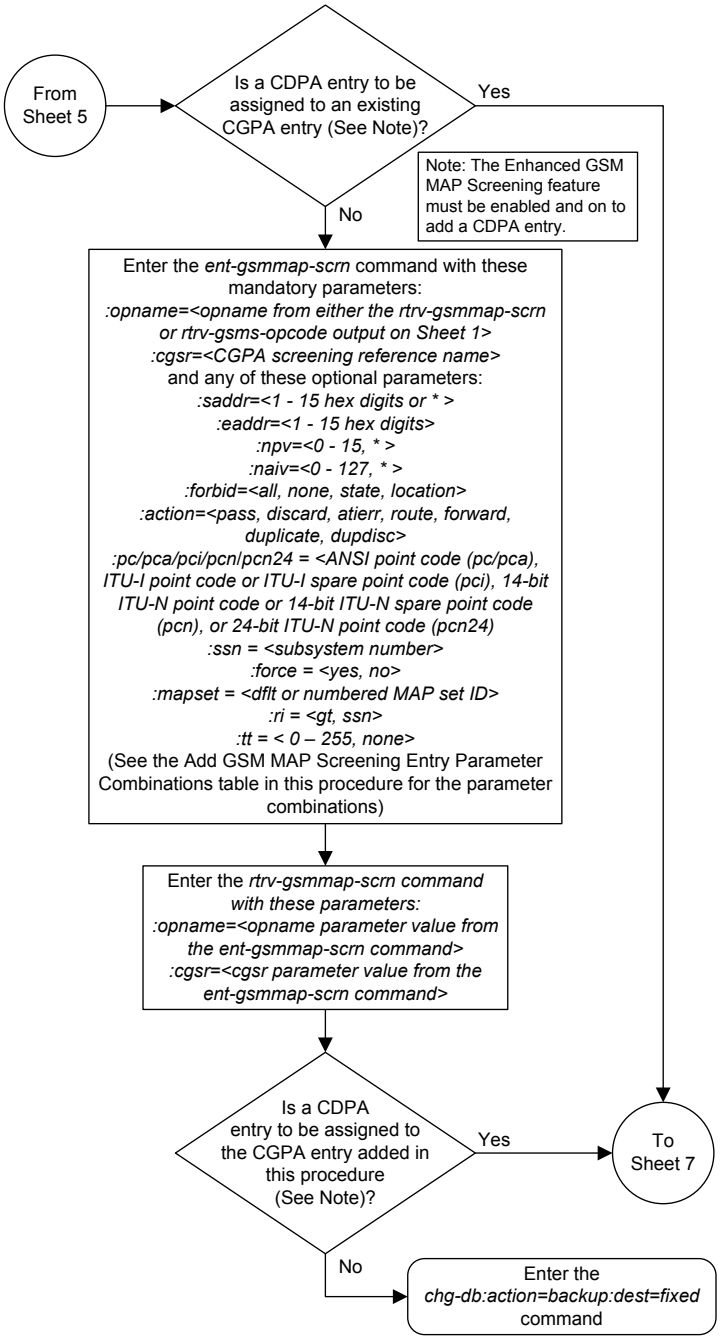
Sheet 3 of 8


From Sheet 3
Enter the rtrv-dstn command
Is the required point code shown in the rtrv-dstn output?
No
Perform the "Adding a Destination Point Code" procedure in the Database Administration Manual - SS7 to add the required destination point code. A proxy point code cannot be assigned to this point code.
Yes
Enter the rtrv-dstn:dpc=<point code being added> command
Is a proxy point code shown in the previous step?
No
Enter the rtrv-rte:dpc=<point code to be specified with the ent-gsmmap-scrn command> command
Yes
This point code cannot be assigned to the GSM MAP Screening entry. Choose another point code.
Is the point code to be specified in the ent-gsmmap-scrn command the DPC of a route?
No
Yes
Perform the "Adding a Route Containing an SS7 DPC" procedure in the Database Administration Manual - SS7 to add a new route containing the point code being used in this procedure.
To Sheet 5

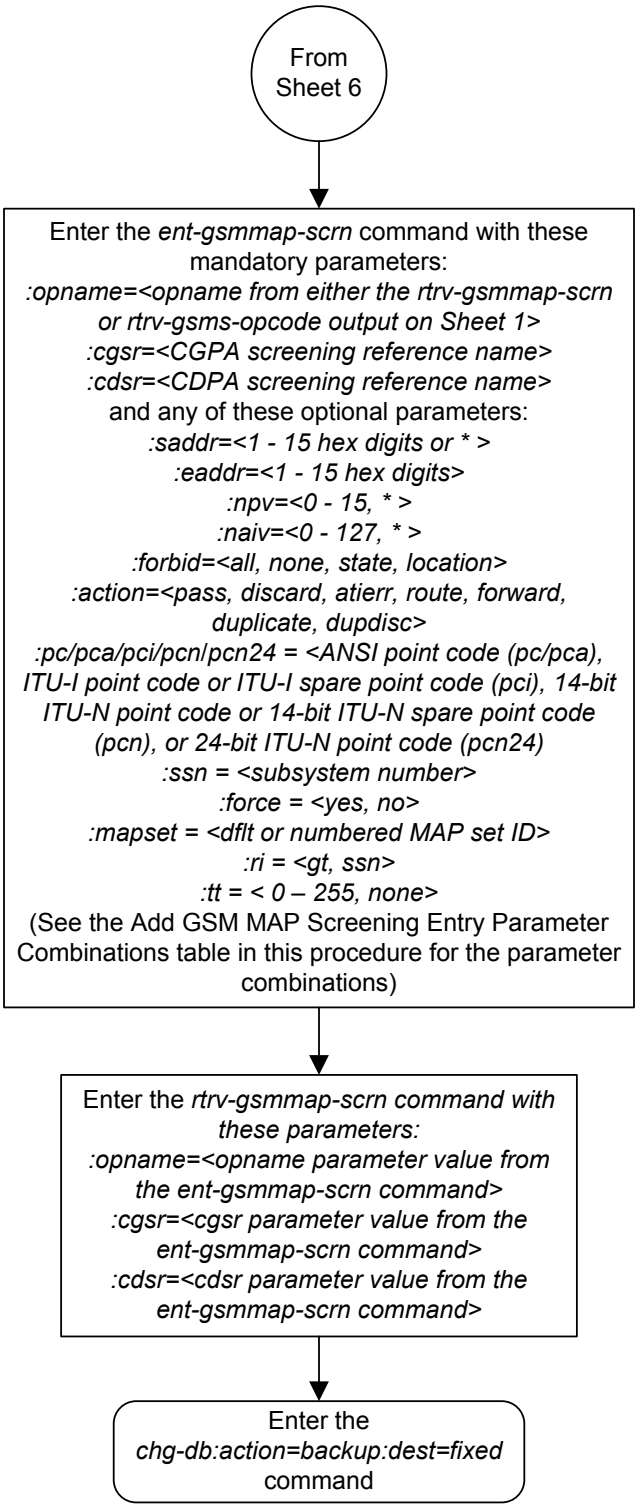
Sheet 4 of 8


From Sheets 1, 3, or 4
Are either the pc/pca, cdsr, saddr=* parameters, or hex digit values for the saddr/eaddr parameters to be specified with the ent-gsmmap-scrn command?
No
To Sheet 8
Yes
Does the rtrv-gsmmap-scrn output on Sheet 1 show pc/pca, cdsr, hex digit parameter values, or the saddr=* parameter value?
Yes
No
Enter the rtrv-ctrl-feat command with this parameter: :partnum=893012401
Is the Enhanced GSM MAP Screening feature enabled and on?
Yes
No
Go to the "Activating the GSM MAP Screening Feature" procedure and enable and turn on the Enhanced GSM MAP Screening feature
To Sheet 6

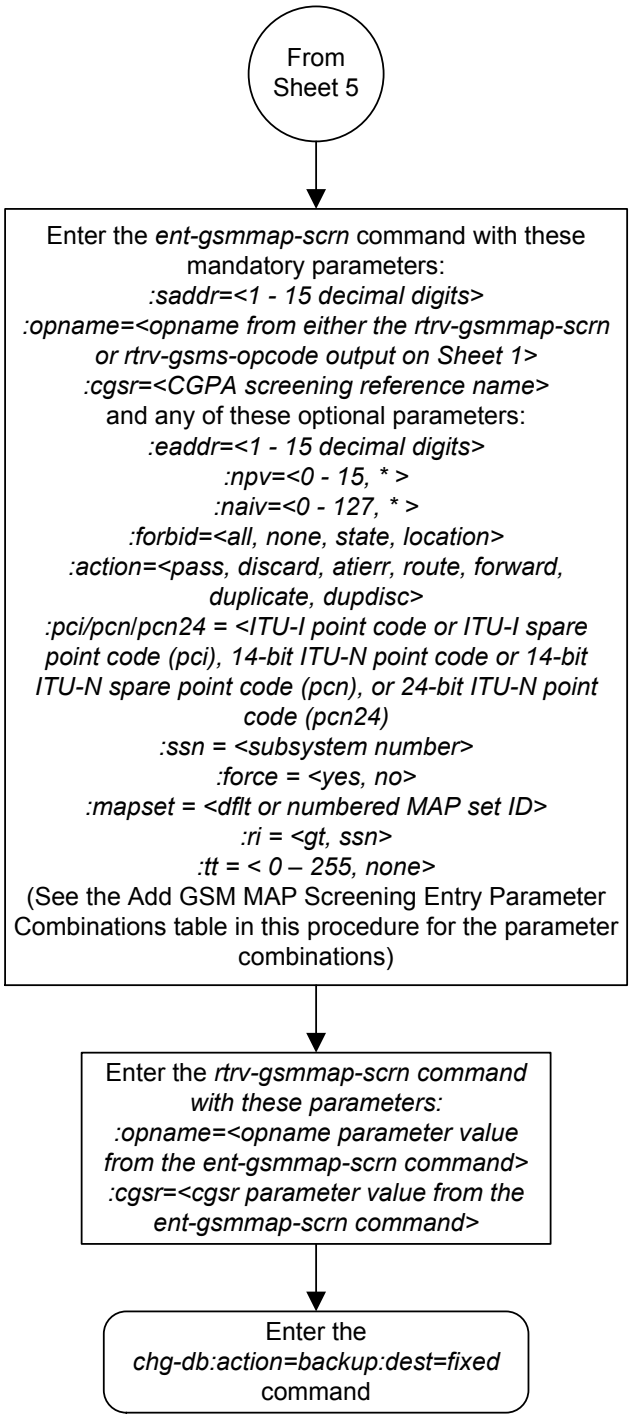
Sheet 5 of 8


From Sheet 5
Is a CDPA entry to be assigned to an existing CGPA entry (See Note)?
Yes
No
Note: The Enhanced GSM MAP Screening feature must be enabled and on to add a CDPA entry.
Enter the ent-gsmmap-scrn command with these mandatory parameters:
:opname=<opname from either the rtrv-gsmmap-scrn or rtrv-gsms-opcode output on Sheet 1>
:cgsr=<CGPA screening reference name>
and any of these optional parameters:
:saddr=<1 - 15 hex digits or * >
:eaddr=<1 - 15 hex digits>
:npv=<0 - 15, * >
:naiv=<0 - 127, * >
:forbid=<all, none, state, location>
:action=<pass, discard, atierr, route, forward, duplicate, dupdisc>
:pc/pca/pci/pcn/pcn24 = <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)
:ssn = <subsystem number>
:force = <yes, no>
:mapset = <dflt or numbered MAP set ID>
:ri = <gt, ssn>
:tt = < 0 – 255, none>
(See the Add GSM MAP Screening Entry Parameter Combinations table in this procedure for the parameter combinations)
Enter the rtrv-gsmmap-scrn command with these parameters:
:opname=<opname parameter value from the ent-gsmmap-scrn command>
:cgsr=<cgsr parameter value from the ent-gsmmap-scrn command>
Is a CDPA entry to be assigned to the CGPA entry added in this procedure (See Note)?
Yes
To Sheet 7
No
Enter the chg-db:action=backup:dest=fixed command

Sheet 6 of 8


From Sheet 6
Enter the ent-gsmmap-scrn command with these mandatory parameters:
:opname=<opname from either the rtrv-gsmmap-scrn or rtrv-gsms-opcode output on Sheet 1>
:cgsr=<CGPA screening reference name>
:cdsr=<CDPA screening reference name>
and any of these optional parameters:
:saddr=<1 - 15 hex digits or * >
:eaddr=<1 - 15 hex digits>
:npv=<0 - 15, * >
:naiv=<0 - 127, * >
:forbid=<all, none, state, location>
:action=<pass, discard, atierr, route, forward, duplicate, dupdisc>
:pc/pca/pci/pcn/pcn24 = <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)
:ssn = <subsystem number>
:force = <yes, no>
:mapset = <dflt or numbered MAP set ID>
:ri = <gt, ssn>
:tt = < 0 – 255, none>
(See the Add GSM MAP Screening Entry Parameter Combinations table in this procedure for the parameter combinations)
Enter the rtrv-gsmmap-scrn command with these parameters:
:opname=<opname parameter value from the ent-gsmmap-scrn command>
:cgsr=<cgsr parameter value from the ent-gsmmap-scrn command>
:cdsr=<cdsr parameter value from the ent-gsmmap-scrn command>
Enter the chg-db:action=backup:dest=fixed command

Sheet 7 of 8


From Sheet 5
Enter the ent-gsmmap-scrn command with these mandatory parameters:
:saddr=<1 - 15 decimal digits>
:opname=<opname from either the rtrv-gsmmap-scrn or rtrv-gsms-opcode output on Sheet 1>
:cgsr=<CGPA screening reference name>
and any of these optional parameters:
:eaddr=<1 - 15 decimal digits>
:npv=<0 - 15, * >
:naiv=<0 - 127, * >
:forbid=<all, none, state, location>
:action=<pass, discard, atierr, route, forward, duplicate, dupdisc>
:pci/pcn/pcn24 = <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)
:ssn = <subsystem number>
:force = <yes, no>
:mapset = <dflt or numbered MAP set ID>
:ri = <gt, ssn>
:tt = < 0 – 255, none>
(See the Add GSM MAP Screening Entry Parameter Combinations table in this procedure for the parameter combinations)
Enter the rtrv-gsmmap-scrn command with these parameters:
:opname=<opname parameter value from the ent-gsmmap-scrn command>
:cgsr=<cgsr parameter value from the ent-gsmmap-scrn command>
Enter the chg-db:action=backup:dest=fixed command

Sheet 8 of 8

# 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 `rtrv-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 **GSMMAP** 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    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
```

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 **CGPAGSMMAP** 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 ati1

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
919461888888888 919461900000000 4  1   locat atier ati2
919462000000000 919463000000000 *  *   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   155000000000    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 **GSMMAP** 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 **GSMMAP** Screening feature is not enabled or off, **CDPA** entries cannot be in the **MAP** screening table. Skip step 4 and go to step 5.

4. 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
919463000000000 919464000000000 11 95  locat atier ati7
803549000000000 803650000000000 *  *   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
```

5. Remove the **GSMMAP** 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 **GSMMAP** 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-GSMMAP-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
------------------------------------------------------
```

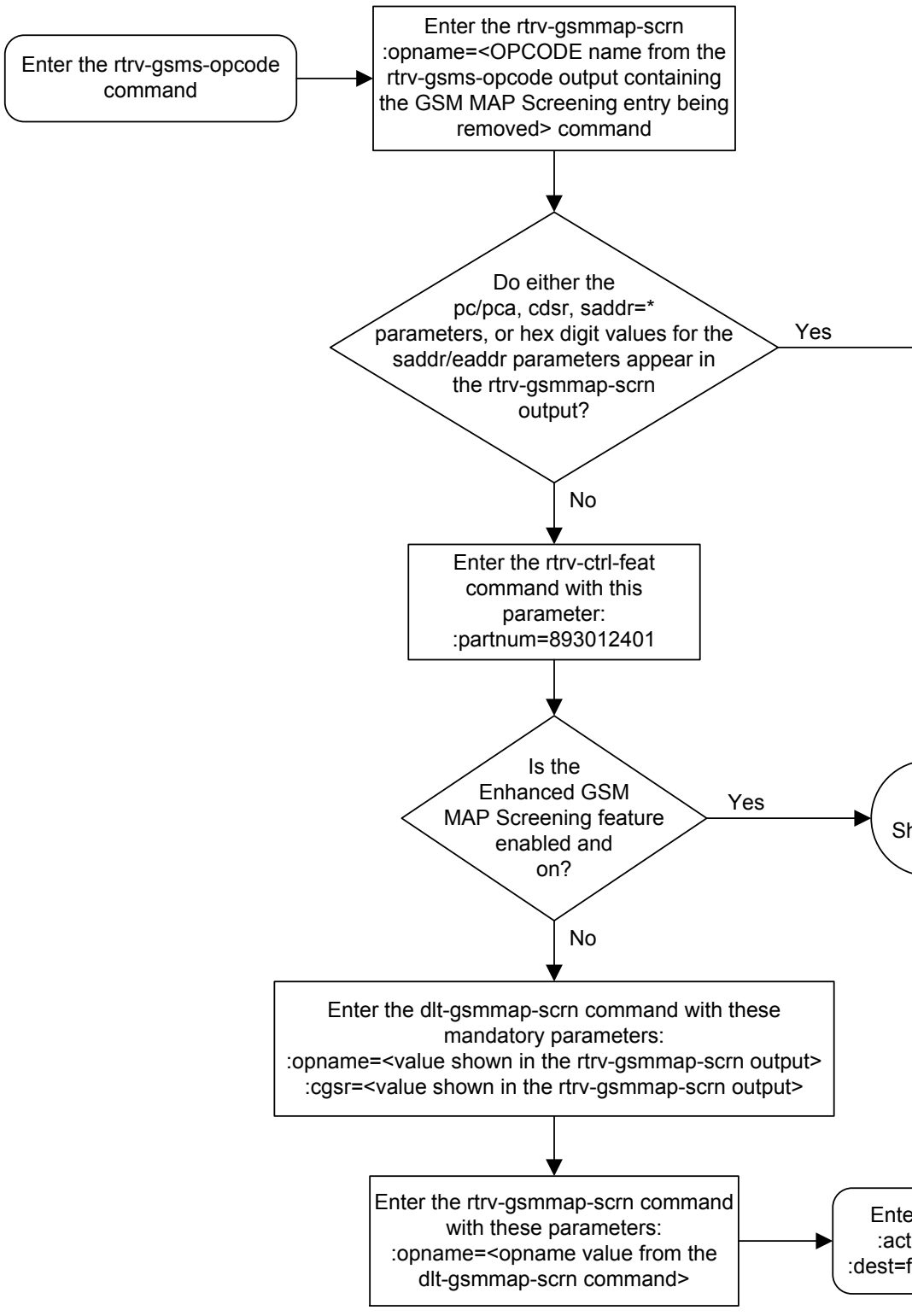
```
SADDR           NP NAI FORBD ACT      PCA           SSN CDSR RI  TT

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
```

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

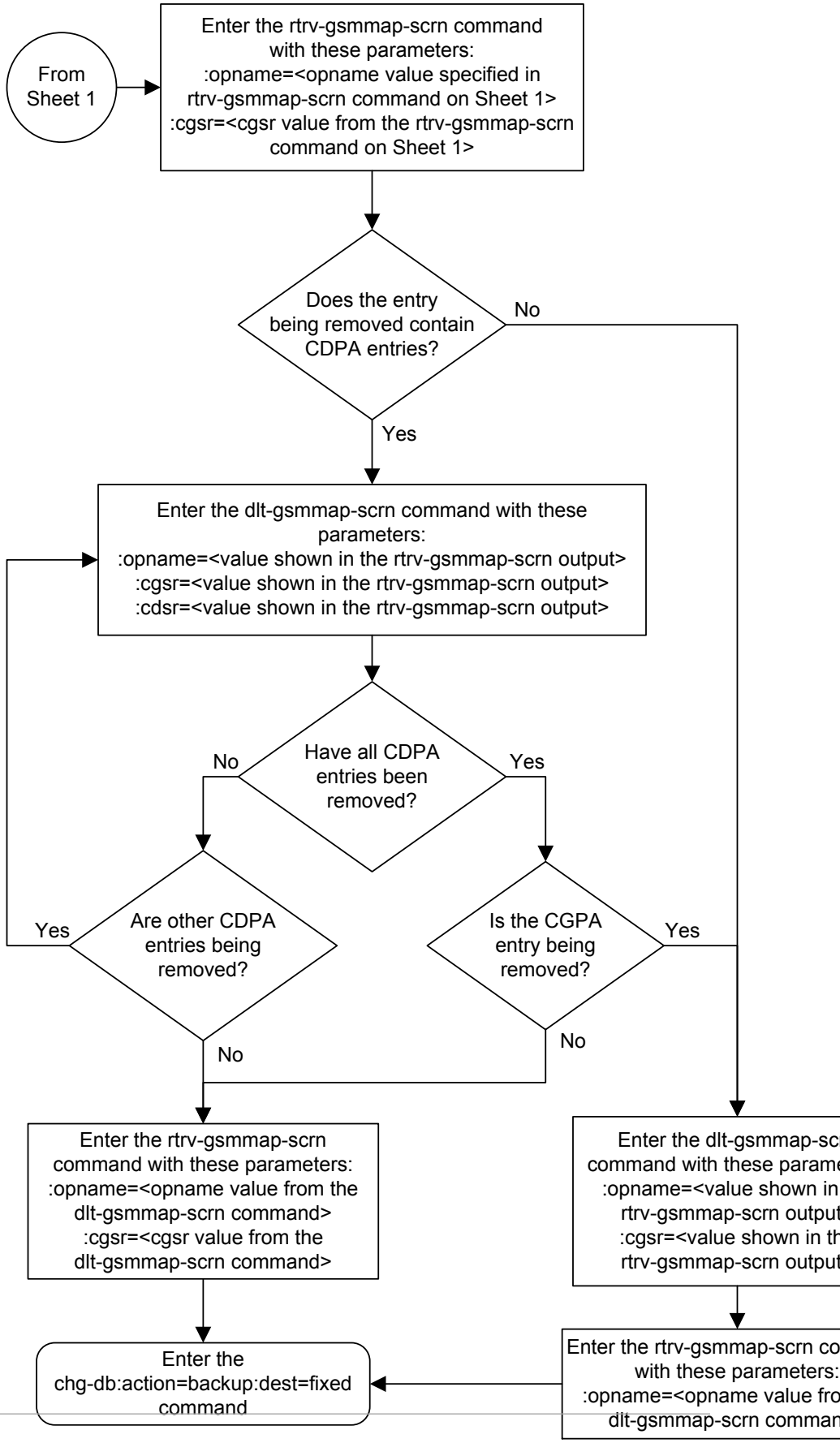
   These messages should appear, the active **Maintenance and Administration Subsystem** Processor (**MASP**) appears first.

```
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 6-14 Removing a GSM MAP Screening Entry**



Sheet 1 of 2


From Sheet 1
Enter the rtrv-gsmmap-scrn command with these parameters:
:opname=<opname value specified in rtrv-gsmmap-scrn command on Sheet 1>
:cgsr=<cgsr value from the rtrv-gsmmap-scrn command on Sheet 1>
Does the entry being removed contain CDPA entries?
No
Yes
Enter the dlt-gsmmap-scrn command with these parameters:
:opname=<value shown in the rtrv-gsmmap-scrn output>
:cgsr=<value shown in the rtrv-gsmmap-scrn output>
:cdsr=<value shown in the rtrv-gsmmap-scrn output>
Have all CDPA entries been removed?
No
Yes
Are other CDPA entries being removed?
Yes
Is the CGPA entry being removed?
Yes
No
No
Enter the rtrv-gsmmap-scrn command with these parameters:
:opname=<opname value from the dlt-gsmmap-scrn command>
:cgsr=<cgsr value from the dlt-gsmmap-scrn command>
Enter the dlt-gsmmap-sc
command with these parame
:opname=<value shown in
rtrv-gsmmap-scrn output
:cgsr=<value shown in th
rtrv-gsmmap-scrn output
Enter the chg-db:action=backup:dest=fixed command
Enter the rtrv-gsmmap-scrn co
with these parameters:
:opname=<opname value fro
dlt-gsmmap-scrn comman

Sheet 2 of 2

# 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 **ATIMAP** 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** 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.

`:cgsr` – 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 *Database Administration* - **GTT** *User's Guide*.

`: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 5-9 shows the parameter combinations that can be used in this procedure.

**Table 6-9 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 value (See Note 2) | :opname = current opname value (See Note 2) | :opname = current opname value containing opcode=71 (See Note 2) | :opname = current opname value (See Note 2) | :opname = current opname value (See Note 2) | :opname = current opname value 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 (See Notes 3 and 5) | :ncdsr = new CDSR value (See Notes 3 and 5) | :ncdsr = new CDSR value (See Notes 3 and 5) | :nssn = 0 - 255, none (See Notes 7, 8, 9, 10, 11, 12, and 14) | | |
| :npc/npca/npci/ npcn/npcn24 = point code value (See Notes 7, 8, 9, 10, 11, and 12) | | | :force=yes (See Notes 11 and 12) | | |

**Table 6-9 (Cont.) 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 |
|---|---|---|---|---|---|
| | | | :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) | | | | | |

**Table 6-9 (Cont.) 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 |
|---|---|---|---|---|---|

Notes:

1. At least one optional parameter must be specified with the `chg-gsmmap-scrn` command. If the `cdsr` parameter is specified, at least one other optional parameter must be specified with the `chg-gsmmap-scrn` command.

2. The `opname` parameter value must be shown in the `rtrv-gsms-opcode` output.

3. The `cdsr` parameter must be specified when the `ncdsr` parameter is specified.

4. The `ncgsr` parameter should not be specified when the `cdsr` parameter is specified.

5. The `ncgsr` and `ncdsr` parameters cannot be specified together.

6. The point code value must be the **DPC** of a route or a member of a cluster route. The `npc/npca` value must be a full point code, The `npc/npca` 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 *Database Administration - SS7 User's Guide* and add a new route containing the point code value. A proxy point code cannot be assigned to the point code.

7. The EAGLE can contain 14-bit **ITU**-N point codes or 24-bit ITU-N point codes, but not both at the same time.

8. If the new or current (if unchanged) `action` parameter values are either `forward`, `duplicate`, or `dupdisc`, the point code and `nssn` parameters must be specified with the `chg-gsmmap-scrn` 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.

9. 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 `naction` 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).

10. To specify the npc/npca parameters, the Enhanced GSM MAP Screening feature must be enabled and turned on.

11. If the Flexible GTT Load Sharing feature is not enabled:

- The `nmapset` parameter cannot be specified.
- The point code and subsystem number values specified with the `chg-gsmmap-scrn` command must be shown in the `rtrv-map` output, or else the `force=yes` parameter must be specified. If the point code and subsystem number 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 *Database Administration - GTT User's Guide* and add the required mated application with the point code and subsystem number values.

12. If the Flexible GTT Load Sharing feature is enabled:

**Table 6-9 (Cont.) 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 |
|---|---|---|---|---|---|

- If 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).
- If the default MAP set will be assigned to the GSM MAP screening 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 MAP screening entry, the `npc/npca/npci/npcn/npcn24` and `nssn` values must be shown in that MAP set in the `rtrv-map` output.
- 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 MAP screening entry is being changed. The new MAP set must contain the point code and subsystem values in the GSM MAP screening entry.

13. If the value of the `forbid` parameter is being changed to `none`, and the current value of the `action` parameter is not `pass`, the `naction=pass` parameter must be specified. If the current value of the `forbid` parameter is `none` and will not be changed, the value of the `action` parameter must be `pass` and cannot be changed.

14. If, when the `chg-gsmmap-scrn` command is completed, the `ri` parameter value is `ssn`, then a numerical value must be assigned to the `ssn` parameter.

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.

```
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

GSMMS OPCODE Table (10 of 257) is 4% full
```

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
919462000000005 1  0   locat atier ati1

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
919461888888888 919461900000000 4  1   locat atier ati2
919462000000000 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 **GSMMAP** 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 **GSMMAP** Screening feature is enabled and on by entering the `rtrv-ctrl-feat` command with the part number of the Enhanced **GSMMAP** 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 **GSMMAP** screening feature is not enabled or is turned off, and you wish to use the `npc/npca` or `ncdsr` parameters, perform the "Activating the **GSMMAP** Screening Feature" procedure to enable and turn on the Enhanced **GSMMAP** 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 **GSMMAP** 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 **CDPAGSMMAP** 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
919463000000000 919464000000000 11 95  locat atier ati7
803549000000000 803650000000000 *  *   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 **GSMMAP** 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 **GTTLoad Sharing** Feature" procedure in *Database Administration* - **GTT** *User's Guide* and enable the Flexible **GTTLoad Sharing** feature. After enabling the Flexible **GTTLoad 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.

6. Display the destination point codes in the database by entering the `rtrv-dstn` command. This is an example of the possible output.

```
rlghncxa03w 10-12-10 11:43:04 GMT EAGLE5 43.0.0
Extended Processing Time may be Required

   DPCA          CLLI        BEI ELEI   ALIASI          ALIASN/N24    DMN
   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   ALIASA          ALIASN/N24    DMN
   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

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 *Database Administration - SS7 User's Guide* 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 *Database Administration* - **SS7** *User's Guide* and add the required route to the database. After the route has been added, continue the procedure with step 10.

7. 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 10-12-10 11:43:04 GMT EAGLE5 43.0.0

   DPCA          CLLI        BEI ELEI   ALIASI           ALIASN/N24    DMN
   010-020-005   ----------- no  ---  --------------   --------------   SS7

   PPCA         NCAI PRX     RCAUSE NPRST SPLITIAM HMSMSC HMSCP SCCPMSGCNV
   009-002-003  ---- no      50     on    20       no     no    none

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.

```
rlghncxa03w 09-05-10 11:43:04 GMT EAGLE5 41.0.0

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 *Database Administration* - **SS7** *User's Guide* 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 *Database Administration* - **SS7** *User's Guide* 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 **GSMMAP** 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 **GTTLoad 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 09-07-25 09:42:31  GMT  EAGLE5 41.1.0

PCI          Mate PCI     SSN RC MULT SRM MRC GRP NAME SSO
5-079-2                    89 10  SOL *N  *N  GRP01    ON

MAP TABLE IS (20 of 1024) 2 % FULL
```

> **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 09-07-25 09:42:31  GMT  EAGLE5 41.1.0

MAPSET ID=DFLT
PCI          Mate PCI     SSN RC MULT SRM MRC GRP NAME SSO
5-079-2                    89 10  SOL *N  *N  GRP01    ON

MAP TABLE IS (20 of 1024) 2 % FULL
```

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 *Database Administration - **GTT** User's Guide* and add the required point code and subsystem number to the mated application table.

9. 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 ls100001   10    1-234-5
```

```
                                        ls100002   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 *Database Administration* - **SS7** *User's Guide* and add the required route to the database.

10. Change the **GSMMAP** screening entry with the `chg-gsmmap-scrn` command.

    Table 5-9 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=pas
    s
    ```

    ```
    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-GSMMAP-SCRN: MASP A - COMPLTD
    ```

11. 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 **GSMMAP** 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
    ```

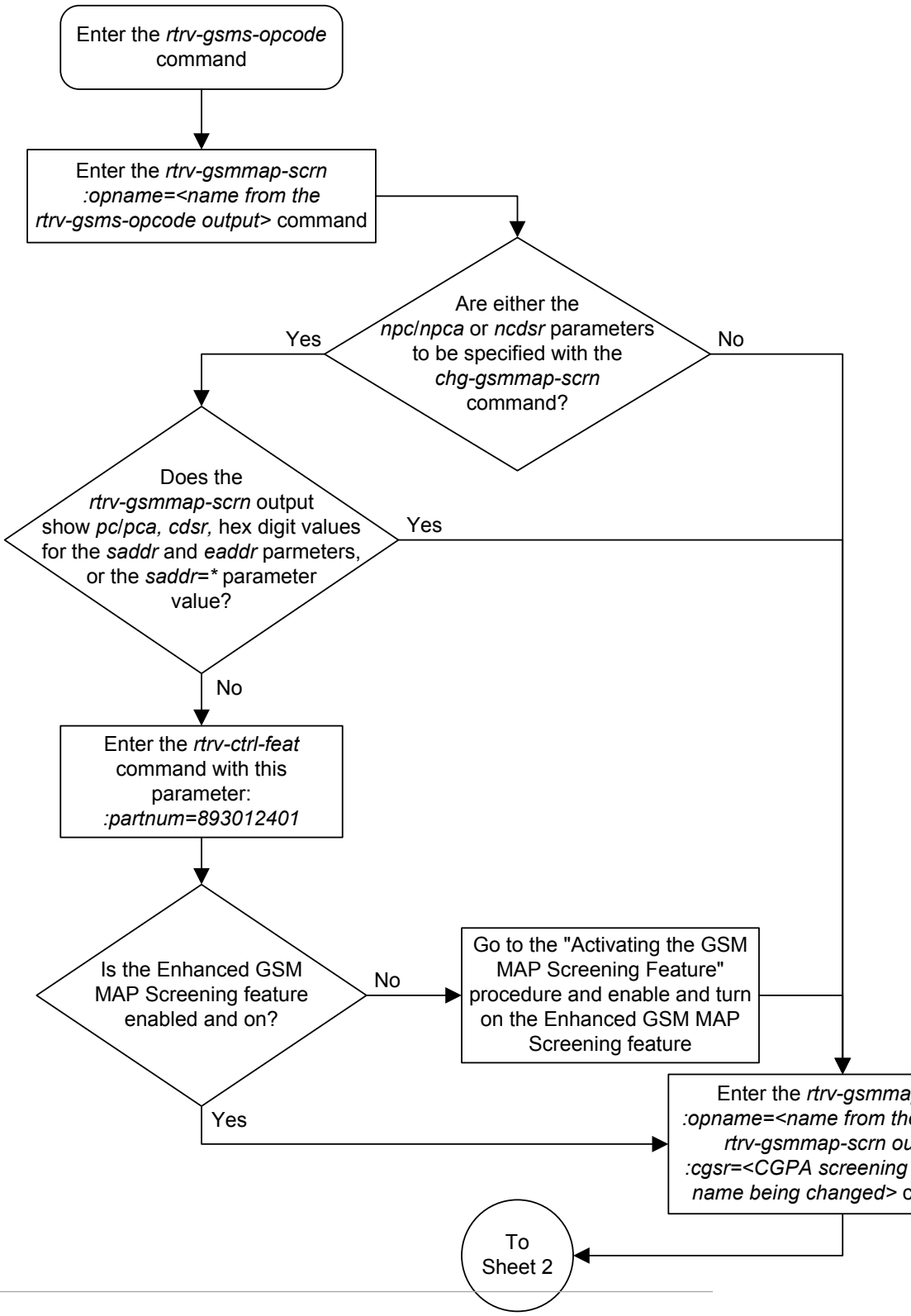
```
SADDR           NP NAI FORBD ACT      PCN24         SSN CGSR  MAPSET  RI

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.

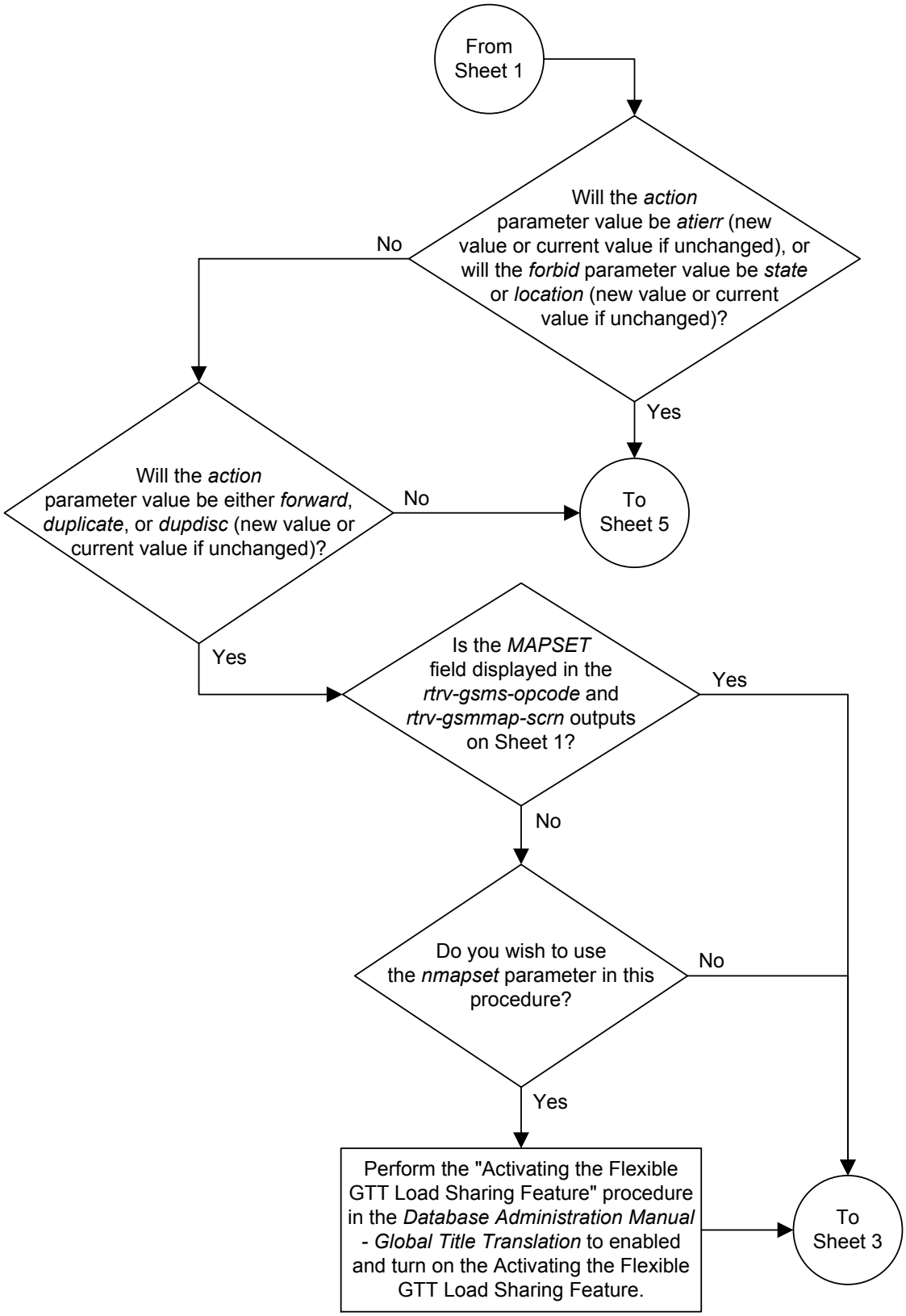
    These messages should appear, the active **Maintenance and Administration Subsystem** Processor (**MASP**) appears first.

```
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.
```

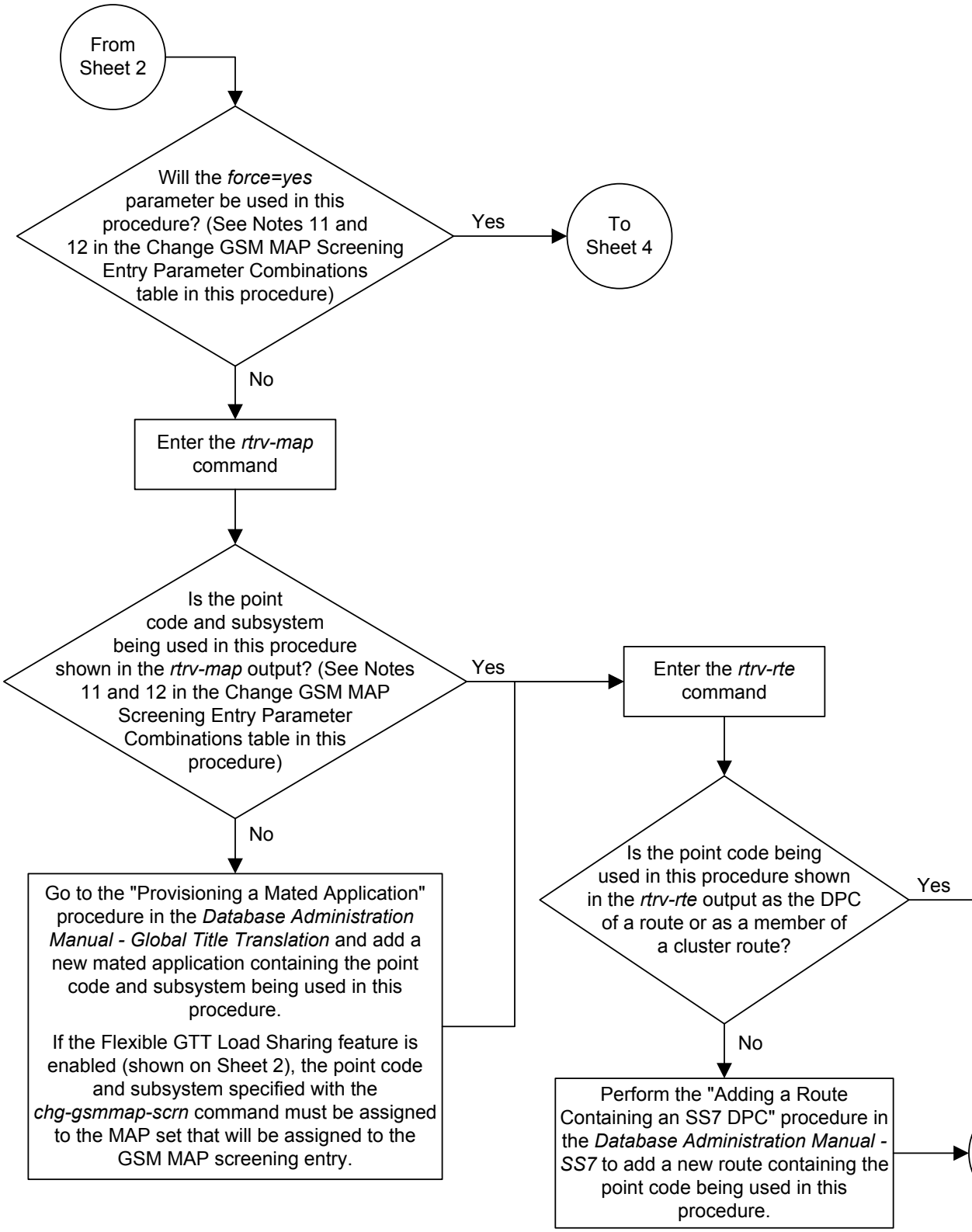
**Figure 6-15 Changing a GSM MAP Screening Entry**



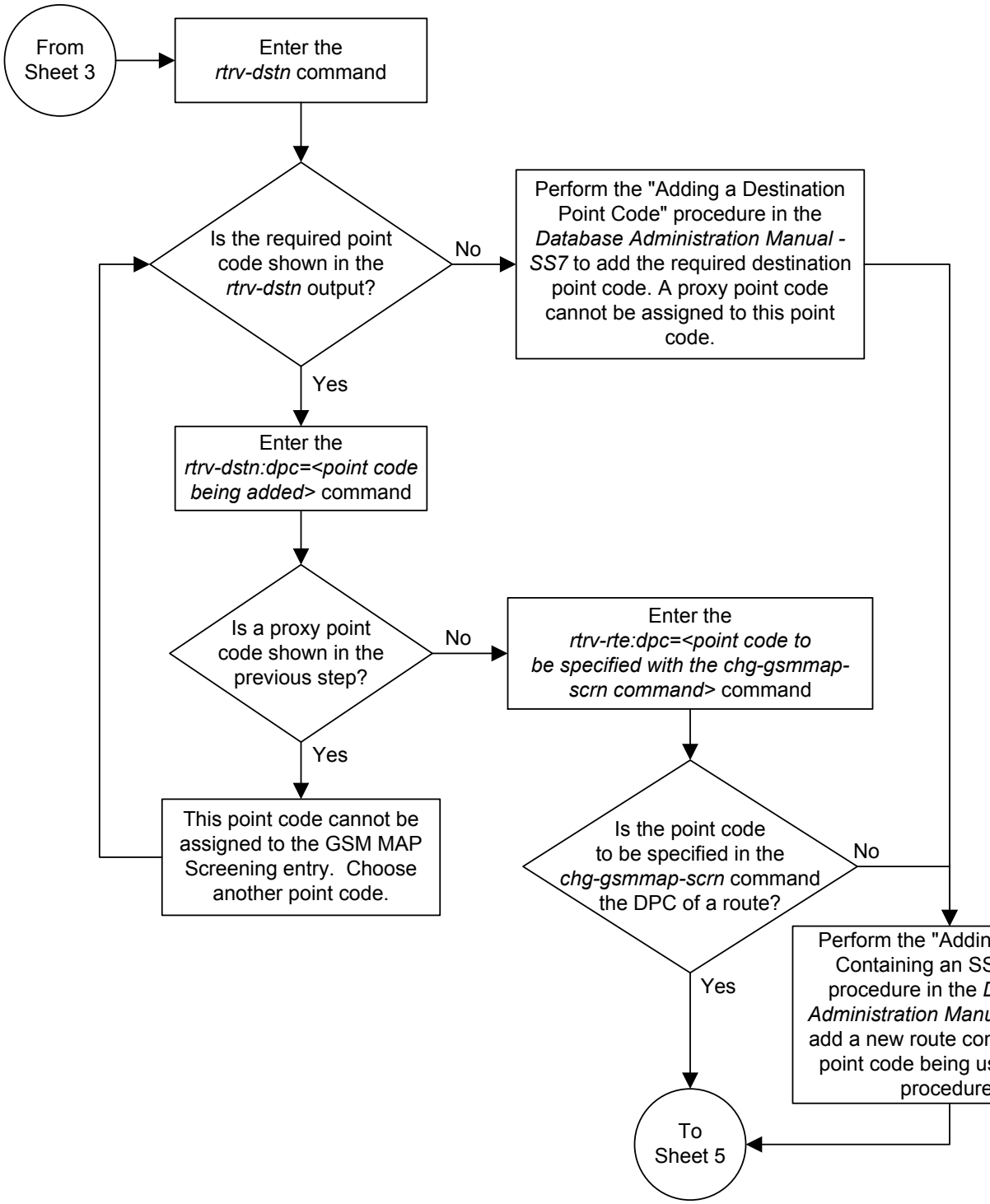
Sheet 1 of 6


From Sheet 1
Will the *action* parameter value be *atierr* (new value or current value if unchanged), or will the *forbid* parameter value be *state* or *location* (new value or current value if unchanged)?
No
Yes
Will the *action* parameter value be either *forward*, *duplicate*, or *dupdisc* (new value or current value if unchanged)?
No
To Sheet 5
Yes
Is the *MAPSET* field displayed in the *rtrv-gsms-opcode* and *rtrv-gsmmap-scrn* outputs on Sheet 1?
Yes
No
Do you wish to use the *nmapset* parameter in this procedure?
No
Yes
Perform the "Activating the Flexible GTT Load Sharing Feature" procedure in the *Database Administration Manual - Global Title Translation* to enabled and turn on the Activating the Flexible GTT Load Sharing Feature.
To Sheet 3

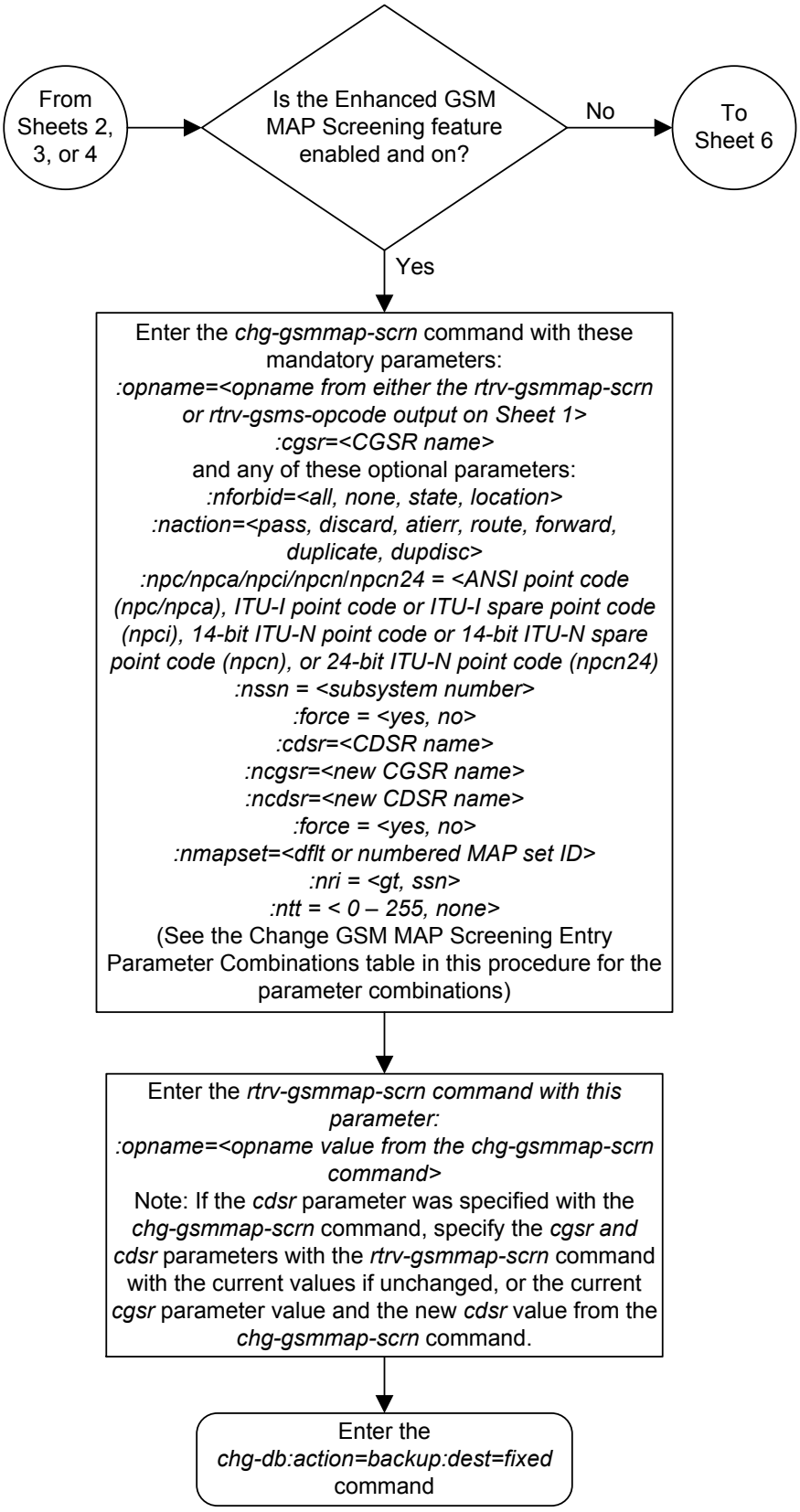
Sheet 2 of 6


From Sheet 2
Will the *force=yes* parameter be used in this procedure? (See Notes 11 and 12 in the Change GSM MAP Screening Entry Parameter Combinations table in this procedure)
Yes
To Sheet 4
No
Enter the *rtrv-map* command
Is the point code and subsystem being used in this procedure shown in the *rtrv-map* output? (See Notes 11 and 12 in the Change GSM MAP Screening Entry Parameter Combinations table in this procedure)
Yes
Enter the *rtrv-rte* command
No
Go to the "Provisioning a Mated Application" procedure in the *Database Administration Manual - Global Title Translation* and add a new mated application containing the point code and subsystem being used in this procedure.
If the Flexible GTT Load Sharing feature is enabled (shown on Sheet 2), the point code and subsystem specified with the *chg-gsmmap-scrn* command must be assigned to the MAP set that will be assigned to the GSM MAP screening entry.
Is the point code being used in this procedure shown in the *rtrv-rte* output as the DPC of a route or as a member of a cluster route?
Yes
No
Perform the "Adding a Route Containing an SS7 DPC" procedure in the *Database Administration Manual - SS7* to add a new route containing the point code being used in this procedure.

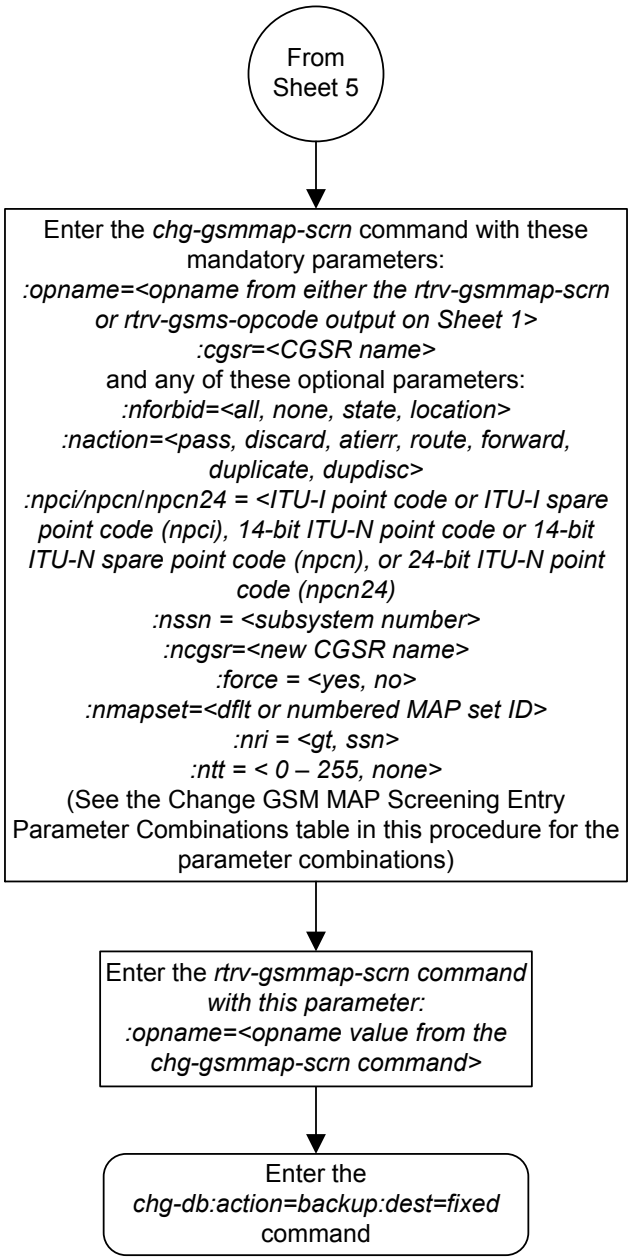
Sheet 3 of 6


From Sheet 3
Enter the *rtrv-dstn* command
Is the required point code shown in the *rtrv-dstn* output?
No
Perform the "Adding a Destination Point Code" procedure in the *Database Administration Manual - SS7* to add the required destination point code. A proxy point code cannot be assigned to this point code.
Yes
Enter the *rtrv-dstn:dpc=<point code being added>* command
Is a proxy point code shown in the previous step?
No
Enter the *rtrv-rte:dpc=<point code to be specified with the chg-gsmmap-scrn command>* command
Yes
This point code cannot be assigned to the GSM MAP Screening entry. Choose another point code.
Is the point code to be specified in the *chg-gsmmap-scrn* command the DPC of a route?
No
Yes
Perform the "Addin
Containing an SS
procedure in the D
Administration Manu
add a new route cor
point code being us
procedure
To Sheet 5

Sheet 4 of 6


From Sheets 2, 3, or 4
Is the Enhanced GSM MAP Screening feature enabled and on?
No
To Sheet 6
Yes
Enter the chg-gsmmap-scrn command with these mandatory parameters:
:opname=<opname from either the rtrv-gsmmap-scrn or rtrv-gsms-opcode output on Sheet 1>
:cgsr=<CGSR name>
and any of these optional parameters:
:nforbid=<all, none, state, location>
:naction=<pass, discard, atierr, route, forward, duplicate, dupdisc>
:npc/npca/npci/npcn/npcn24 = <ANSI point code (npc/npca), ITU-I point code or ITU-I spare point code (npci), 14-bit ITU-N point code or 14-bit ITU-N spare point code (npcn), or 24-bit ITU-N point code (npcn24)
:nssn = <subsystem number>
:force = <yes, no>
:cdsr=<CDSR name>
:ncgsr=<new CGSR name>
:ncdsr=<new CDSR name>
:force = <yes, no>
:nmapset=<dflt or numbered MAP set ID>
:nri = <gt, ssn>
:ntt = < 0 – 255, none>
(See the Change GSM MAP Screening Entry Parameter Combinations table in this procedure for the parameter combinations)
Enter the rtrv-gsmmap-scrn command with this parameter:
:opname=<opname value from the chg-gsmmap-scrn command>
Note: If the cdsr parameter was specified with the chg-gsmmap-scrn command, specify the cgsr and cdsr parameters with the rtrv-gsmmap-scrn command with the current values if unchanged, or the current cgsr parameter value and the new cdsr value from the chg-gsmmap-scrn command.
Enter the chg-db:action=backup:dest=fixed command

Sheet 5 of 6


From Sheet 5
Enter the chg-gsmmap-scrn command with these mandatory parameters:
:opname=<opname from either the rtrv-gsmmap-scrn or rtrv-gsms-opcode output on Sheet 1>
:cgsr=<CGSR name>
and any of these optional parameters:
:nforbid=<all, none, state, location>
:naction=<pass, discard, atierr, route, forward, duplicate, dupdisc>
:npci/npcn/npcn24 = <ITU-I point code or ITU-I spare point code (npci), 14-bit ITU-N point code or 14-bit ITU-N spare point code (npcn), or 24-bit ITU-N point code (npcn24)
:nssn = <subsystem number>
:ncgsr=<new CGSR name>
:force = <yes, no>
:nmapset=<dflt or numbered MAP set ID>
:nri = <gt, ssn>
:ntt = < 0 – 255, none>
(See the Change GSM MAP Screening Entry Parameter Combinations table in this procedure for the parameter combinations)
Enter the rtrv-gsmmap-scrn command with this parameter:
:opname=<opname value from the chg-gsmmap-scrn command>
Enter the chg-db:action=backup:dest=fixed command

Sheet 6 of 6

# 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 `gmstcapce` 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 **GSMMAP** Screening Feature" procedure to enable and turn on the **GSM MAP** screening feature.

1. Display the existing value for the `gsmtcapce` parameter by entering the `rtrv-sccpopts` command.

   The value for the `gsmtcapce` 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 **GSMMAP** Screening Feature" procedure to enable and turn on the **GSMMAP** screening feature. After the **GSMMAP** 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 `gsmtcapce` parameter value by entering on of the following commands.

If the current value of the `gsmtcapce` parameter is `off`, or if the **GSMMAP** 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:gsmtcapce=on
```

If the current value of the `gsmtcapce` parameter is `on`, enter the following command to disable the processing of **TCAP** Continue and **TCAP** End messages.

```
chg-sccpopts:gsmtcapce=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 `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*.

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.
```

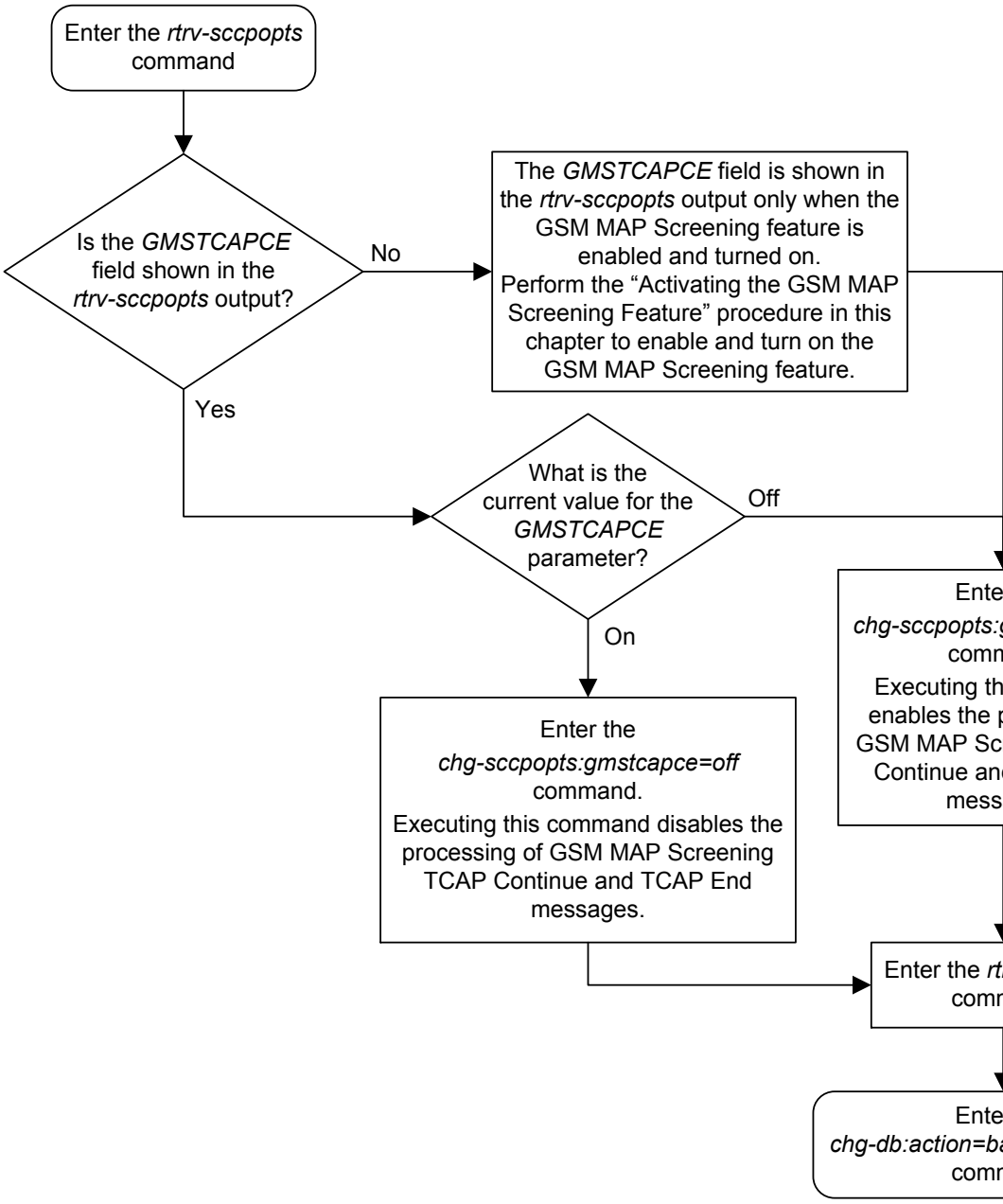
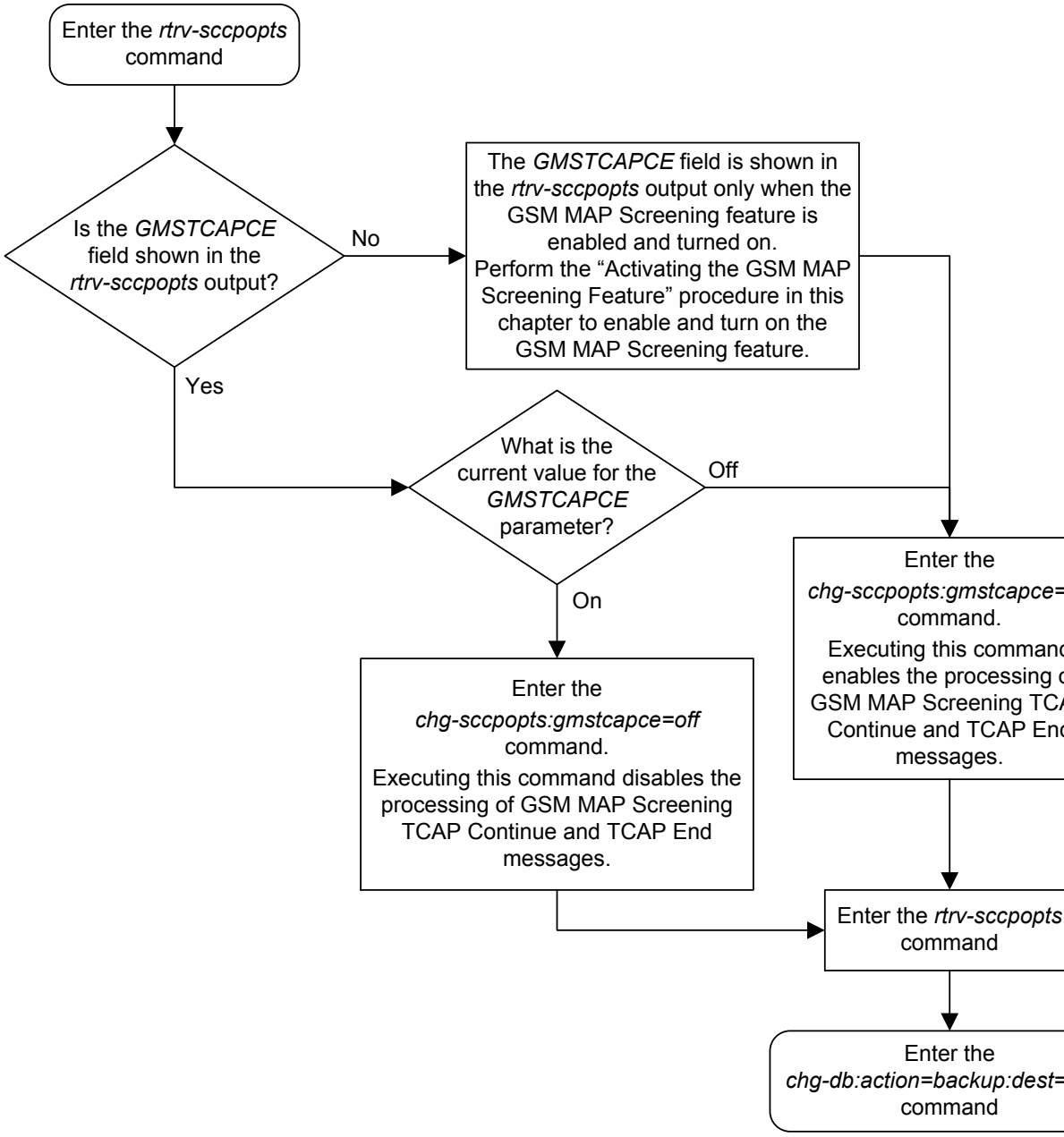

Enter the *rtrv-sccpopts* command
Is the *GMSTCAPCE* field shown in the *rtrv-sccpopts* output?
No
The *GMSTCAPCE* field is shown in the *rtrv-sccpopts* output only when the GSM MAP Screening feature is enabled and turned on.
Perform the "Activating the GSM MAP Screening Feature" procedure in this chapter to enable and turn on the GSM MAP Screening feature.
Yes
What is the current value for the *GMSTCAPCE* parameter?
Off
On
Enter the *chg-sccpopts:gmstcapce=off* command.
Executing this command disables the processing of GSM MAP Screening TCAP Continue and TCAP End messages.
Ente
*chg-sccpopts:*
comn
Executing th
enables the p
GSM MAP Sc
Continue an
mess
Enter the *rt*
comr
Ente
*chg-db:action=ba*
comr

**Figure 6-16 Changing the GSM MAP Screening TCAP Continue and End Message Processing Option**



7

# EAGLE 5 Integrated Monitoring Support Configuration

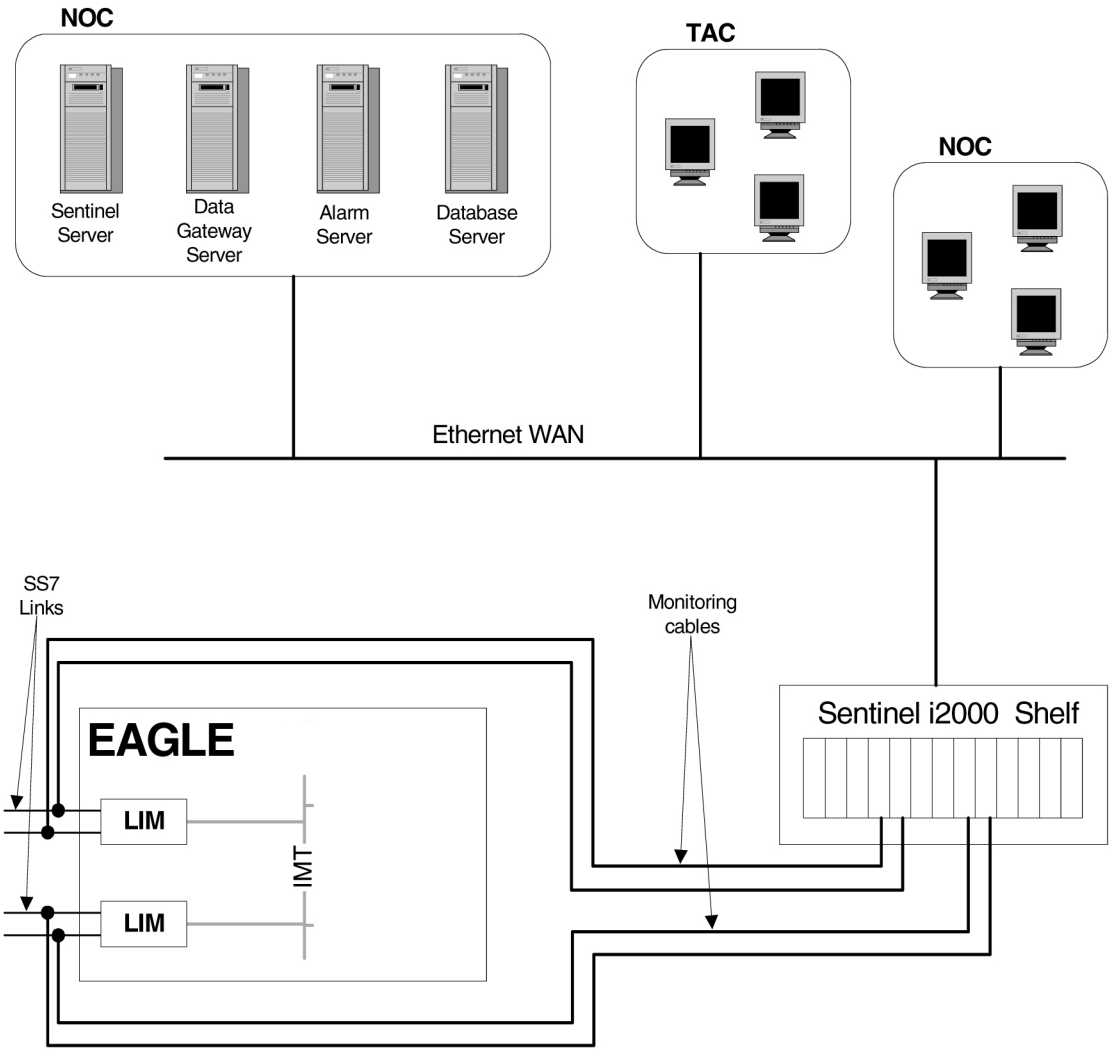
Chapter 7, EAGLE 5 Integrated Monitoring Support Configuration, describes the Eagle 5 Integrated Monitoring Support feature and the procedures necessary to configure the EAGLE to support this feature.

## Introduction

The **EAGLE** 5 Integrated Monitoring Support feature allows the network traffic on the **EAGLE**'s signaling links to be monitored by an **ESP** (extended services platform) or **IMF** (integrated message feeder) without additional intrusive cabling.

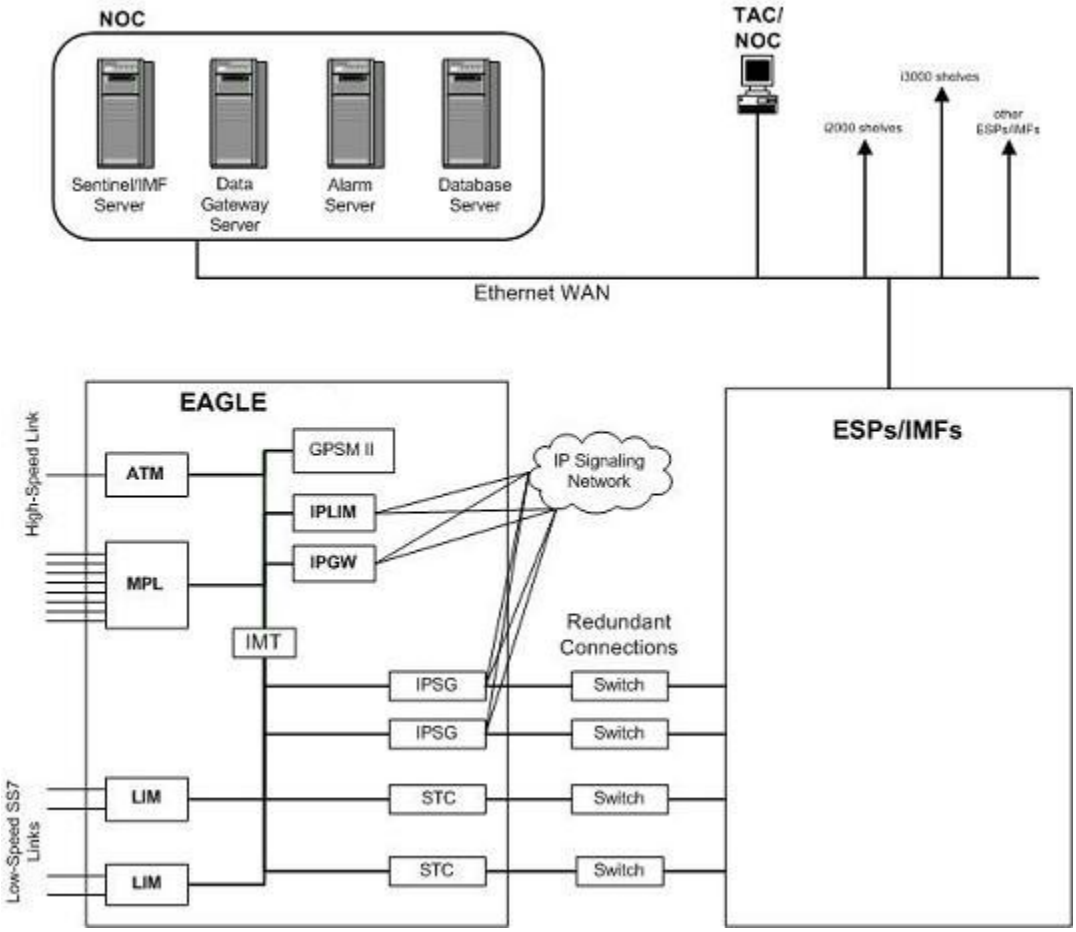
To monitor the network traffic on the **EAGLE**'s signaling links without this feature requires physical, clamp-on connections to the **EAGLE**'s **SS7** signaling links (see Figure 6-1). This monitoring method involves costs for cable installation and maintenance for each **SS7** link that is to be monitored.

**Figure 7-1 Monitoring via Hardware Connection**



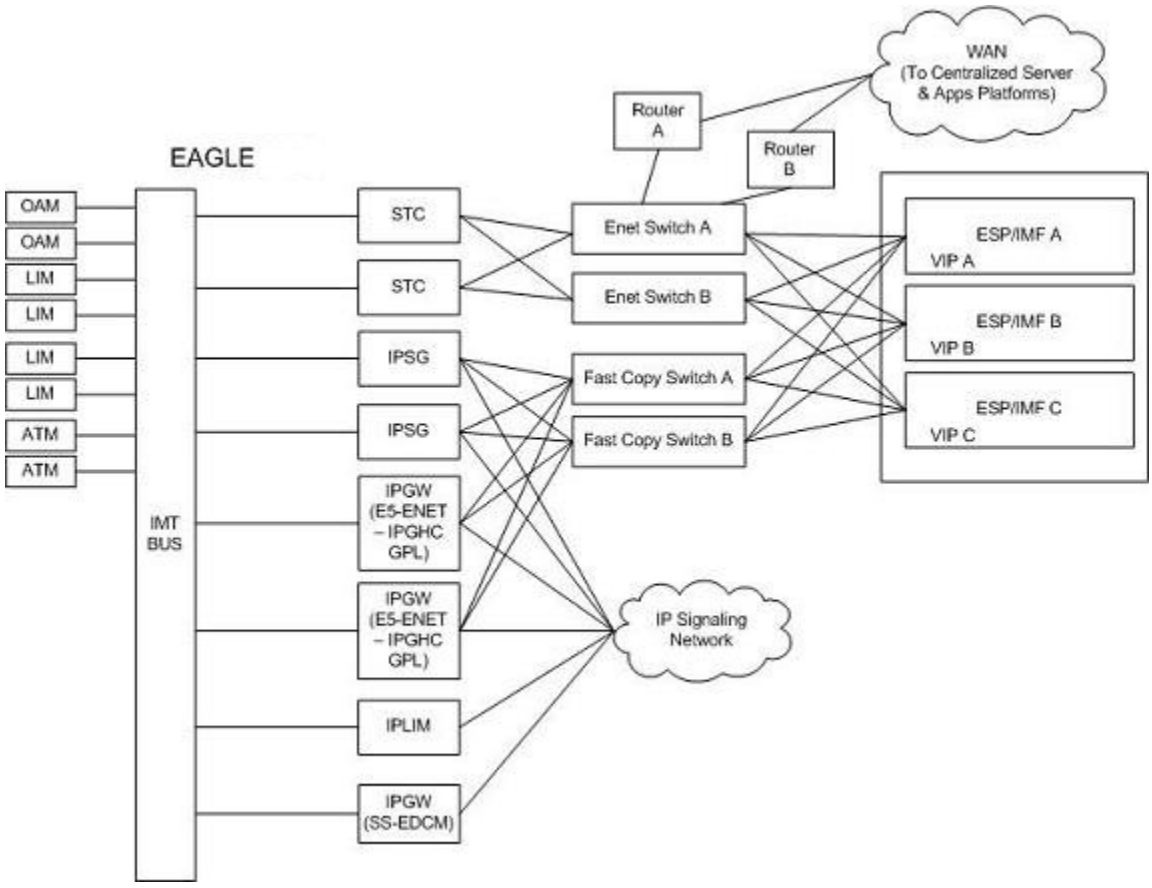

This feature eliminates the need to have intrusive hardware for each link that is to be monitored. The monitoring is performed by an Ethernet connection from an **STC** (Signaling Transport **Card**) or an FC-capable card to the **ESP**/**IMF** (see Figure 7-2 ). An FC-capable card is a card that is configured to copy traffic directly to an IMF subsystem over its Fast Copy interfaces. Currently, cards running the IPGHC and IPSG GPLs are the only supported FC-capable cards. 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 7-2 EAGLE 5 Integrated Monitoring Support Network Connectivity**




As can be seen in Figure 7-2 , 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 **STC**s or FC-capable cards serve as **IP** routers, the **ESP**/**IMF** subsystem may communicate directly with the **SS7 LIM**s. Figure 7-3 shows the logical communications pathway.

**Figure 7-3 ESP/IMF/EAGLE 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 **STC**s 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** or **ESP/IMF** operations. As shown in Figure 7-3 , 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** 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** 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 7-4, Figure 7-5, and Figure 7-6).

**Figure 7-4 Ethernet Link Establishment - EMP Link Data**

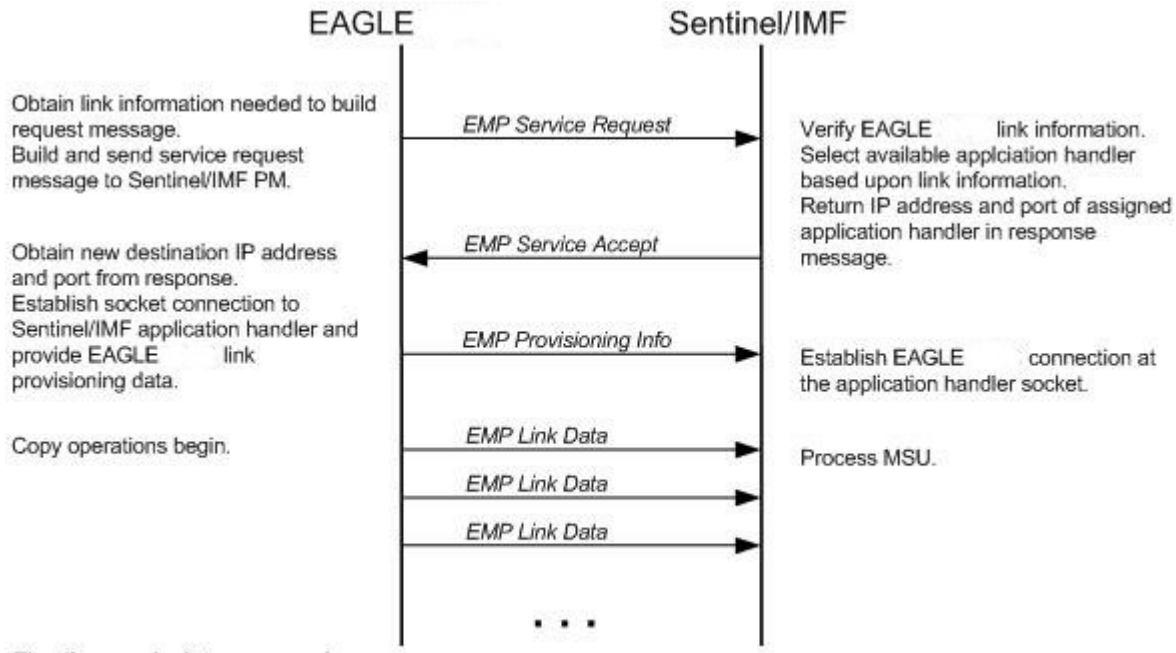



**Figure 7-5 Ethernet Link Establishment - EMP Fast Copy Link PDU**

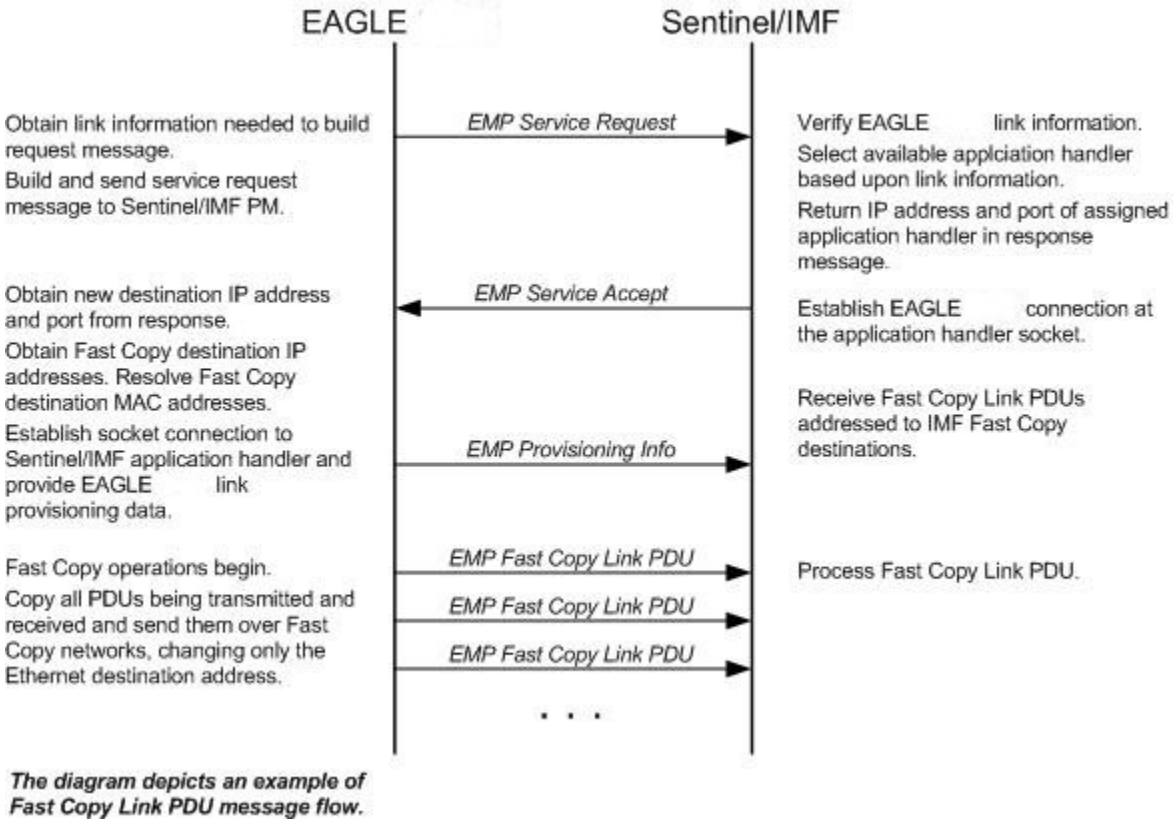
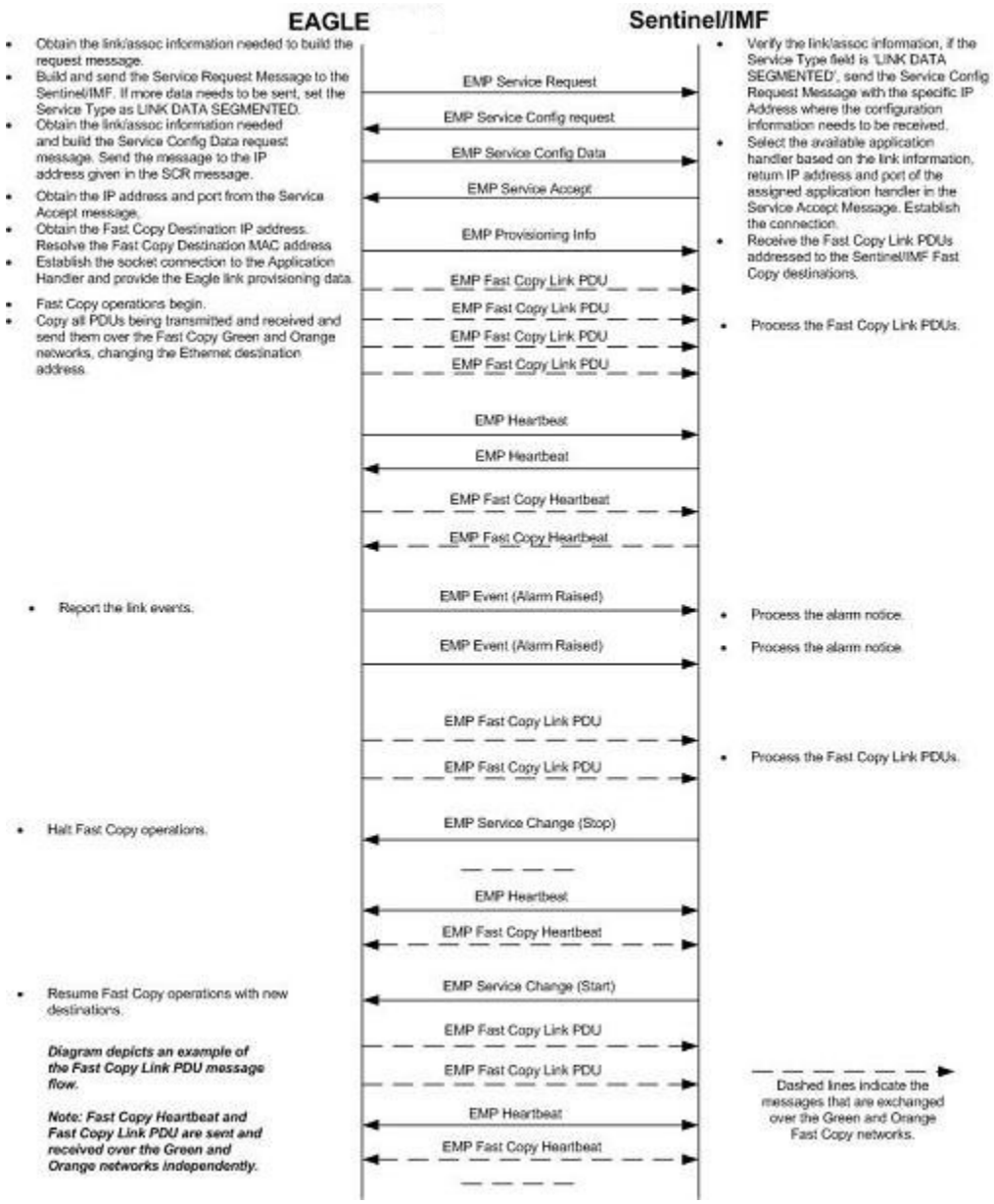


**Figure 7-6 Ethernet Link Establishment - EMP Fast Copy Link PDU Modified for the IPGHC GPL**




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 or FC-capable cards (if the Fast Copy function is being used) to the ESP/IMF server, then to the Sentinel/**IMF**.

The IPGHC GPL supports up to 50 associations per E5-ENET card. Each card hosts one SS7 signaling link. Sending information for 50 associations to the IMF requires a large UDP message. Network elements generally restrict broadcasting large UDP data. It is not guaranteed that the large Service Request Message (UDP broadcast) can reach the IMF in all networks.

The Service Config Request Message and Service Config Data Message, shown in Figure 7-6, are used to send the large configuration information to the IMF.

The Service Request Message is sent with the “Service Type” field set to “LINK DATA SEGMENTED”. The IMF responds with a Service Config Request Message querying the configuration data by specifying the IP address and UDP port where the large configuration data needs to be sent. The card running the IPGHC GPL sends (UDP unicast) the configuration data to the specific IP address and UDP port included in the Service Config Request Message.

If the LIM is unsuccessful with its initial link service request, it will re-attempt 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 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.

The IP addresses of an FC-capable card is automatically assigned to the card as the card is brought into service. Each card is assigned two IP addresses, one for Fast Copy network A and the other for Fast Copy network B. The network portion of the IP addresses is determined from the `FCNA` and `FCNAMASK` (for the Fast Copy network A IP addresses) and the `FCNB` and `FCNBMASK` (for the Fast Copy network B IP addresses) values shown in the `rtrv-netopts` command output. The value of the host portion of the IP address for an FC-capable card is the IMT address of the card+1.

A custom 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 Provisioning

To provision this feature, these items are required:

- **STC** cards are installed in the EAGLE
- If the Fast Copy function is being used to copy traffic from IPSG cards (the `FCMODE=FCOPY` and `FCGPL=IPSG` values are shown in the `rtrv-eisopts` output), cards running the IPSG GPL must be installed in the EAGLE. The state of at least one of the cards running the IPSG GPL must be IS-NR.
- If the Fast Copy function is being used to copy traffic from cards running the IPGHC GPL (the `FCMODE=FCOPY` and `FCGPL=IPGHC` values are shown in the `rtrv-eisopts` output), cards running the IPGHC GPL must be installed in the EAGLE. The state of at least one of the cards running the IPGHC GPL must be IS-NR.
- The **TSC** (Time Slot Counter) Synchronization feature is enabled in the EAGLE 5. TSC synchronization is supplied by the E5-MASP or E5-MCAP 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 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 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, 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 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 shelves can contain HIPR2 cards. Shelves containing **IPLIMx**, **IPSG** or **IPGWx** cards that are being monitored must contain HIPR2 cards.

An “n + 1" STC configuration is required to provide redundancy for this feature.

The connection from the EAGLE 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. FC-capable cards require a 100 Mbps/full duplex configuration for copying traffic to the ESP. If the IP port on the FC-Capable card is not able to auto-negotiate to this speed/duplex configuration, then the traffic will not be copied from this port to the ESP.

Refer to *Hardware User Reference* for more information about the E5-MCAP cards 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 7-1 shows the signaling links on these cards can be monitored by this feature.

**Table 7-1 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 | LIMDS0 | **E5-E1T1**, E5-E1T1-B card |
| **SS7ANSI**, **CCS7ITU** | **LIME1** | **E5-E1T1**, E5-E1T1-B card |
| | **LIMT1** | E5-E1T1, E5-E1T1-B card |
| **ATMANSI** | **LIMATM** | E5-ATM , E5-ATM-B |
| **ATMITU** | **LIME1ATM** | E5-ATM, E5-ATM-B |
| **SS7IPGW** | DCM | E5-ENET, E5-ENET-B card |
| **IPGWI** | DCM | E5-ENET, E5-ENET-B card |
| IPSG | ENET | E5-ENET, E5-ENET-B card |

**Table 7-1 (Cont.) 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 |
|---|---|---|
| Notes:<br>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 rtrv-assoc:adapter=m2pa command.<br>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 rtrv-assoc:adapter=m3ua command. Signaling links assigned to SUA associations can be monitored only on cards that are running the IPGHC GPL in the STC and Fast Copy monitoring modes.<br>Monitoring can be performed on E5-E1T1 cards, E5-E1T1-B cards, E5-ENET cards, and E5-ENET-B cards using only the IMF.<br>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, ipsg, 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, another single-slot STC must be added to the EAGLE. To add the additional single-slot STC, go to Adding a Signaling Transport Card (STC).

In order to perform the necessary **IP** routing within the EAGLE switch, a private virtual network (**PVN**) is incorporated; the PVN represents the internal IP addressing scheme for every STC within the EAGLE switch. Each card has an auto-assigned, default, Class B private IP address (for example, 172.28.60.16).

> **Note:**
>
> The EAGLE 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 requires use of the lower 8 bits of address space for auto-configuration of internal networking schemes. The entered mask value may be up to 255.255.255.0

# Network Considerations

There are three networks used to connect the **EAGLE** to the **ESP/IMF** subsystem (see Figure 7-3 :

- The **EAGLE** containing the **STCs** and FC-capable cards (if the Fast Copy function is being used).
- The two Ethernet switches
- The **ESP/IMF** servers

The monitored information is sent from the **EAGLE** to the **ESP/IMF** servers through the Ethernet switches, then forwarded to the Sentinel/**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 **PVNIP** address in the **EAGLE**, contact the Customer Care Center (refer to My Oracle Support (MOS) 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 Oracle 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 `rtrv-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 User's Guide*.

   If the Time Slot Counter Synchronization and the EAGLE 5 Integrated Monitoring Support features are not turned on, or just the Time Slot Counter Synchronization feature is turned on, continue the procedure with 2.

   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 and FCMODE values in the `rtrv-eisopts` output, the PVN, PVNMASK, FCNA, and FCNB values in the `rtrv-netopts` output, or add STC cards, perform the following procedures.

   - EISCOPY value - Configuring the EISCOPY Option for the EAGLE 5 Integrated Monitoring Support Feature
   - FCMODE value - Configuring the FCMODE Option for the EAGLE 5 Integrated Monitoring Support Feature
   - PVN, PVNMASK, FCNA, FCNB values - Configuring the IP Addresses for the EAGLE 5 Integrated Monitoring Support Feature
   - Add STC cards - Adding a Signaling Transport Card (STC)

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 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 Oracle 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. Verify the changes by entering the `rtrv-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`.

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

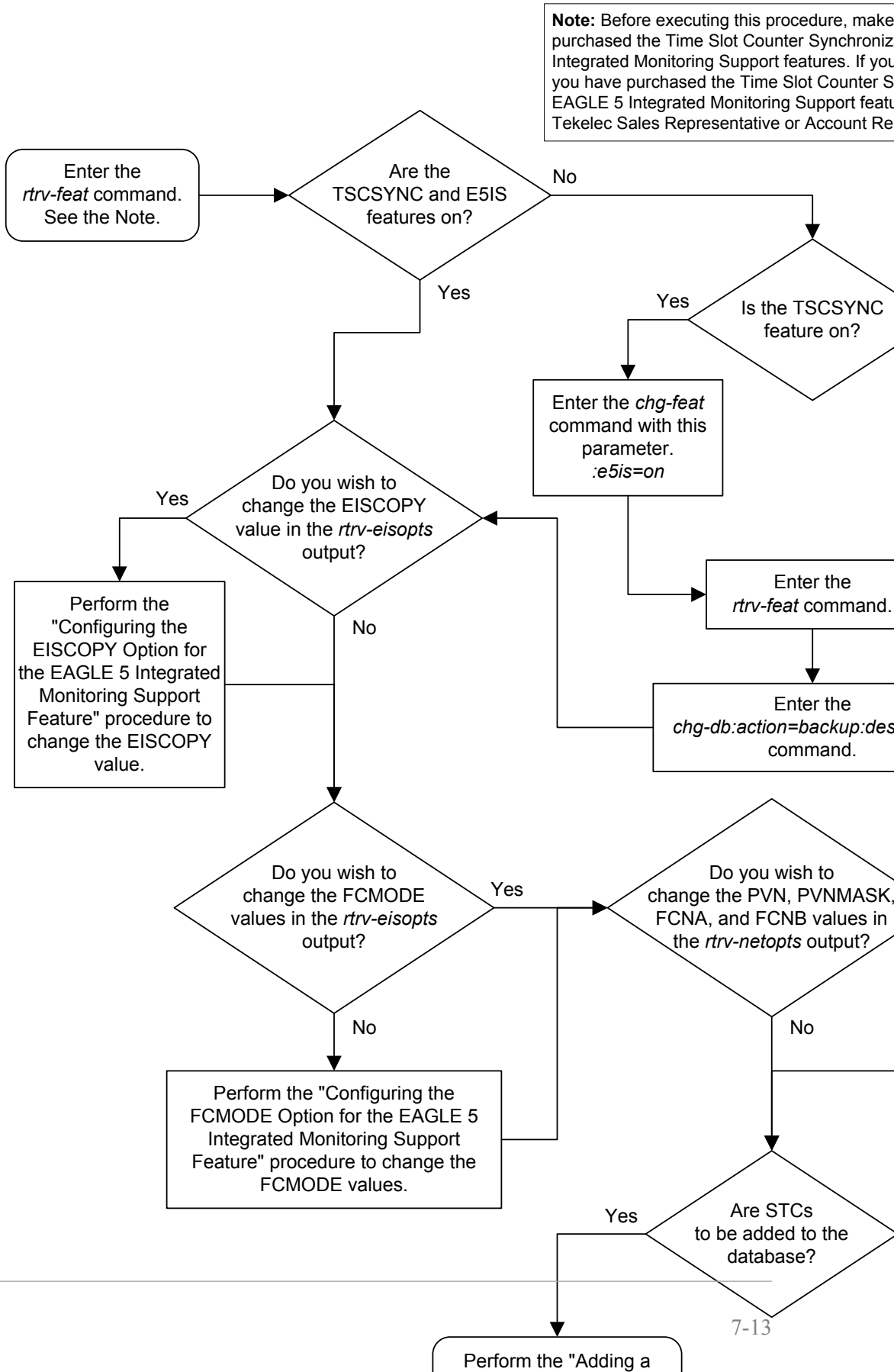
   These messages should appear, the active **Maintenance and Administration Subsystem** Processor (**MASP**) appears first.

```
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.
```

5. When the EAGLE 5 Integrated Monitoring Support feature is turned on, the values for the EISCOPY and FCMODE values in the `rtrv-eisopts` output, and the PVN, PVNMASK, FCNA, and FCNB values in the `rtrv-netopts` output are set to their default values. If you wish to change any of these values or add STC cards, perform the following procedures.

   - EISCOPY value - Configuring the EISCOPY Option for the EAGLE 5 Integrated Monitoring Support Feature
   - FCMODE value - Configuring the FCMODE Option for the EAGLE 5 Integrated Monitoring Support Feature
   - PVN, PVNMASK, FCNA, FCNB values - Configuring the IP Addresses for the EAGLE 5 Integrated Monitoring Support Feature
   - Add STC cards - Adding a Signaling Transport Card (STC)

**Figure 7-7 Enabling the Time Slot Counter Synchronization (TSCSYNC) and EAGLE 5 Integrated Monitoring Support (E5IS) Features**



# Configuring the EISCOPY Option for the EAGLE 5 Integrated Monitoring Support Feature

This procedure is used to configure the **EISCOPY** option for the **EAGLE** 5 Integrated Monitoring Support feature using the `chg-eisopts` command with the `eiscopy` parameter.

The `chg-eisopts` command can also be used to configure the `FCMODE` option. Perform Configuring the FCMODE Option for the EAGLE 5 Integrated Monitoring Support Feature to configure the `FCMODE` option.

The `eiscopy` parameter contains two values, on and off. 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 to copy **MSUs** to the **ESP**/**IMF** subsystem. The default value for the `eiscopy` parameter is `off`.

To change the **EISCOPY** option, the EAGLE 5 Integrated Monitoring Support feature (`E5IS`) must be turned on.

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 *Commands User's Guide*.

   If the EAGLE 5 Integrated Monitoring Support feature is not on, perform Enabling the Time Slot Counter Synchronization (TSCSYNC) and EAGLE 5 Integrated Monitoring Support (E5IS) Features to turn on the EAGLE 5 Integrated Monitoring Support feature. After the EAGLE 5 Integrated Monitoring Support feature is turned on, the `EISCOPY` and `FCMODE` values, shown in the `rtrv-eisopts` output, are `off`. After the EAGLE 5 Integrated Monitoring Support feature is turned on, continue the procedure with 3.

   If the EAGLE 5 Integrated Monitoring Support feature is on, continue the procedure with 2.

2. Display the **EISCOPY** option by entering the `rtrv-eisopts` command.

   This is an example of the possible output.

```
rlghncxa03w 10-07-07 11:43:04 GMT EAGLE5 42.0.0
EIS OPTIONS
------------------
EISCOPY = OFF

FAST COPY OPTIONS
-------------------------------
FCGPL = IPSG      FCMODE = OFF
```

```
FCGPL = IPGHC     FCMODE = OFF
-------------------------------
```

If the `EISCOPY` value is `OFF`, continue the procedure with 3.

If the `EISCOPY` value is `ON`, continue the procedure with 9.

3. Display the **STC** cards in the database using the `rept-stat-mon` command.

   This is an example of the possible output.

```
rlghncxa03w 10-07-01 09:12:36 GMT  EAGLE5 42.0.0

CARD   VERSION      PST           SST        AST        TVG   CPU
                                                        USAGE USAGE
-------------------------------------------------------------------
1105   126-002-000  IS-NR         Active     -----       35%    52%
1205   126-002-000  IS-NR         Active     -----       35%    52%
1211   126-002-000  IS-NR         Active     -----       35%    52%
1303   126-002-000  IS-NR         Active     -----       35%    52%
1311   126-002-000  IS-NR         Active     -----       35%    52%
1313   126-002-000  IS-NR         Active     -----       35%    52%
2211   126-002-000  IS-NR         Active     -----       35%    52%
2213   126-002-000  IS-NR         Active     -----       35%    52%
-------------------------------------------------------------------
```

> **Note:**
>
> The `rept-stat-mon` command output contains other fields that are not used by this procedure. If you wish to see all the fields displayed by the `rept-stat-mon` command, see the `rept-stat-mon` command description in *Commands User's Guide*.

At least two **STCs** must be shown in the `rept-stat-mon` 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-mon` output and the primary state of at least two of these **STCs** is `IS-NR`, continue the procedure with 5 .

If there are less than two STCs shown in the `rept-stat-mon` output, add the necessary **STCs** by performing Adding a Signaling Transport Card (STC). After the **STCs** have been added, continue the procedure with 5 .

If two or more **STCs** are shown in the `rept-stat-mon` output and the primary state of only one **STC** is IS-NR, or primary state of all of the STCs is not IS-NR, continue the procedure with 4.

4. Enter the `rst-card` command as necessary so that the primary state of at least two of the STCs shown in 3 is `IS-NR`. Specify the card location of the STC that is not `IS-NR`, shown in 3, with the `rst-card` command.

   For this example, enter these commands.

```
rst-card:loc=1205
```

```
rst-card:loc=1211
```

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

```
rlghncxa03w 09-02-28 09:12:36 GMT EAGLE5 40.1.0
Card has been allowed.
```

5. Display the IP addresses and the **PVN** subnet mask by entering the `rtrv-netopts` command.

   This is an example of the possible output.

```
rlghncxa03w 10-07-28 09:12:36 GMT EAGLE5 42.0.0
NETWORK OPTIONS
-----------------
PVN      = 172.20.48.0
PVNMASK  = 255.255.252.0
FCNA     = 172.21.48.0
FCNAMASK = 255.255.254.0
FCNB     = 172.22.48.0
FCNBMASK = 255.255.254.0
```

6. 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 10-07-28 21:14:37 GMT EAGLE5 42.0.0
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
```

7. Display the IP routes in the database with the `rtrv-ip-rte` command.

   This is an example of the possible output.

```
rlghncxa03w 10-07-28 09:12:36 GMT EAGLE5 45.0.0
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 2048) 0.24% full
```

8. The EISCOPY option cannot be turned on if any of these conditions are present.

   The subnet address that results from the PVN and PVNMASK, FCNA and FCNAMASK, or FCNB and FCNBMASK values in the `rtrv-netopts` output are the same as the subnet address resulting from the IPADDR and SUBMASK values in the `rtrv-ip-lnk` command, or the DEST and SUBMASK values of the `rtrv-ip-rte` command.

   The subnet address that results from the PVN and PVNMASK values in the `rtrv-netopts` output cannot be the same as the subnet addresses that result from the FCNA and FCNAMASK, or FCNB and FCNBMASK values in the `rtrv-netopts` output.

   The host portion of the subnet address that results from the PVN and PVNMASK value in the `rtrv-netopts` output is not 0 (zero).

   The PVNMASK value in the `rtrv-netopts` outputs not one of these values.

   255.255.0.0  255.255.128.0  255.255.192.0

| | | |
|---|---|---|
| 255.255.224.0 | 255.255.240.0 | 255.255.248.0 |
| 255.255.252.0 | 255.255.254.0 | 255.255.255.0 |

If any of these conditions are present, perform the Configuring the IP Addresses for the EAGLE 5 Integrated Monitoring Support Feature procedure to change the required IP addresses before proceeding to 9.

9. Change the **EISCOPY** option by performing one of these substeps.

   a. To turn the **EISCOPY** option on, enter this command.

      ```
      chg-eisopts:eiscopy=on
      ```

      If you wish to change the FCMODE values, perform the Configuring the FCMODE Option for the EAGLE 5 Integrated Monitoring Support Feature. This procedure is finished.

   b. To turn the **EISCOPY** option off and the FCMODE values of all the GPLS shown in the rtrv-eisopts output in 2 is 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.

   c. To turn the **EISCOPY** option off and the FCMODE values of any of the GPLS shown in the rtrv-eisopts output in 2 is either STC or FCOPY, enter this command.

      ```
      chg-eisopts:eiscopy=of:fcgpl=all:fcmode=off
      ```

      **Caution:**

      The **EAGLE** 5 Integrated Monitoring Support feature will be disabled if the **EISCOPY** option is turned off.

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

```
rlghncxa03w 09-02-20 21:18:37 GMT EAGLE5 40.1.0
CHG-EISOPTS: MASP A - COMPLTD
```

10. Verify the changes to the **EISCOPY** option by entering the rtrv-eisopts command.

    This is an example of the possible output.

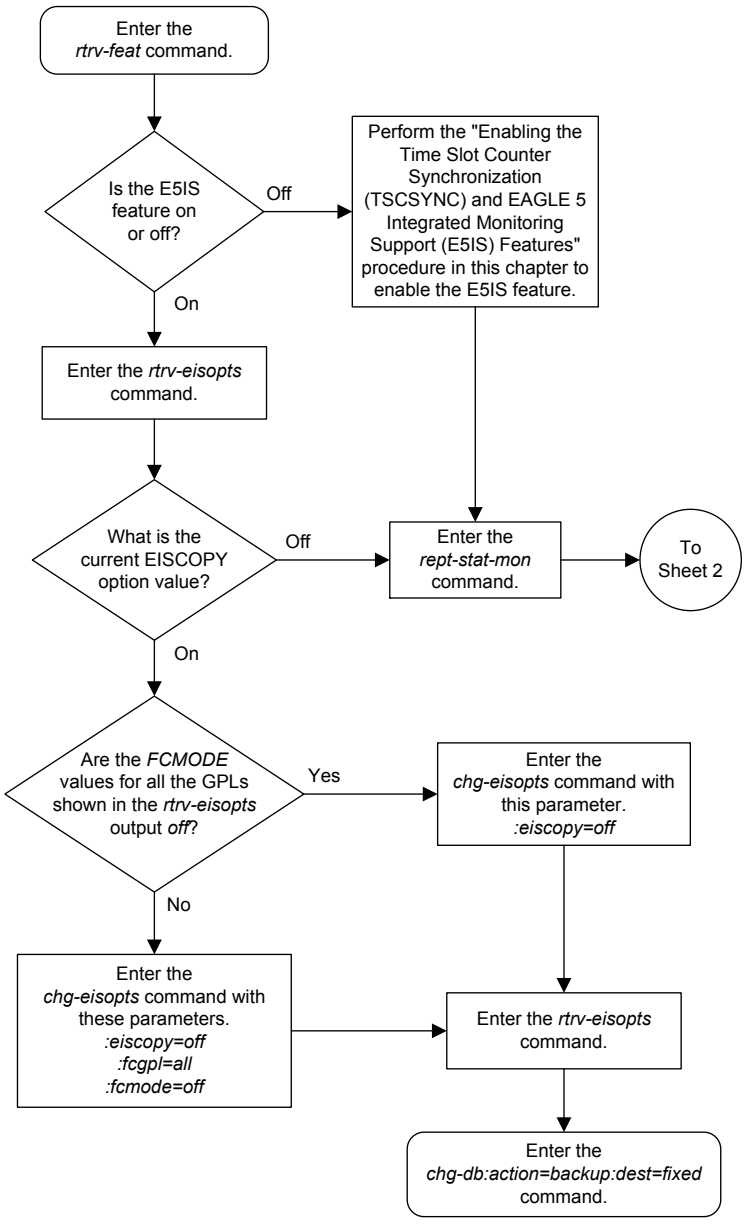
```
rlghncxa03w 10-07-07 11:43:04 GMT EAGLE5 42.0.0
EIS OPTIONS
------------------
EISCOPY = ON

FAST COPY OPTIONS
---------------------------------
FCGPL = IPSG      FCMODE = OFF
FCGPL = IPGHC     FCMODE = OFF
---------------------------------
```

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

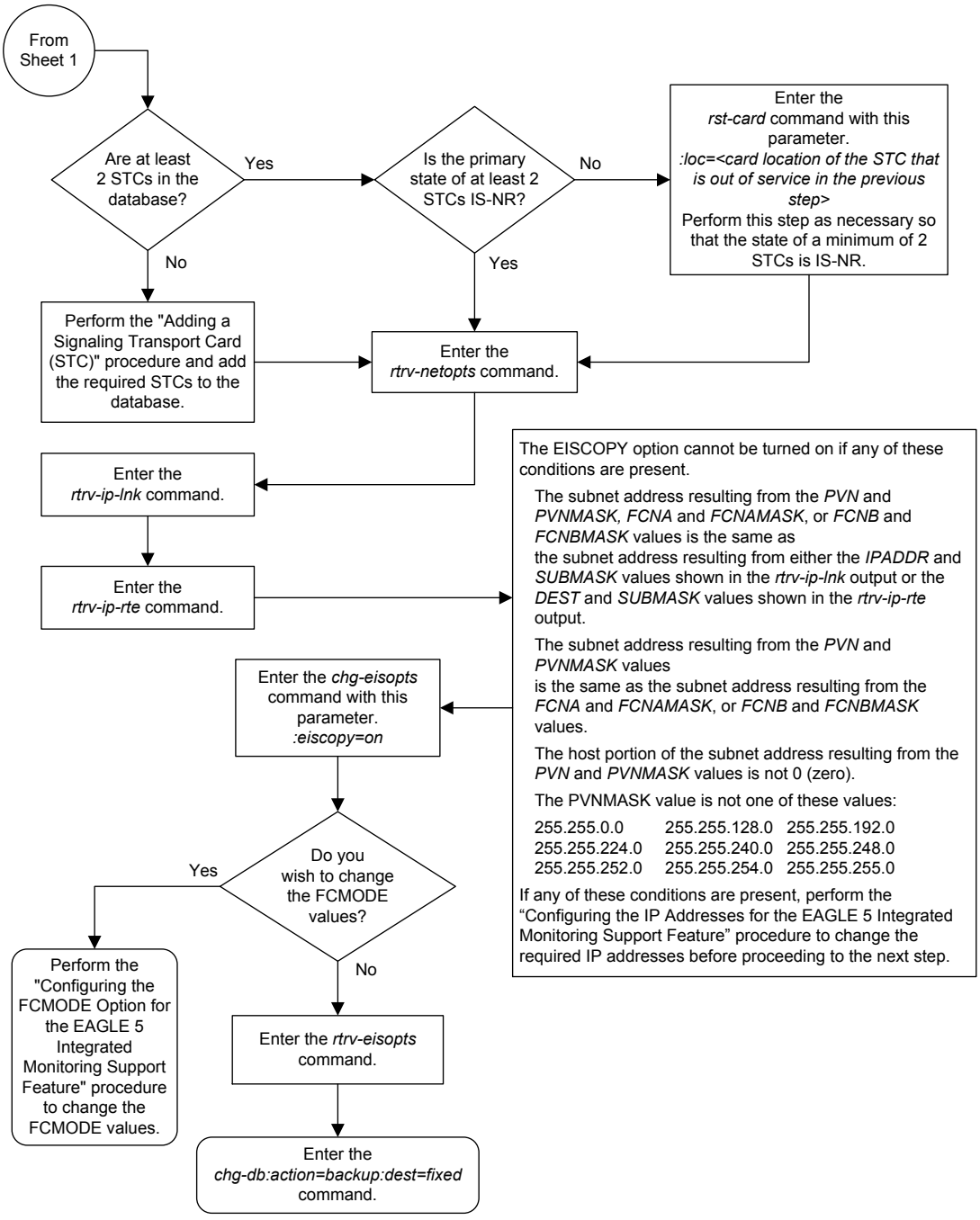
    These messages should appear, the active **Maintenance and Administration Subsystem** Processor (**MASP**) appears first.

```
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 7-8 Configuring the EISCOPY Option for the EAGLE 5 Integrated Monitoring Support Feature**




Sheet 1 of 2


From Sheet 1
Are at least 2 STCs in the database?
Yes
No
Is the primary state of at least 2 STCs IS-NR?
No
Yes
Enter the rst-card command with this parameter. :loc=<card location of the STC that is out of service in the previous step> Perform this step as necessary so that the state of a minimum of 2 STCs is IS-NR.
Perform the "Adding a Signaling Transport Card (STC)" procedure and add the required STCs to the database.
Enter the rtrv-netopts command.
Enter the rtrv-ip-lnk command.
Enter the rtrv-ip-rte command.
The EISCOPY option cannot be turned on if any of these conditions are present.
The subnet address resulting from the PVN and PVNMASK, FCNA and FCNAMASK, or FCNB and FCNBMASK values is the same as the subnet address resulting from either the IPADDR and SUBMASK values shown in the rtrv-ip-lnk output or the DEST and SUBMASK values shown in the rtrv-ip-rte output.
The subnet address resulting from the PVN and PVNMASK values is the same as the subnet address resulting from the FCNA and FCNAMASK, or FCNB and FCNBMASK values.
The host portion of the subnet address resulting from the PVN and PVNMASK values is not 0 (zero).
The PVNMASK value is not one of these values:
255.255.0.0 255.255.128.0 255.255.192.0
255.255.224.0 255.255.240.0 255.255.248.0
255.255.252.0 255.255.254.0 255.255.255.0
If any of these conditions are present, perform the “Configuring the IP Addresses for the EAGLE 5 Integrated Monitoring Support Feature” procedure to change the required IP addresses before proceeding to the next step.
Enter the chg-eisopts command with this parameter. :eiscopy=on
Do you wish to change the FCMODE values?
Yes
No
Perform the "Configuring the FCMODE Option for the EAGLE 5 Integrated Monitoring Support Feature" procedure to change the FCMODE values.
Enter the rtrv-eisopts command.
Enter the chg-db:action=backup:dest=fixed command.

Sheet 2 of 2

# Configuring the FCMODE Option for the EAGLE 5 Integrated Monitoring Support Feature

This procedure is used to configure the FCMODE option for the EAGLE 5 Integrated Monitoring Support feature with the `chg-eisopts` command and these parameters.

The `fcmode` parameter specifies a system-wide control to enable or disable monitoring on FC-capable cards. A card that can run the Fast Copy interface is referred to as an FC-capable card. E5-ENET-B and SLIC cards running the IPSG and IPGHC GPLs are the supported FC-capable cards. The `fcmode` parameter has three values.

- `off` - Monitoring is not performed on FC-capable cards.
- `stc` - STC monitoring is performed on FC-capable cards
- `fcopy` - FC monitoring is performed on FC-capable cards

The system default value for the `fcmode` parameter is `off`.

The `fcgpl` parameter specifies the type of cards that the monitoring specified by the `FCMODE` value will be applied to. The `fcgpl` parameter has three values.

- `ipsg` - monitoring is performed on E5-ENET-B and SLIC cards running the IPSG GPL (IPSG cards).
- `ipghc` - monitoring is performed on E5-ENET-B and SLIC cards running the IPGHC GPL.
- `all` - monitoring is performed on E5-ENET-B and SLIC cards running the IPSG and IPGHC GPLs.

The system default value for the `fcgpl` parameter is `all`.

To change the `FCMODE` values, the `EISCOPY` value, shown in the `rtrv-eisopts` output, must be `on`. See the Configuring the EISCOPY Option for the EAGLE 5 Integrated Monitoring Support Feature procedure for information about changing the `EISCOPY` value.

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 *Commands User's Guide*.

   If the EAGLE 5 Integrated Monitoring Support feature is off, perform Enabling the Time Slot Counter Synchronization (TSCSYNC) and EAGLE 5 Integrated Monitoring Support (E5IS) Features to turn on the EAGLE 5 Integrated Monitoring Support feature. After the EAGLE 5 Integrated Monitoring Support feature is turned on, the `EISCOPY` and `FCMODE` values for all the GPLs, shown in the `rtrv-eisopts` output, are `off`.

After the EAGLE 5 Integrated Monitoring Support feature is turned on, perform Configuring the EISCOPY Option for the EAGLE 5 Integrated Monitoring Support Feature to change the EISCOPY value to ON. When the EISCOPY value is changed to ON, the FCMODE values for all the GPLs are changed to STC.

- If the FCMODE values for all the GPLs will remain STC, this procedure is finished.
- If the FCMODE values for any of the GPLs will be changed, continue the procedure with by performing one of these steps.
  - If the fcgpl=all or fcgpl=ipghc parameters will be specified with the fcmode=fcopy parameter, continue the procedure with 3.
  - If the fcgpl=ipsg parameter will be specified with the fcmode=fcopy parameter, continue the procedure with 6.

If the EAGLE 5 Integrated Monitoring Support feature is on, continue the procedure with 2.

2. Display the **EISCOPY** option by entering the rtrv-eisopts command.

   This is an example of the possible output.

```
rlghncxa03w 10-07-07 11:43:04 GMT EAGLE5 42.0.0
EIS OPTIONS
------------------
EISCOPY = OFF

FAST COPY OPTIONS
-------------------------------
FCGPL = IPSG      FCMODE = OFF
FCGPL = IPGHC     FCMODE = OFF
-------------------------------
```

   Continue the procedure by performing one of these steps.

   - If the EISCOPY value is OFF, performConfiguring the EISCOPY Option for the EAGLE 5 Integrated Monitoring Support Feature to change the EISCOPY to ON. When the EISCOPY value is changed to ON, the FCMODE values for all the GPLs are changed to STC.
     - If the FCMODE values for all the GPLs will remain STC, this procedure is finished.
     - If the FCMODE values for any of the GPLs will be changed, continue the procedure by performing one of these steps.
       * If the fcgpl=all or fcgpl=ipghc parameters will be specified with the fcmode=fcopy parameter, continue the procedure with 3.
       * If the fcgpl=ipsg parameter will be specified with the fcmode=fcopy parameter, continue the procedure with 6.
   - If the EISCOPY value is ON, continue the procedure by performing one of these steps.
     - If the fcgpl=all or fcgpl=ipghc parameters will be specified with the fcmode=fcopy parameter, continue the procedure with 3.
     - If the fcgpl=ipsg parameter will be specified with the fcmode=fcopy parameter, continue the procedure with 6.

3. Display the IPGWx cards and their status by entering these commands.

   rept-stat-card:appl=ss7ipgw

This is an example of the possible output.

```
rlghncxa03w 10-07-24 11:13:29 GMT EAGLE5 42.0.0
CARD   VERSION      TYPE      GPL        PST            SST        AST
1205   133-008-000  DCM       IPGHC      IS-NR          Active     -----

Command Completed.
```

`rept-stat-card:appl=ipgwi`

This is an example of the possible output.

```
rlghncxa03w 10-07-24 11:13:29 GMT EAGLE5 42.0.0
CARD   VERSION      TYPE      GPL        PST            SST        AST
1207   133-008-000  DCM       IPGHC      IS-NR          Active     -----

Command Completed.
```

If no cards that are running the IPGHC GPL are shown in the `rept-stat-card` outputs, perform the "Adding an IPGWx Card" procedure in *Database Administration - IP7 User's Guide* to provision the necessary IPGWx cards that run the IPGHC GPL. The required IPGWx linksets, signaling links, and associations must also be provisioned.

After the required cards, linksets, signaling links, and associations have been provisioned, or if cards that are running the IPGHC GPL are shown in the `rept-stat-card` outputs, and the status of at least one of the cards is IS-NR,continue the procedure by performing one of these steps.

- If the `fcgpl=all` parameter will be specified with the `fcmode=fcopy` parameter, continue the procedure with 6.
- If the `fcgpl=all` parameter will not be specified with the `fcmode=fcopy` parameter, continue the procedure with 9.

If cards that are running the IPGHC GPL are shown in the `rept-stat-card` outputs, and the status of all the cards is not IS-NR, continue the procedure with 4.

4. Display the signaling links that are assigned to the cards displayed in 3 by entering this command.

   `rtrv-slk:type=ipgw`

   This is an example of the possible output.

```
rlghncxa03w 10-07-24 11:13:29 GMT EAGLE5 42.0.0

LOC  LINK LSN        SLC TYPE     ANAME           SLKTPS
1205 A    lsngtwy    0   SS7IPGW
1207 A    lsngtwy1   0   IPGWI

SLK table is (5 of 1200) 1% full.
```

   If signaling links are not shown in this output, perform the "Adding an IPGWx Signaling Link" procedure in *Database Administration - IP7 User's Guide* to add the signaling links to the cards that are running the IPGHC GPL. After the IPGWx signaling links have been added, continue the procedure by performing one of these steps.

   - If the `fcgpl=all` parameter will be specified with the `fcmode=fcopy` parameter, continue the procedure with 6.

- If the `fcgpl=all` parameter will not be specified with the `fcmode=fcopy` parameter, continue the procedure with 9.

If signaling links are shown in this output, continue the procedure with 5.

5. Put into service the card shown in 3 whose state is not IS-NR by entering the `rst-card` command with the location of the card. For this example, enter this command.

   `rst-card:loc=1205`

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

   ```
   rlghncxa03w 10-07-24 11:13:29 GMT EAGLE5 42.0.0
   Card has been allowed.
   ```

   After the card has been placed into service, continue the procedure by performing one of these steps.

   - If the `fcgpl=all` parameter will be specified with the `fcmode=fcopy` parameter, continue the procedure with 6.
   - If the `fcgpl=all` parameter will not be specified with the `fcmode=fcopy` parameter, continue the procedure with 9.

6. Display the IPSG cards and their status by entering this command.

   `rept-stat-card:appl=ipsg`

   This is an example of the possible output.

   ```
   rlghncxa03w 10-07-24 11:13:29 GMT EAGLE5 42.0.0
   CARD   VERSION      TYPE      GPL        PST            SST        AST
   1201   133-008-000  ENET      IPSG       IS-NR          Active     -----
   1202   133-008-000  ENET      IPSG       IS-NR          Active     -----
   Command Completed.
   ```

   If no cards that are running the IPSG GPL (an IPSG card) are shown in the `rept-stat-card` output, perform the "Adding an IPSG Card" procedure in *Database Administration - IP7 User's Guide* to provision the necessary IPSG cards. The required IPSG linksets, signaling links, and associations must also be provisioned. After the required cards, linksets, signaling links, and associations have been provisioned, continue the procedure with 9.

   If IPSG cards are shown in the `rept-stat-card` output, and the status of at least one of the cards is IS-NR, continue the procedure with 9.

   If IPSG cards are shown in the `rept-stat-card` outputs, and the status of all the cards is not IS-NR, continue the procedure with 7.

7. Display the signaling links that are assigned to the cards displayed in 6 by entering this command.

   `rtrv-slk:type=ipsg`

   This is an example of the possible output.

   ```
   rlghncxa03w 10-07-24 11:13:29 GMT EAGLE5 42.0.0

   LOC  LINK LSN        SLC TYPE     ANAME          SLKTPS/        MAXSLKTPS
                                                    RSVDSLKTPS
   1201 A    lsnipsg    0   IPSG     assoc1         10             500
   1202 A    lsnipsg1   0   IPSG     assoc2         10             500
   ```

```
SLK table is (5 of 1200) 1% full.
```

If signaling links are not shown in this output, perform either the "Adding an IPSG M2PA Signaling Link" procedure or "Adding an IPSG M3UA Signaling Link" procedure in *Database Administration - IP7 User's Guide* to add the signaling links to the IPSG cards. After the IPSG signaling links have been added, continue the procedure with 9.

If signaling links are shown in this output, continue the procedure with 8.

8. Put into service the card shown in 6 whose state is not IS-NR by entering the `rst-card` command with the location of the card. For this example, enter this command.

   ```
   rst-card:loc=1201
   ```

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

   ```
   rlghncxa03w 10-07-24 11:13:29 GMT EAGLE5 42.0.0
   Card has been allowed.
   ```

   After the card has been placed into service, continue the procedure with 9.

9. Change the `FCMODE` value by entering the `chg-eisopts` command with these parameters.

   The `fcmode` parameter with one of these values.

   - `off` - Monitoring is not performed on FC-capable cards.
   - `stc` - STC monitoring is performed on FC-capable cards
   - `fcopy` - FC monitoring is performed on FC-capable cards

   The `fcgpl` parameter with one of these values.

   - `ipsg` - monitoring is performed on E5-ENET cards running the IPSG GPL (IPSG cards).
   - `ipghc` - monitoring is performed on E5-ENET cards running the IPGHC GPL.
   - `all` - monitoring is performed on E5-ENET cards running the IPSG and IPGHC GPLs. This is the default value for the `fcgpl` parameter if the `fcgpl` parameter is not specified.

   If the `fcgpl` parameter is specified with the `chg-eisopts` command, the `fcmode` parameter must be specified.

   For this example, enter one of these commands.

   a. To change the `FCMODE` value for IPSG cards to off, enter this command.

      ```
      chg-eisopts:fcmode=off:fcgpl=ipsg
      ```

   b. To change the `FCMODE` value for E5-ENET cards running the IPGHC GPL to STC, enter this command.

      ```
      chg-eisopts:fcmode=stc:fcgpl=ipghc
      ```

   c. To change the `FCMODE` value for IPSG cards and E5-ENET cards running the IPGHC GPL to FCOPY, enter one of these commands.

      ```
      chg-eisopts:fcmode=fcopy:fcgpl=all
      ```

      ```
      chg-eisopts:fcmode=fcopy
      ```

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

```
rlghncxa03w 09-02-20 21:18:37 GMT EAGLE5 40.1.0
CHG-EISOPTS: MASP A - COMPLTD
```

10. Verify the changes to the **FCMODE** option by entering the `rtrv-eisopts` command.

    For substep a in 9, this is an example of the output.

```
rlghncxa03w 10-07-07 11:43:04 GMT EAGLE5 42.0.0
EIS OPTIONS
------------------
EISCOPY = ON

FAST COPY OPTIONS
-------------------------------
FCGPL = IPSG      FCMODE = OFF
FCGPL = IPGHC     FCMODE = STC
-------------------------------
```

    For substep b in 9, this is an example of the output.

```
rlghncxa03w 10-07-07 11:43:04 GMT EAGLE5 42.0.0
EIS OPTIONS
------------------
EISCOPY = ON

FAST COPY OPTIONS
-------------------------------
FCGPL = IPSG      FCMODE = FCOPY
FCGPL = IPGHC     FCMODE = STC
-------------------------------
```

    For substep c in 9, this is an example of the output.

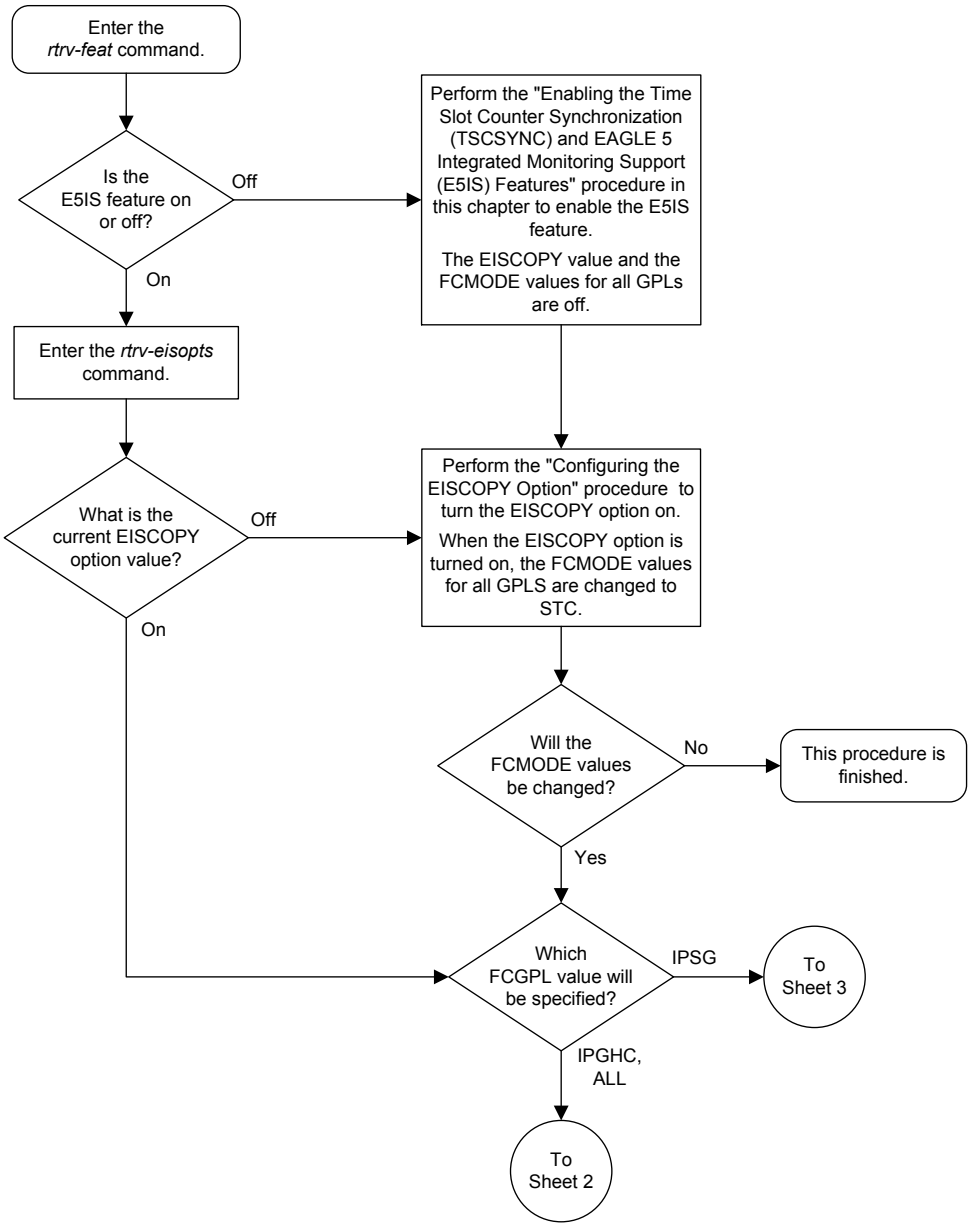
```
rlghncxa03w 10-07-07 11:43:04 GMT EAGLE5 42.0.0
EIS OPTIONS
------------------
EISCOPY = ON

FAST COPY OPTIONS
-------------------------------
FCGPL = IPSG      FCMODE = FCOPY
FCGPL = IPGHC     FCMODE = FCOPY
-------------------------------
```

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

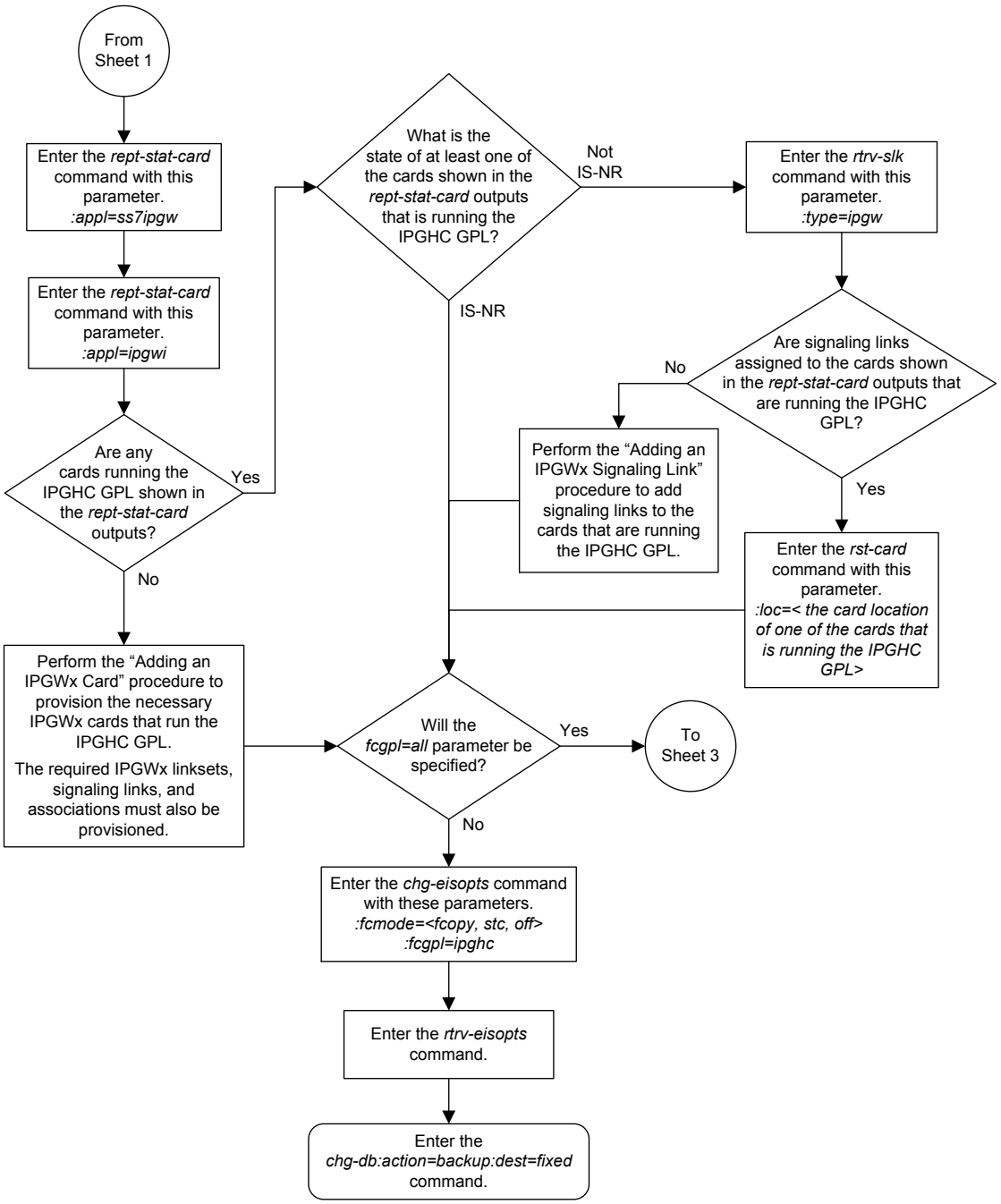
    These messages should appear, the active **Maintenance and Administration Subsystem** Processor (**MASP**) appears first.

```
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.
```

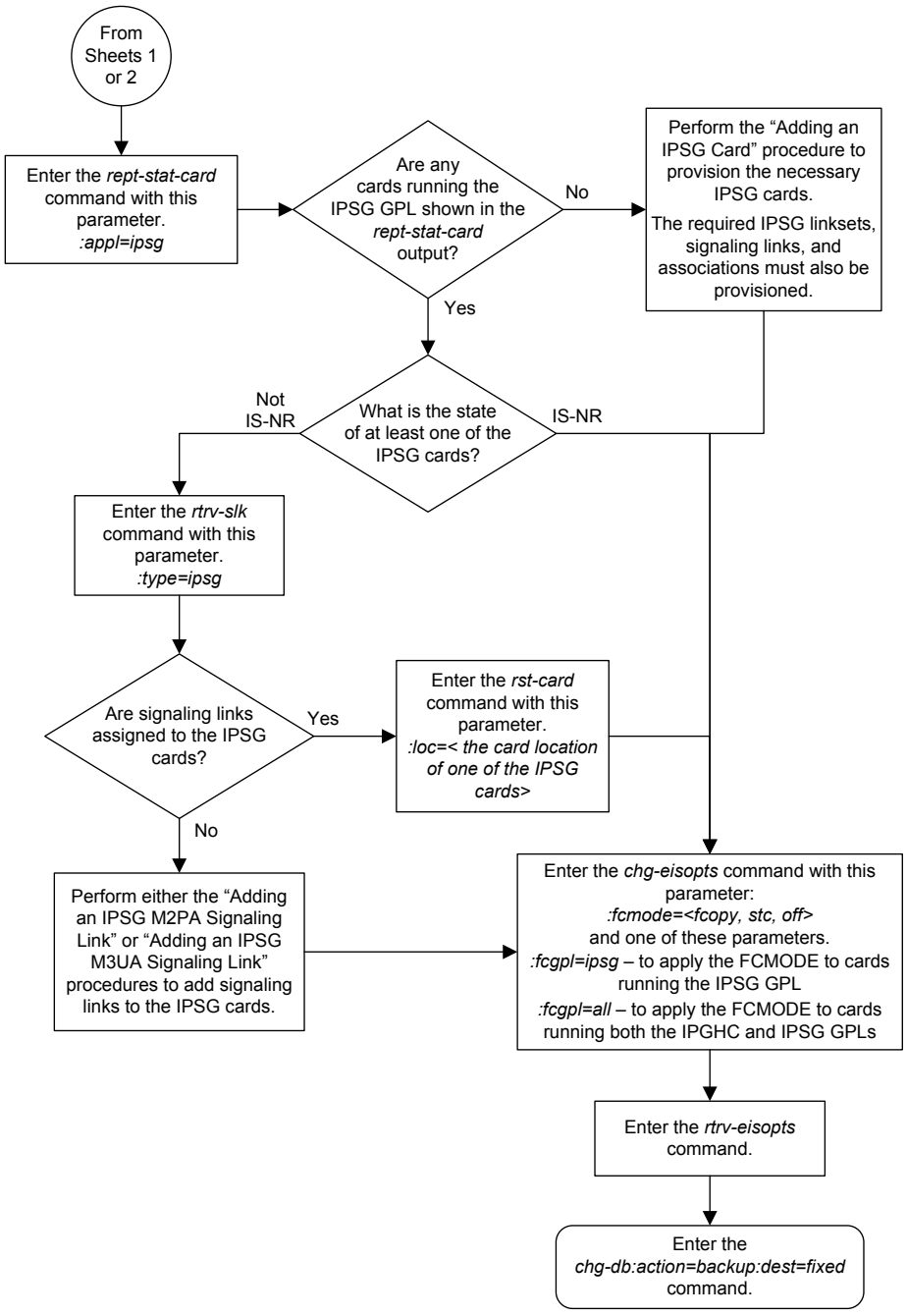
**Figure 7-9 Configuring the FCMODE Option for the EAGLE 5 Integrated Monitoring Support Feature**




Sheet 1 of 3


From Sheet 1
Enter the rept-stat-card command with this parameter. :appl=ss7ipgw
Enter the rept-stat-card command with this parameter. :appl=ipgwi
Are any cards running the IPGHC GPL shown in the rept-stat-card outputs?
Yes
No
What is the state of at least one of the cards shown in the rept-stat-card outputs that is running the IPGHC GPL?
Not IS-NR
IS-NR
Enter the rtrv-slk command with this parameter. :type=ipgw
Are signaling links assigned to the cards shown in the rept-stat-card outputs that are running the IPGHC GPL?
No
Yes
Perform the "Adding an IPGWx Signaling Link" procedure to add signaling links to the cards that are running the IPGHC GPL.
Enter the rst-card command with this parameter. :loc=< the card location of one of the cards that is running the IPGHC GPL>
Perform the "Adding an IPGWx Card" procedure to provision the necessary IPGWx cards that run the IPGHC GPL.
The required IPGWx linksets, signaling links, and associations must also be provisioned.
Will the fcgpl=all parameter be specified?
Yes
To Sheet 3
No
Enter the chg-eisopts command with these parameters. :fcmode=<fcopy, stc, off> :fcgpl=ipghc
Enter the rtrv-eisopts command.
Enter the chg-db:action=backup:dest=fixed command.

Sheet 2 of 3


From Sheets 1 or 2
Enter the *rept-stat-card* command with this parameter. *:appl=ipsg*
Are any cards running the IPSG GPL shown in the *rept-stat-card* output?
No
Perform the "Adding an IPSG Card" procedure to provision the necessary IPSG cards.
The required IPSG linksets, signaling links, and associations must also be provisioned.
Yes
What is the state of at least one of the IPSG cards?
Not IS-NR
IS-NR
Enter the *rtrv-slk* command with this parameter. *:type=ipsg*
Are signaling links assigned to the IPSG cards?
Yes
Enter the *rst-card* command with this parameter. *:loc=< the card location of one of the IPSG cards>*
No
Perform either the "Adding an IPSG M2PA Signaling Link" or "Adding an IPSG M3UA Signaling Link" procedures to add signaling links to the IPSG cards.
Enter the *chg-eisopts* command with this parameter:
*:fcmode=<fcopy, stc, off>*
and one of these parameters.
*:fcgpl=ipsg* – to apply the FCMODE to cards running the IPSG GPL
*:fcgpl=all* – to apply the FCMODE to cards running both the IPGHC and IPSG GPLs
Enter the *rtrv-eisopts* command.
Enter the *chg-db:action=backup:dest=fixed* command.

Sheet 3 of 3

# Configuring the IP Addresses for the EAGLE 5 Integrated Monitoring Support Feature

This procedure is used to configure the IP addresses and the PVNMASK value used for the EAGLE 5 Integrated Monitoring Support feature using the `chg-netopts` command with the `pvn`, `pvnmask`, `fcna`, and `fcnb` parameters.

The `pvn` and `pvnmask` parameters define the network used by the STCs to transmit copied **MSUs** between the EAGLE and the **ESP**/IMF subsystem. The IP communications link to the ESP/**IMF** subsystem is dynamically configured by the Sentinel/IMF. The **LIMs** are assigned Class B private network **IP** addresses (for example, 172.28.60.0), 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.

The EAGLE 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, 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. For the `EISCOPY` value to be OFF, the `FCMODE` values for all the GPLs must be `OFF`. If the `FCMODE` values for all the GPLs are `OFF`, the `FCNA` and `FCNB` values can also be changed.

The `fcna` and `fcnb` parameters define, along with the `FCNAMASK` and `FCNBMASK` values shown in the `rtrv-netopts` output, the network used by the Fast Copy networks A and B. The IP address is assigned to the **FC-capable** cards dynamically based on the `fcna` and `fcnb` parameter values. A card that can run the Fast Copy interface is referred to as an FC-capable card. Currently, cards running the IPGHC and IPSG GPLs are the only supported FC-capable cards. The default value for the `fcna` parameter is 172.21.48.0. The default value for the `fcnb` parameter is 172.22.48.0. The `FCNAMASK` and `FCNBMASK` values are 255.255.254.0 and cannot be changed. To change the `fcna` and `fcnb` parameter values, the **FCMODE** values for all the GPLs shown in the `rtrv-eisopts` output must be either `off` or `stc`. The `fcna` and `fcnb` parameter values can be a Class A, B, or C IP address. The third segment of the IP address can only contain an even number. The value of the fourth segment of the IP address must be 0 (zero).

The subnet address that results from the `PVN` and `PVNMASK`, `FCNA` and `FCNAMASK`, or `FCNB` and `FCNBMASK` 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 to the `PVN` and `PVNMASK` values 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`, `fcna`, or `fcnb` 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.

**Caution:**

When configuring the IP addresses, make sure that the IP addresses do not conflict with the DHCP IP addresses that are leased to the STC cards. Any conflicting IP addresses can adversely affect the EAGLE 5 Integrated Monitoring Support feature.

To change the IP addresses and the PVNMASK value, the EAGLE 5 Integrated Monitoring Support feature (E5IS) must be turned on.

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 *Commands User's Guide*.

   If the EAGLE 5 Integrated Monitoring Support feature is not on, perform Enabling the Time Slot Counter Synchronization (TSCSYNC) and EAGLE 5 Integrated Monitoring Support (E5IS) Features to turn on the EAGLE 5 Integrated Monitoring Support feature. After the EAGLE 5 Integrated Monitoring Support feature is turned on, the EISCOPYvalue and the FCMODE values for all the GPLs, shown in the `rtrv-eisopts` output, are off. After the EAGLE 5 Integrated Monitoring Support feature is turned on, continue the procedure with 3.

   If the EAGLE 5 Integrated Monitoring Support feature is on, continue the procedure with 2.

2. Display the **EISCOPY** and **FCMODE**values by entering the `rtrv-eisopts` command.

   This is an example of the possible output.

```
rlghncxa03w 10-07-28 09:12:36 GMT EAGLE5 42.0.0
EIS OPTIONS
------------------
EISCOPY = ON

FAST COPY OPTIONS
--------------------------------
FCGPL = IPSG      FCMODE = FCOPY
FCGPL = IPGHC     FCMODE = FCOPY
--------------------------------
```

   Continue the procedure by performing one of these actions.

   - If the PVN and PVNMASK values are being changed and the EISCOPY value is ON, perform the Configuring the EISCOPY Option for the EAGLE 5 Integrated Monitoring Support Feature procedure to change the EISCOPY value to OFF. After the Configuring the EISCOPY Option for the EAGLE 5 Integrated Monitoring Support Feature procedure has been performed, continue the procedure with 3. For the

EISCOPY value to be OFF, the FCMODE values for all the GPLs shown in the rtrv-eisopts output must be OFF. If the FCMODE values for all the GPLs shown in the rtrv-eisopts output are OFF, the FCNA and FCNB values can also be changed. If the EISCOPY value is OFF, continue the procedure with 3.

- If only the FCNA or FCNB values are being changed and the FCMODE value is FCOPY, perform the Configuring the FCMODE Option for the EAGLE 5 Integrated Monitoring Support Feature procedure to change the FCMODE values for all the GPLs shown in the rtrv-eisopts output to OFF or STC. After the Configuring the FCMODE Option for the EAGLE 5 Integrated Monitoring Support Feature procedure has been performed, continue the procedure with 3.
  If the FCMODE values for all the GPLs shown in the rtrv-eisopts output is OFF or STC, continue the procedure with 3.

3. Display the IP addresses and the **PVN** subnet mask by entering the rtrv-netopts command.

   This is an example of the possible output.

```
rlghncxa03w 09-02-28 09:12:36 GMT EAGLE5 40.1.0
NETWORK OPTIONS
----------------
PVN      = 172.20.48.0
PVNMASK  = 255.255.252.0
FCNA     = 172.21.48.0
FCNAMASK = 255.255.254.0
FCNB     = 172.22.48.0
FCNBMASK = 255.255.254.0
```

4. 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 09-02-28 21:14:37 GMT EAGLE5 40.1.0
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
```

5. Display the **IP** routes in the database with the rtrv-ip-rte command.

   This is an example of the possible output.

```
rlghncxa03w 09-02-28 09:12:36 GMT EAGLE5 45.0.0
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 2048) 0.24% full
```

6. The subnet address that results from the pvn and pvnmask, fcna and fcnamask, or fcnb and fcnbmask 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 to the PVN and PVNMASK values 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 in 4 and 5.

Choose `pvn` and `pvnmask`, `fcna`, or `fcnb` 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 4, or the `dest` and `submask` values of the `rtrv-ip-rte` command in 5. Continue the procedure with 7.

7. Change the PVN and PVNMASK, FCNA, or FCNB values by entering the `chg-netopts` command.

   To change the PVN and PVNMASK values, for this example, enter this command.

   ```
   chg-netopts:pvn=158.30.0.0:pvnmask=255.255.252.0
   ```

   To change either the FCNA, FCNB, or both the FCNA and FCNB values, for this example, enter one of these commands.

   ```
   chg-netopts:fcna=180.37.56.0
   ```

   ```
   chg-netopts:fcnb=181.37.56.0
   ```

   ```
   chg-netopts:fcna=180.37.56.0:fcnb=181.37.56.0
   ```

   To change the PVN, PVNMASK, FCNA, and FCNB values, for this example, enter this command.

   ```
   chg-
   netopts:pvn=158.30.0.0:pvnmask=255.255.252.0:fcna=180.37.56.0
   :fcnb=181.37.56.0
   ```

   **Notes:**

   - At least one of the `pvn` and `pvnmask`, `fcna`, or `fcnb` parameters must be specified with the `chg-netopts` command.
   - The `pvn` parameter value must be a Class B IP address. The host portion of the subnet address that results from the `pvn` and `pvnmask` parameter values must be 0 (zero).
   - If either the `pvn` or `pvnmask` parameters are specified with the `chg-netopts` command, both parameters must be specified.
   - The third segment of the IP address specified for the `fcna` and `fcnb` parameters can only contain an even number. The value of the fourth segment of the IP address must be 0 (zero).
   - The FCNAMASK and FCNBMASK values shown in the `rtrv-netopts` output in 3 cannot be changed.
   - The PVNMASK value must be one of these values.

     | | | |
     |---|---|---|
     | 255.255.0.0 | 255.255.128.0 | 255.255.192.0 |
     | 255.255.224.0 | 255.255.240.0 | 255.255.248.0 |
     | 255.255.252.0 | 255.255.254.0 | 255.255.255.0 |

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

   ```
   rlghncxa03w 11-03-20 21:18:37 GMT EAGLE5 43.0.0
   ```

```
Caution: Ensure that configured PVN/FCNA/FCNB addresses do not conflict
with the DHCP IP addresses leased to STC cards.

CHG-NETOPTS: MASP A - COMPLTD
```

8. Verify the changes using the `rtrv-netopts` command.

   This is an example of the possible output.

```
rlghncxa03w 10-07-28 09:12:36 GMT EAGLE5 42.0.0
NETWORK OPTIONS
-----------------
PVN      = 158.30.0.0
PVNMASK  = 255.255.252.0
FCNA     = 180.37.56.0
FCNAMASK = 255.255.254.0
FCNB     = 181.37.56.0
FCNBMASK = 255.255.254.0
```

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.

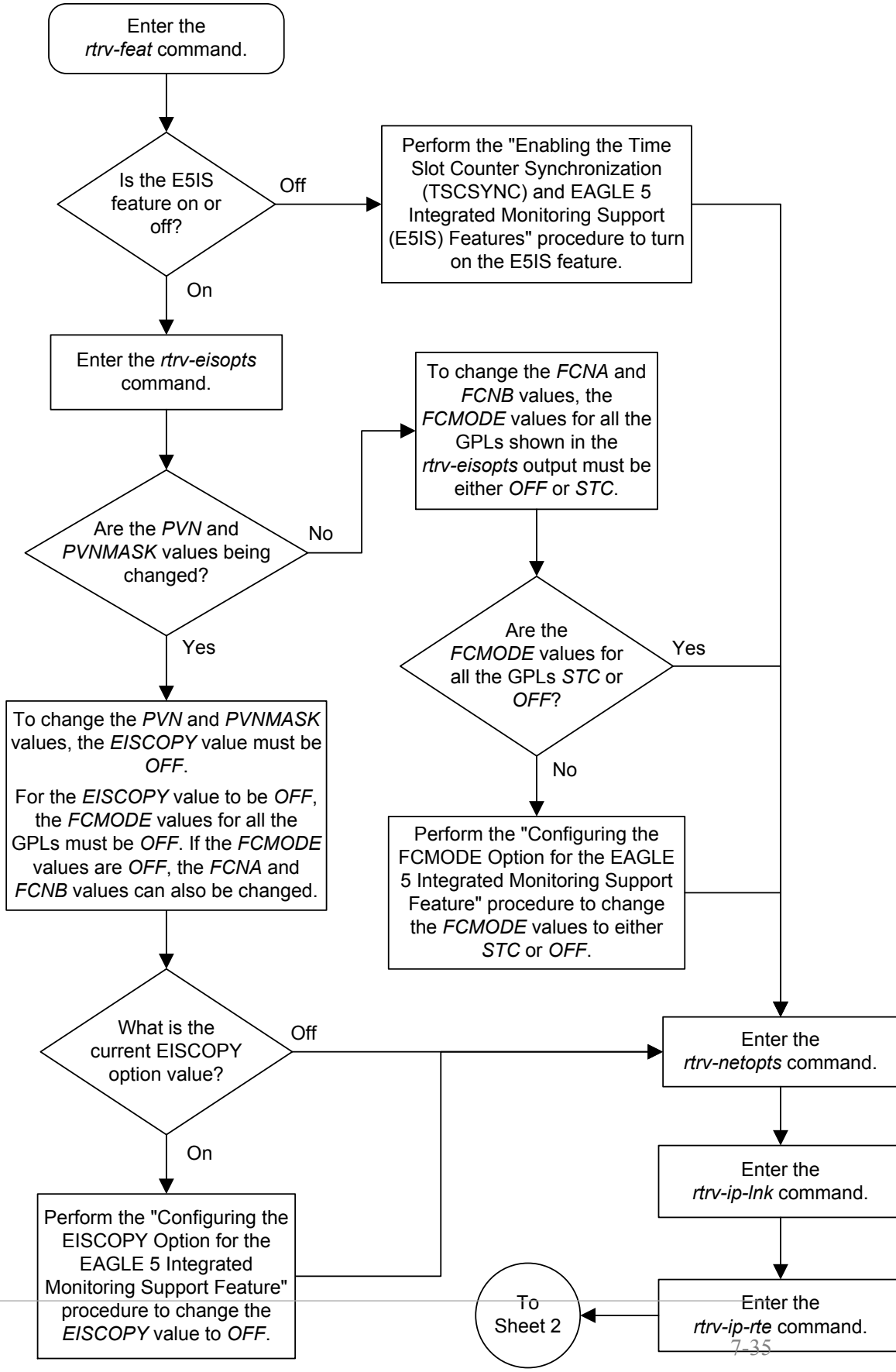
```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk complete.
BACKUP (FIXED) : MASP A - Backup starts on standby MASP.
BACKUP (FIXED) : MASP A - Backup on standby MASP to fixed disk complete.
```

   If you do not wish to change the `EISCOPY`value or change the `FCMODE`values, this procedure is finished.

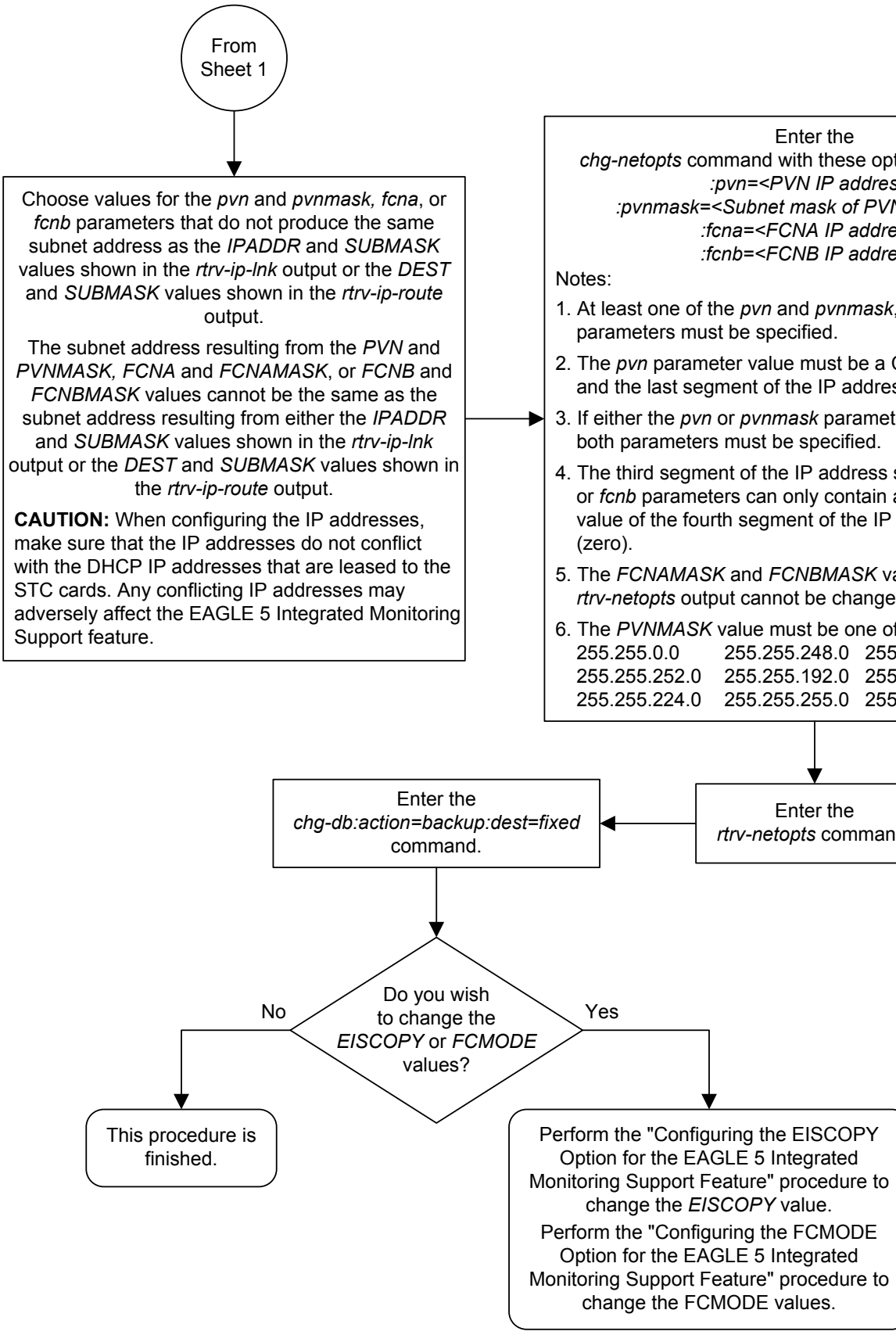
   If you wish to change the `EISCOPY`value, perform Configuring the EISCOPY Option for the EAGLE 5 Integrated Monitoring Support Feature.

   If you wish to change the `FCMODE`values, perform Configuring the FCMODE Option for the EAGLE 5 Integrated Monitoring Support Feature.

**Figure 7-10 Configuring the IP Addresses for the EAGLE 5 Integrated Monitoring Support Feature**



Sheet 1 of 2


From Sheet 1
Choose values for the pvn and pvnmask, fcna, or fcnb parameters that do not produce the same subnet address as the IPADDR and SUBMASK values shown in the rtrv-ip-lnk output or the DEST and SUBMASK values shown in the rtrv-ip-route output.
The subnet address resulting from the PVN and PVNMASK, FCNA and FCNAMASK, or FCNB and FCNBMASK values cannot be the same as the subnet address resulting from either the IPADDR and SUBMASK values shown in the rtrv-ip-lnk output or the DEST and SUBMASK values shown in the rtrv-ip-route output.
CAUTION: When configuring the IP addresses, make sure that the IP addresses do not conflict with the DHCP IP addresses that are leased to the STC cards. Any conflicting IP addresses may adversely affect the EAGLE 5 Integrated Monitoring Support feature.
Enter the
chg-netopts command with these opt
:pvn=<PVN IP addres
:pvnmask=<Subnet mask of PVN
:fcna=<FCNA IP addre
:fcnb=<FCNB IP addre
Notes:
1. At least one of the pvn and pvnmask,
parameters must be specified.
2. The pvn parameter value must be a C
and the last segment of the IP addres
3. If either the pvn or pvnmask paramet
both parameters must be specified.
4. The third segment of the IP address s
or fcnb parameters can only contain a
value of the fourth segment of the IP
(zero).
5. The FCNAMASK and FCNBMASK va
rtrv-netopts output cannot be change
6. The PVNMASK value must be one of
255.255.0.0 255.255.248.0 255
255.255.252.0 255.255.192.0 255
255.255.224.0 255.255.255.0 255
Enter the
rtrv-netopts comman
Enter the
chg-db:action=backup:dest=fixed
command.
Do you wish
to change the
EISCOPY or FCMODE
values?
No
Yes
This procedure is
finished.
Perform the "Configuring the EISCOPY Option for the EAGLE 5 Integrated Monitoring Support Feature" procedure to change the EISCOPY value.
Perform the "Configuring the FCMODE Option for the EAGLE 5 Integrated Monitoring Support Feature" procedure to change the FCMODE values.

Sheet 2 of 2

# 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** and the **ESP** (**EAGLE** Integrated Monitoring Support feature). The **STC** allows the **ESP** subsystem to monitor the **EAGLE**'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`.

`:appl` – The application software 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 **LIM**s in the **EAGLE**. 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 7-2.

**Table 7-2 STC Part Numbers**

| Card Type | Card Name (as shown on the card Label) | Part Number |
|---|---|---|
| E5-STC | E5-ENET | 870-2212-02 |
| | E5-ENET-B | 870-2971-XX |

The dual-slot **STC** can be inserted only in card slots 01, 03, 05, 07, 11, 13, 15, and 17 of the extension shelf. The dual-slot **STC** can be inserted in the control shelf, but only in slots 01, 03, 05, 07, and 11. 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 7-3. The dual-slot **STC** is connected to the network through the odd numbered card slot connector.

**Table 7-3 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 7-3, 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 *Database Administration - System Management User's Guide*.

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 **MSU**s being handled by the **EAGLE**

> **Note:**
>
> Perform the "Changing the High-Capacity Card Temperature Alarm Thresholds" procedure in *Database Administration -SS7 User's Guide* to verify the temperature threshold settings for the **E5-STC** card.

**STC Provisioning**

The following rules apply to provisioning STCs.

- A minimum of two STCs must be provisioned in the EAGLE.
- The maximum number of STCs that can be provisioned in the EAGLE is 32.
- Only single-slot STCs can be installed and provisioned in the EAGLE if IP signaling links are being monitored. Dual-slot STCs cannot be installed or provisioned.
- HIPR2 cards must be installed in the shelf that contains E5-STCs.
- For shelves containing HIPR2 cards in card slots 9 and 10, these rules apply to provisioning STCs.
  - STCs should be provisioned in the same shelf that contains the cards being monitored.
  - More than three STCs can be provisioned in the shelf depending on the number of empty cards slots the shelf has.
- To monitor signaling links on these cards, HIPR2 cards must be installed in slots 9 and 10 of the shelf that contains these cards.
  - E5-ENET cards that contain IP signaling links.
  - E5-E1T1 cards that contain E1 or T1 signaling links.
- If the E5-STC card is an E5-ENET-B card, the FAN feature must be turned on and fans must be installed on the shelf that contains the E5-ENET-B card. Enter the `rtrv-feat` command to verify whether or not the FAN feature is turned on. Perform the procedures in *Installation Guide* to install fans on the shelf that contains the E5-ENET-B card if fans must be installed. The MFC (message flow control) option must be on. Enter the `rtrv-stpopts` command to verify whether or not the MFC option is on. Perform the Configuring the MFC Option procedure to turn the MFC option on, if required.

> **Note:**
>
> Contact your Sales Representative or Account Representative to determine the number of **STC**s that must be provisioned in your **EAGLE**, and to determine where in the **EAGLE** these STC cards must provisioned before performing this procedure.

The examples in this procedure are used to add an **STC** card in these card locations: 1303, 2101, and 2102.

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

```
rlghncxa03w 09-05-28 09:12:36 GMT EAGLE5 46.0.0
CARD   TYPE      APPL      LSET NAME     LINK SLC LSET NAME     LINK SLC
1102   TSM       GLS
1113   E5-MCAP   OAMHC
1114   E5-TDM-A
1115   E5-MCAP   OAMHC
1116   E5-TDM-B
1117   E5-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
1216   E5-ENET-B STPLAN
1301   E5-SM4G   SCCPHC
1308   LIMDS0    SS7ANSI   sp6           A    1   sp7           B    0
1314   LIMDS0    SS7ANSI   sp7           A    1   sp5           B    1
1317   E5-ENET-B STPLAN
```

   The cards should be distributed throughout the **EAGLE** for proper power distribution. Refer to *Installation Guide* for the shelf power distribution.

2. Verify that the EAGLE 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. To see all fields displayed by the `rtrv-feat` command, see the `rtrv-feat` command description in *Commands User's Guide*.

   > **Note:**
   >
   > If the EAGLE 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 procedure and enable the **EAGLE** Integrated Monitoring Support feature.

   If **HIPR2** cards are not required for provisioning **STC** cards, refer to STC Provisioning to determine if HIPR2 cards are required, continue the procedure with 9.

If **HIPR2** cards are required for provisioning **STC** cards, continue the procedure with the next step.

3. Verify that the **HIPR** cards are installed in card locations 9 and 10 in the shelf before adding the **STC** cards in this procedure. Enter this command.

```
rept-stat-gpl:gpl=hipr
```

```
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 **HIPR2** cards are installed in the shelf containing the **STC** cards, continue the procedure with 9, continue the procedure by performing one of these steps.

- If the card that is being added is an E5-ENET card, continue the procedure with 9.
- If the card that is being added is an E5-ENET-B card, continue the procedure with 5.

If HIPR cards are not installed in the shelf containing the STC cards, continue the procedure with 4.

4. Verify that the **HIPR2** cards are installed in card locations 9 and 10 in the shelf before adding the **STC** cards in this procedure. Enter this command.

```
rept-stat-gpl:gpl=hipr2
```

This is an example of the possible output.

```
rlghncxa03w 09-07-01 11:40:26 GMT  EAGLE5 41.1.0
GPL        CARD      RUNNING            APPROVED      TRIAL
HIPR2      1109      126-002-000        126-002-000   126-003-000
HIPR2      1110      126-002-000        126-002-000   126-003-000
HIPR2      1209      126-002-000        126-002-000   126-003-000
HIPR2      1210      126-002-000        126-002-000   126-003-000
HIPR2      1309      126-002-000        126-002-000   126-003-000
HIPR2      1310      126-002-000        126-002-000   126-003-000
HIPR2      2109      126-002-000        126-002-000   126-003-000
HIPR2      2110      126-002-000        126-002-000   126-003-000
Command Completed
```

If HIPR2 cards are installed at card locations 9 and 10 in the shelf containing the STC cards, continue the procedure with 9.

If HIPR2 cards are not installed in the shelf containing the STC cards, refer to *Installation Guide* to install the HIPR2 cards. Once the HIPR2 cards have been installed, continue the procedure with 9.

After the procedures in *Installation Guide* have been performed, or if HIPR2 cards are installed at the card locations 9 and 10 on the shelf where the E5-STC card is to be installed, continue the procedure by performing one of these steps.

- If the card that is being added is an E5-ENET card, continue the procedure with 9.
- If the card that is being added is an E5-ENET-B card, continue the procedure with 5.

5. Verify whether or not the MFC option is on by entering the `rtrv-stpopts` command.

   This is an example of the possible output.

```
rlghncxa03w 11-10-17 16:02:05 GMT EAGLE5 44.0.0
STP OPTIONS
--------------------------
MFC                    off
```

   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 *Commands User's Guide*.

   If the **MFC** option is off, perform the Configuring the MFC Option procedure to turn on the MFC option.

   If the MFC option is on, or the Configuring the MFC Option procedure was performed in this step, continue the procedure with 6.

6. Fans must be installed on the shelves that contain the E5-ENET-B cards. The Fan feature must be turned on. If the Fan feature is on, shown in the `rtrv-feat` output in 2, the `FAN` field should be set to `on`.

   If the Fan feature is on, continue the procedure with 8.

   If the Fan feature is off, continue the procedure with 7.

7. Turn the Fan feature on by entering this command.

```
chg-feat:fan=on
```

> **Note:**
>
> Once the Fan feature is turned on with the `chg-feat` command, it cannot be turned off.
> The Fan feature must be purchased before you turn this feature on with the `chg-feat` command. If you are not sure if you have purchased the Fan feature, contact your Sales Representative or Account Representative.

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

```
rlghncxa03w 11-10-28 11:43:04 GMT EAGLE5 44.0.0
CHG-FEAT: MASP A - COMPLTD
```

8. The shelf containing the E5-ENET-B card that is being added in this procedure must have fans installed. Verify whether or not fans are installed on the shelf.

   If the fans are installed, continue the procedure with 9.

   If the fans are not installed on the shelf containing the E5-ENET-B card, go to Installation Guide and install the fans. After the fans have been installed and tested, continue the procedure with 9.

9. Add the STC card using the `ent-card` command. Refer to STC Provisioning for the rules for provisioning STC cards. A dual-slot STC card can be inserted only in an odd numbered slot and the adjacent even card slot must be empty, as shown in Table 7-3. A

single-slot STC card 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
```

10. Verify the changes using the `rtrv-card` command with the card location specified in 9 . For this example, enter these commands.

```
rtrv-card:loc=1303
```

```
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
```

```
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
```

```
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
```

11. Verify that the card to be entered has been physically installed into the card location specified in 9 .

> **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 *Unsolicited Alarm and Information Messages Reference* manual before proceeding with this procedure.

12. Put the STC card added in 9 into service using the `alw-card` command specifying the card location specified in 9 . 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.

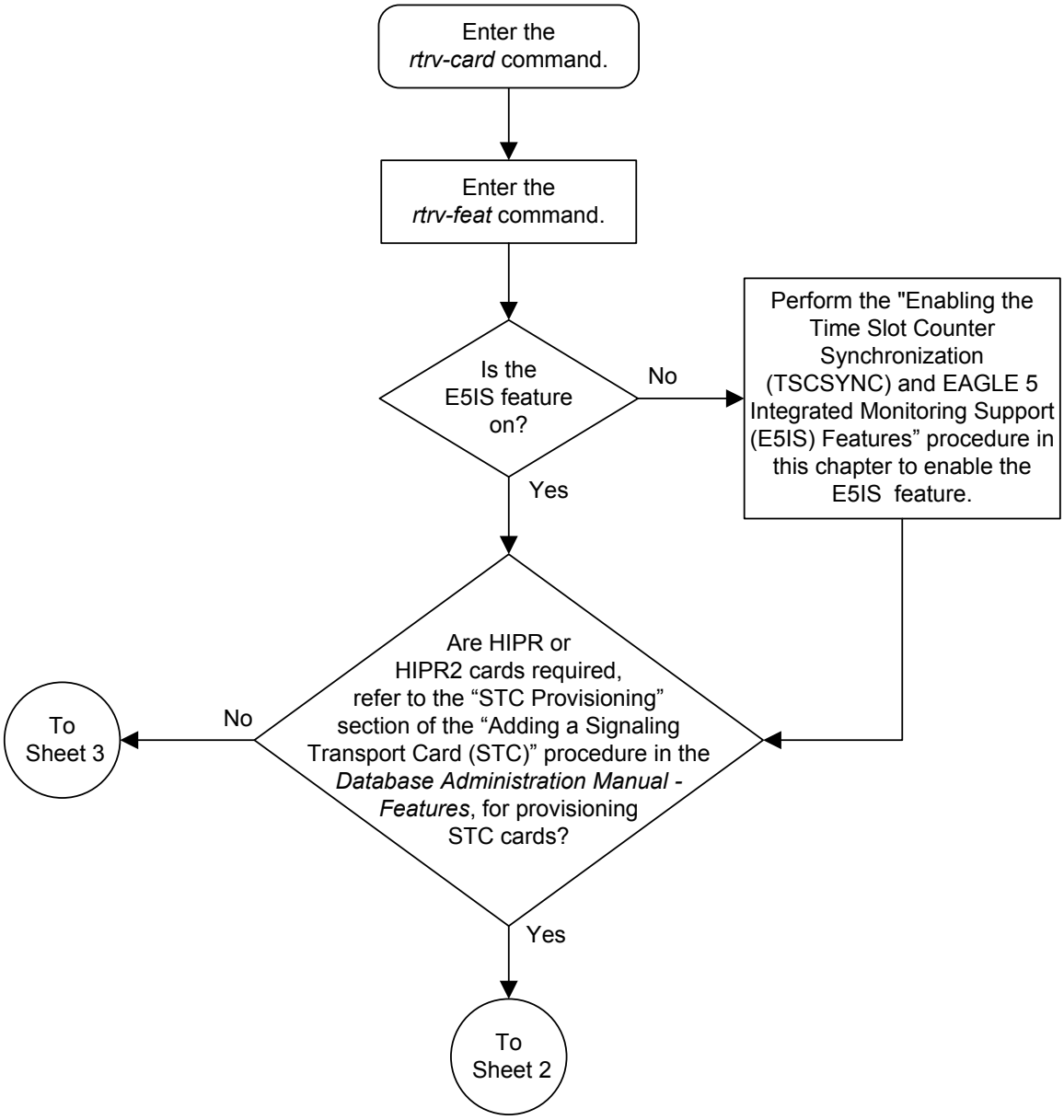
```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0
Card has been allowed.
```

13. 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.

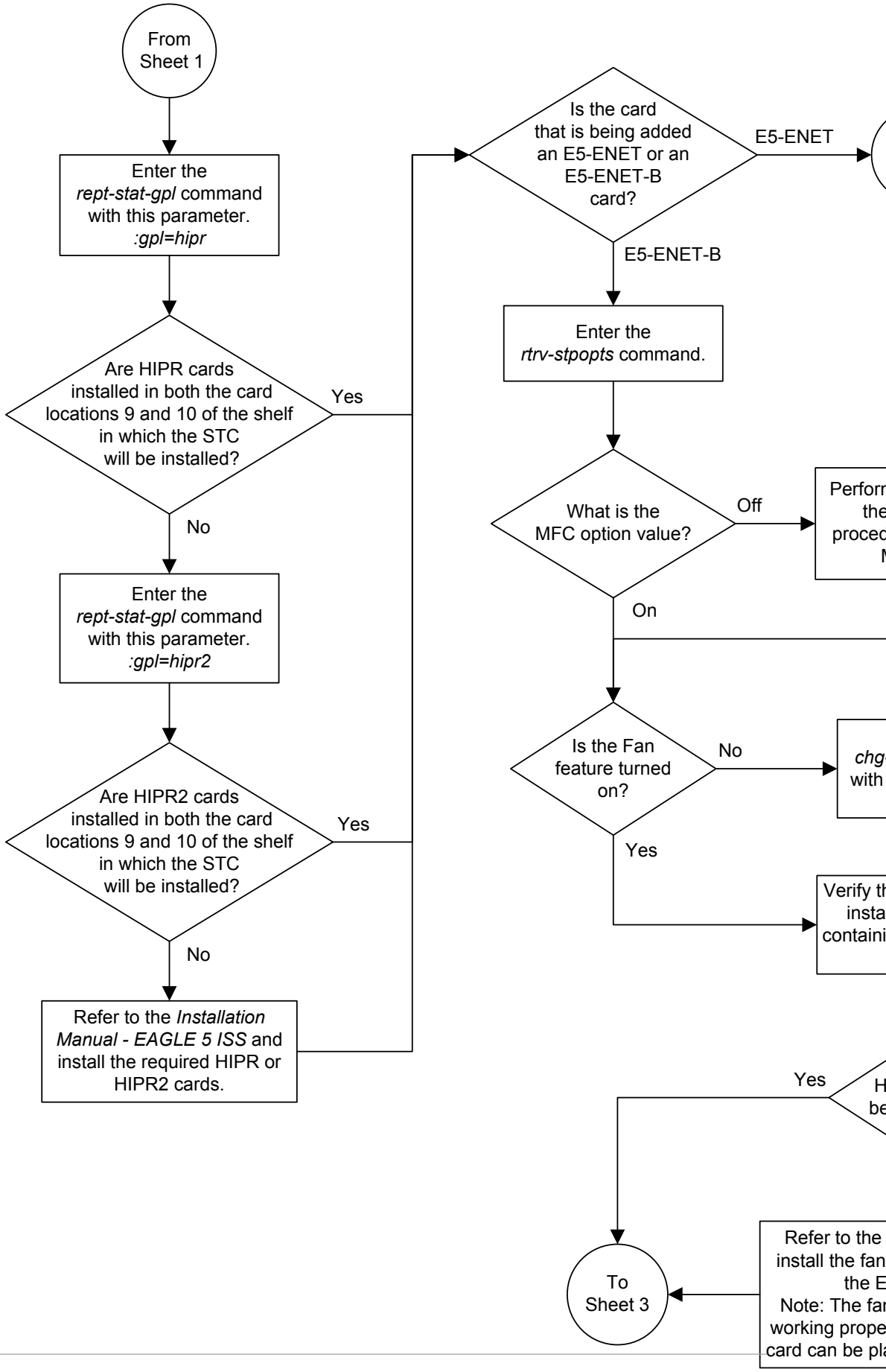
```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk complete.
```

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

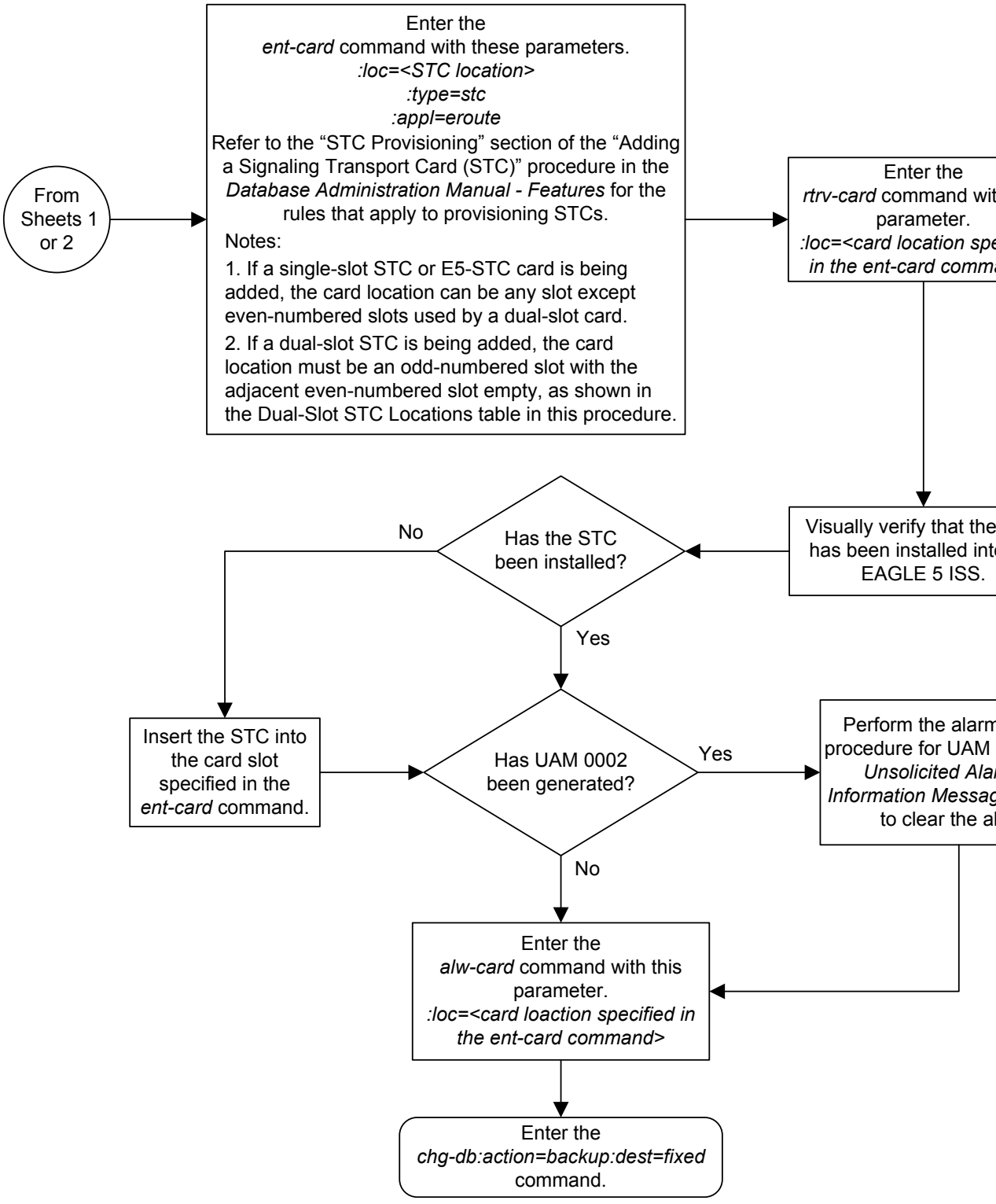
**Figure 7-11 Adding a Signaling Transport Card (STC)**




Sheet 1 of 3


From Sheet 1
Enter the *rept-stat-gpl* command with this parameter. *:gpl=hipr*
Are HIPR cards installed in both the card locations 9 and 10 of the shelf in which the STC will be installed?
Yes
No
Enter the *rept-stat-gpl* command with this parameter. *:gpl=hipr2*
Are HIPR2 cards installed in both the card locations 9 and 10 of the shelf in which the STC will be installed?
Yes
No
Refer to the *Installation Manual - EAGLE 5 ISS* and install the required HIPR or HIPR2 cards.
Is the card that is being added an E5-ENET or an E5-ENET-B card?
E5-ENET
E5-ENET-B
Enter the *rtrv-stpopts* command.
What is the MFC option value?
Off
On
Is the Fan feature turned on?
No
Yes
Yes
To Sheet 3
Note: The fan
working prope
card can be pla

Sheet 2 of 3




Sheet 3 of 3

# 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** 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 that 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 *Commands User's Guide*.

1. Display the cards in the database using the `rtrv-card` command. This is an example of the possible output.

```
rlghncxa03w 09-05-28 09:12:36 GMT EAGLE5 45.0.0
CARD   TYPE      APPL      LSET NAME     LINK SLC LSET NAME     LINK SLC
1101   DSM       VSCCP
1103   DCM       STPLAN
1113   E5-MCAP   OAMHC
1114   E5-TDM-A
1115   E5-MCAP   OAMHC
1116   E5-TDM-B
1117   E5-MDAL
```

```
1201   LIMDS0    SS7ANSI   sp2          A    0   sp1          B    0
1202   LIMDS0    SS7ANSI   sp2          A    1   nsp3         B    0
1203   LIMDS0    SS7ANSI   sp3          A    0
1204   LIMDS0    SS7ANSI   sp3          A    1
1206   LIMDS0    SS7ANSI   nsp3         A    1   nsp4         B    0
1212   DSM       VSCCP
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 10-07-27 16:43:42 GMT  EAGLE5 42.0.0
   CARD   VERSION      TYPE      GPL        PST            SST        AST
   1303   133-003-000  STC       EROUTE     IS-NR          Active     -----
     ALARM STATUS       = No Alarms.
     BPDCM GPL version   = 133-108-000
     IMT BUS A           = Conn
     IMT BUS B           = Conn
     CLOCK A             = Active
     CLOCK B             = Idle
     CLOCK I             = Idle
     MBD BIP STATUS      = Valid
     MOTHER BOARD ID     = Valid
     DBD STATUS          = Valid
     DBD TYPE            = Valid
     DBD MEMORY SIZE     = 512M
     HW VERIFICATION CODE = ----
     EROUTE % OCCUP      = 50%
     NTP broadcast = VALID
   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
   ```

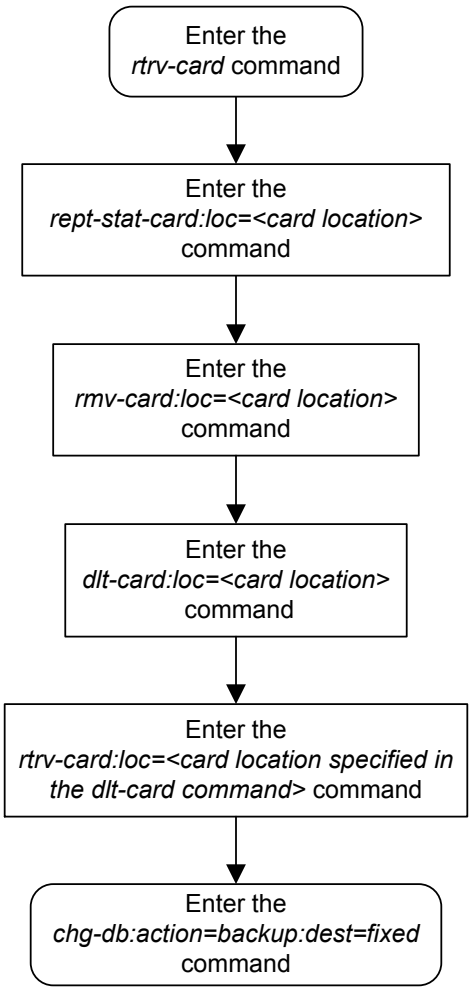
   When this command has successfully completed, this message should appear.

   ```
   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 7-12 Removing a Signaling Transport Card (STC)**



# A

# Reference Information

This appendix contains information that is used by more than one procedure in this manual.

## Configuring the MFC Option

This procedure is used to configure the option for the EAGLE to use Message Flow Control (**MFC**) to control the traffic in the EAGLE instead of Group Ticket Voucher (**TVG**). EAGLE Release 46.2 and later require MFC be turned on. This option is configured with `chg-stpopts` command using these parameters.

- `on=mfc` - turns the MFC option on. When the MFC option is turned on, Message Flow Control controls the traffic in the EAGLE.

> **Note:**
>
> When turning on MFC, the following cards are not supported from EAGLE Release 44.0 or later, except during migration to the B-series cards:
>
> – DCM card (870-1945-xx)
>
> – DSM card (870-1984-xx)
>
> – EDCM card (870-2372-xx) used for SLAN or STC functionality
>
> – EDCM-A card (870-2508-xx) used for **SLAN** or **STC** functionality

> **Note:**
>
> A loss in MSU traffic may occur while running bi-directional traffic at 700 MSUs per second, 272 bytes on an E1-ATM or LIM-ATM card after GTT, while two STC cards are active.

> **Note:**
>
> If another `chg-stpopts:on=mfc` or `chg-stpopts:off=mfc` command is issued within 10 seconds, the second command is rejected.

1. Enter the `rtrv-stpopts` command to display the existing value for the MFC option. The value for the MFC option is shown in the `MFC` field. This is an example of the possible output.

```
rlghncxa03w 10-12-17 16:02:05 GMT  EAGLE5 43.0.0
STP OPTIONS
```

```
--------------------------
MFC                    off

Command Completed.
```

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 *Commands User's Guide*.

2. Turn the MFC option on by entering this command.

   `chg-stpopts:on=mfc`

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

```
rlghncxa03w 10-12-07 00:22:57 GMT  EAGLE5 43.0.0
CHG-STPOPTS: MASP A - COMPLTD
```

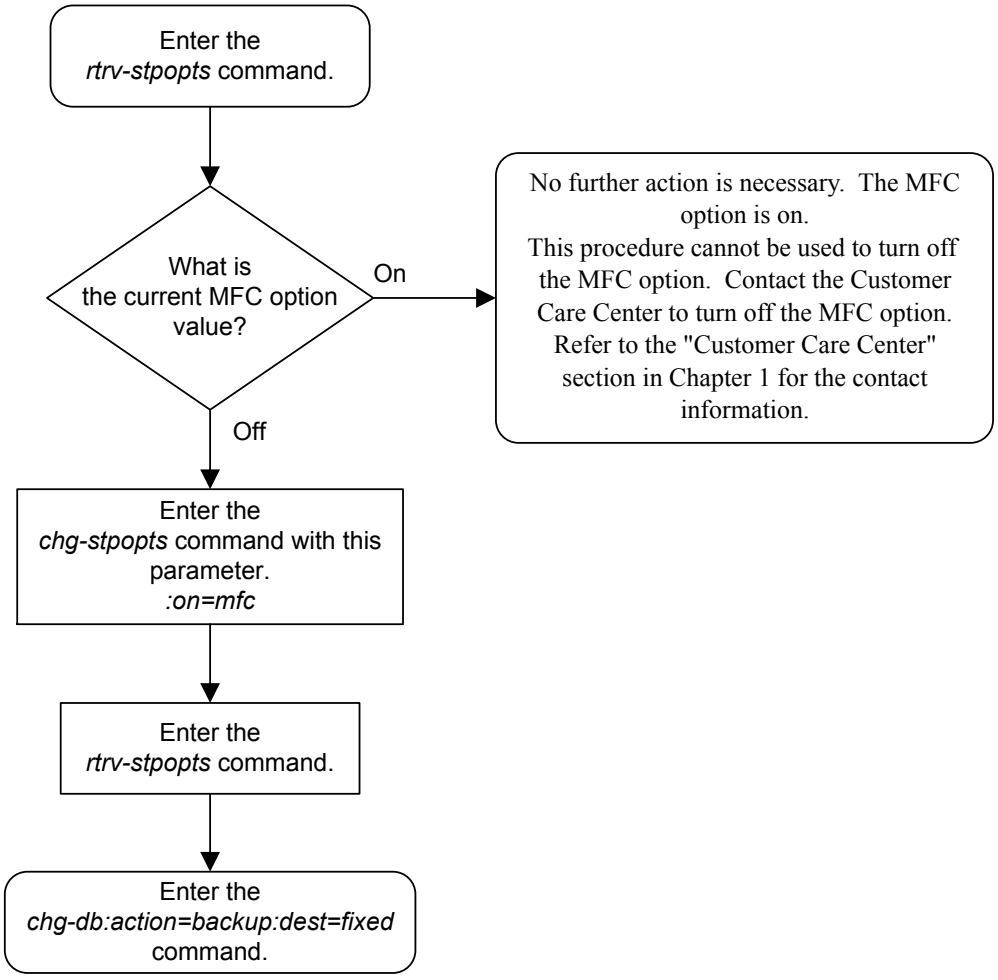
3. Verify the changes using the `rtrv-stpopts` command. This is an example of the possible output.

```
rlghncxa03w 10-12-17 16:02:05 GMT  EAGLE5 43.0.0
STP OPTIONS
--------------------------
MFC                     on

Command Completed.
```

   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 *Commands User's Guide*.

4. 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.
```


Enter the
*rtrv-stpopts* command.
What is
the current MFC option
value?
On
No further action is necessary. The MFC option is on.
This procedure cannot be used to turn off the MFC option. Contact the Customer Care Center to turn off the MFC option. Refer to the "Customer Care Center" section in Chapter 1 for the contact information.
Off
Enter the
*chg-stpopts* command with this parameter.
*:on=mfc*
Enter the
*rtrv-stpopts* command.
Enter the
*chg-db:action=backup:dest=fixed*
command.

# Index

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## D



## E



## F



## G



## H



## I



## M



## O

## P



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## T



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