Oracle® Communications EAGLE Database Administration - Features User's Guide





Oracle Communications EAGLE Database Administration - Features User's Guide, Release 48.0

G48787-01

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Acronyms

The following table provides information about the acronyms and the terminology used in the document:

Table Acronyms

Acronym	Description	
AGW	Application Gateway	
ANSI	American National Standards Institute	
ATI	Any Time Interrogation	
CC	Country Code	
CDPA	Called Party Address	
CDR	Call Detail Record	
CGPA	Calling Party Address	
CDMA	Code Division Multiple Access	
CPA	Calling Party Address	
CSL	Common Screening List	
DEFCC	Default Country Code	
DPC	Destination Point Code	
DTA	Database Transport Access	
E5IS	EAGLE 5 Integrated Monitoring Support	
EGMS	Enhanced GMS	
EGTT	Enhanced Global Title Translation	
ESP	Extended Service Platform	
FAK	Feature Access Key	
GMS	GSM Map Screening	
GPL	Generic Program Load	
GTA	Global Title Address	
GTT	Global Title Translation	
GTI	Global Tittle Indicator	
IMF	Integrated Message Feeder	
IP	Intelligent Peripheral or Internet Protocol	
LIM	Link Interface Module	
MAP	Mobile Application Part	
MASP	Maintenance and Administration Subsystem Processor	
MCAP	Maintenance Communication Application Processor	
MDAL	Maintenance Disk and Alarm	
MFC	Message Flow Control	
MIB	Management Information Base	
MSU	Message Signal Unit	
MTP	Message Transfer Part	
NMS	Network Management System	
NPDD	Number of digits to be deleted	
NPDS	New prefix to be substituted	
NSFI	Next Screening Function Identifier	



Table (Cont.) Acronyms

Acronym	Description
NTP	Network Time Protocol
OSDC	Oracle Software Delivery Cloud
PHCTX	Phone Context
PVN	Private Virtual Network
RI	Routing Indicator
RN	Routing Number
RTT	Round Trip Time
SCCP	Signaling Connection Control Part
SIP NP	Session Initiation Protocol Number Portability
SIP NPP	SIP Number Pre-processing
SLIC	Service and Link Interface Card
SMS	Short Message Service
SNMP	Simple Network Management Protocol
SR	Service Request
SSN	Subsytem Number
STC	Signaling Transport Card
TDM	Terminal Disk Module
TSC	Time Slot Counter
TSCSYNC	Time Slot Counter Synchronization
UAM	Unsolicited Alarm Messages
UIM	Unsolicited Information Messages
VIP	Virtual IP Address

What's New in This Guide

This section introduces the documentation updates for Release 48.0 in Oracle Communications EAGLE Database Administration- Features User's Guide.

Release 48.0 -G48787-01, December 2025

Added a note on the maximum TPS supported for VxWorks6.9 in STC mode under the section Adding a Signaling Transport Card (STC).

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
- Database Transport Access
- GSMMAP Screening
- EAGLE Integrated Monitoring Support

(i) 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.

(i) 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



(i) Note

For the complete list of cards supported by EAGLE Release 47.0, see *Hardware* Reference Guide.

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.

Database Transport Access

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

GSM MAP Screening

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

EAGLE 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 (MSUs), alarms, and events are copied to the Sentinel/IMF to provide the network traffic monitoring. The monitored traffic is delivered to the Sentinel/IMF using the EAGLE's STCs (Signaling Transport Cards) which are connected to the ESP/IMF subsystem by Ethernet links. The ESP/IMF subsystem delivers the 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.



References

For more information, refer to the following documents:

- Commands User's Guide
- Database Administration IP7 User's Guide
- 3. Database Administration GTT User's Guide
- 4. Hardware Reference Guide
- 5. Database Administration SS7 User's Guide
- Database Administration GWS User's Guide
- 7. Unsolicited Alarm and Information Messages Reference
- 8. Database Administration System Management User's Guide
- 9. Installation Guide
- 10. Measurements Reference Compatibility Matrix

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 ports**. 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 Source 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

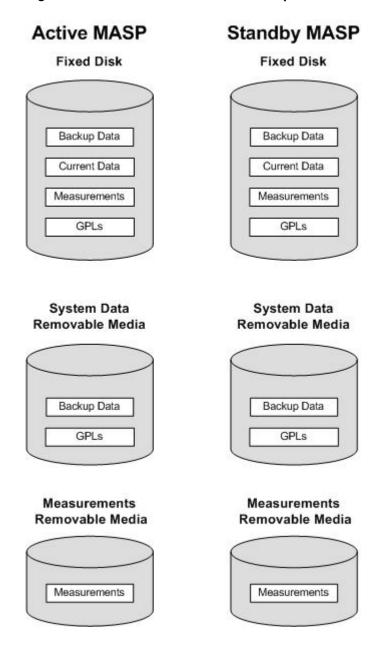
The **E5-MDAL** card processes alarm requests and provides fan control. There is only one E5-MDAL card in a control card set. Critical, major, and minor system alarms are provided for up to 6 individual frames. In addition to the 3 system alarms, the E5-MDAL card provides the system audible alarm. The 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 <u>Figure 1-1</u>.



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 primary 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 (GPLs) partition

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

All of the on-line data administration commands 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 (**LIMs**).

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

Removable 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 GPLs
- 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).

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

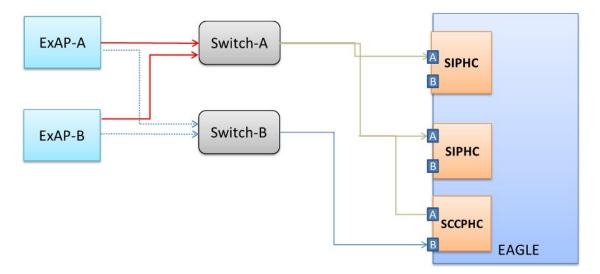
ExAP Interface

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

The SIP NP feature performs lookup RxDB using Normalized DN. Perform lookup for RTDB, 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 user
 can inhibit the SIP card 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.
- You may require a customer provided load balancer, 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.
- ① 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.
- You can configure a maximum of 16 SIP cards per EAGLE:

(i) Note

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

(i) 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	Connection		
	ExAP Connections Status	PORT A LED	ACT A LED	
IP Port not configured 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	N/A	Off	Off
Card Inhibited			
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

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.



Various status LEDs on SLIC Card faceplate Port xx A (DB-26F) P2 830-1102-03 Port A Status LEDs 1 Port A Ethernet Interface P3 2 Port B Status LEDs SLIC-SIP Card Port C Status LEDs 3 Port xx B (DB-26F) P2 4 Port D Status LEDs Adapter 830-1102-03 5 Port B Ethernet Interface P3

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

<u>Figure 2-2</u> also shows the status LEDs $\bf 1$ and $\bf 3$ that are on the SLIC faceplate, and their associations with the $\bf A$ and $\bf B$ Ethernet interface ports. The status LEDs on the SLIC faceplate are pictured in <u>Figure 2-3</u>.



Figure 2-3 SLIC Faceplate Status LEDs

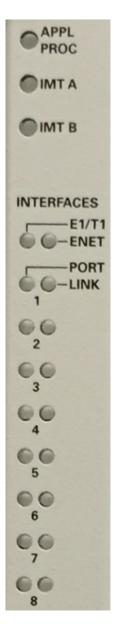


Table 2-3 and Table 2-4 describe LED operations for the Ethernet Interfaces on SLIC cards.

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 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	N/A	Off	Off
Card Inhibited			
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

An External IP Load Balancer provides Signaling side redundancy. It will provide both scalability and load sharing.

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

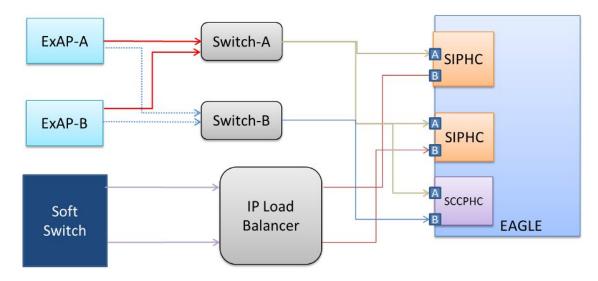
The IP load balancer will make connections with all SIP cards and load share the traffic. If one SIP card goes down, traffic currently being handled by that card will get lost. SIP Load Balancer will not use that card for load sharing traffic until the card is ready to handle traffic again.



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. <u>Figure 2-4</u> shows signaling network and private network side redundancy.

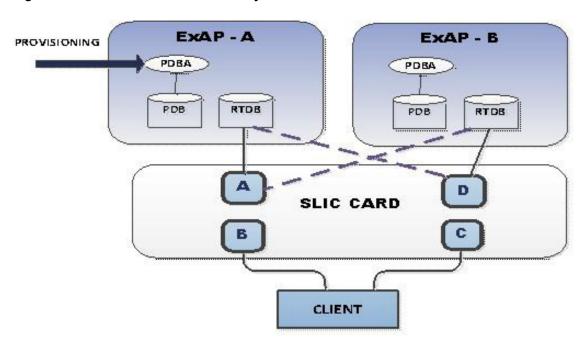
Figure 2-4 SIP Redundancy



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. Use Interface A/D for ExAP connectivity and interface B/C for the signaling network.

Figure 2-5 SLIC Network Redundancy Model

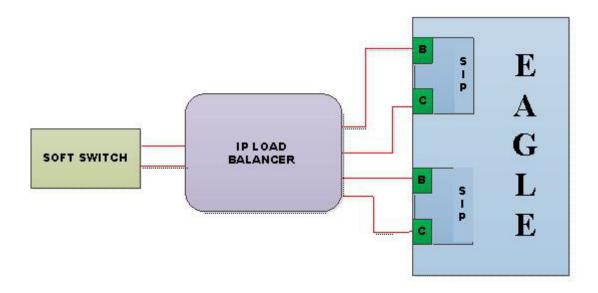




SLIC Signaling Network Redundancy

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. Download the RTDB data 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.



(i) 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.



EXAP A SWITCH A A S C C C B

Figure 2-7 SLIC Card Private Network Redundancy

SIP Transports Layer Protocol

With the SLIC card, you can provision two (2) local hosts 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 you can enable any feature that is described in this manual, you require the prerequisites that are listed in Table 2-5 in the system.



Table 2-5 System Prerequisites

Prerequisite

Verification and Provisioning

The system serial number must be correct and locked.

For new installations, the system is shipped with an unlocked serial number. You can change the serial number, if necessary. You must lock it after the system is on-site.

For systems that are being upgraded, the serial number is usually already verified and locked.



(i) Note

The serial number cannot be changed after it is entered and locked in the system.

Locate the serial number for the system on a label affixed to the control shelf (1100).

Enter the rtrv-serial-num command to display the serial number and its locked status. Verify that the displayed serial number is correct for

If no serial number is displayed, enter the entserial-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.

Enter the ent-serial-num command with the lock=yes parameter to lock the serial number in the system.

Enter the chg-stpopts:on=mfc command to turn on the mfc feature option.

SIP NP Feature Prerequisites

Before you enable the SIP NP feature, the following prerequisites are required in the system:

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.

- Verify, and provision if needed, the system prerequisites. See System Prerequisites.
- Verify, and provision if needed, the feature prerequisites. See SIP NP Feature Prerequisites.
- 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.
- Provision SIP NP options. See Provisioning the SIP NP Options.
- 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 Provision SIP Connections.
- 8. Provision Common Screening List (CSL) for SIP NP. See Provision Common Screening List (CSL) for SIP NP..
- 9. Provision SIP Connection Information. See Provisioning SIP Connection Information.
- 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. Only the EAGLE Measurements Platform collects SIP NP measurements. UI measurements 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

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

You must enable the SIP NP feature using the SIP NP feature part number 893040601.

(i) 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 you enable the SIP NP feature, it is permanently enabled. The SIP NP feature cannot be temporarily enabled. After you enable and turn on the SIP NP feature, it cannot be turned off.

After the SIP NP feature has been enabled, you must set the STP option for the default country code 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 rtry-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 you turn on the feature, 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

You must turn on the SIP NP feature before this procedure can be completed. See <u>Enabling SIP NP</u>, 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 Default: ON	Specifies whether RN parameter needs to be included or not included in the SIP 302 response.



Table 2-6 (Cont.) SIPOPTS Parameters

Name	Constraints	Comment
INCLUDENPDI	ON or OFF Default: ON	Specifies whether NPDI parameter needs to be included or not included in the SIP 302 response.
NPLKUPFAIL	302, 404 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 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)) RNASD (Routing Number (RN) + ASD, if present (i.e., without DN)) GRNASD (Global RN + ASD) RNGRNDN (Routing Number + Global RN + DN)	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.
	Default: RN	
NPRSPFMT	RN (Routing Number (RN) only (i.e., without CC or ASD or DN)) RNDN (Routing Number (RN) + DN (on which RTDB lookup was performed))	Format of the Contact Header in the Response. If includeRN=off, the rn parameter will not be encoded and NPRSPFMT will define the
	CCRNDN (Country Code (CC) + Routing Number (RN) + DN (without DEFCC))	format of the contact URI.
	RNASDDN (Routing Number (RN) + ASD + DN (on which RTDB lookup was performed))	
	RNASD (Routing Number (RN) + ASD)	
	GRNASD (Global RN + ASD)	
	RNGRNDN (Routing Number + Global RN + DN)	

 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 <u>Enabling SIP NP</u>, <u>Setting STP Options</u>, <u>and Turning On SIP NP</u> 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 <u>2</u>.
- 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.COMCHG-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:

- 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

You must set up SIP Connections 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:lo
    c=1101:duplex=full:speed=100
```



2. chg-iplnk: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

You must use the ent-ip-rte command 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

You must use the chg-ip-card command 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 Mandatory	Domain name of the EAGLE SIP card
Lport - Local Port	Integer Mandatory	IP port on EAGLE SIP cards
Rhost - Remote Hostname	String Optional	Domain name of the remote end. Remote HOST is mandatory for TCP.



Name	Constraints	Comment
Rport - Remote Port	Integer Optional	IP port of remote end. Remote PORT is mandatory for TCP.
Prot - Protocol	TCP Optional	Underlying protocol
	Default - TCP	
Cname - Connection name	Alphanumeric string Mandatory	Name identifying a connection
Open	Yes, No Optional 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. chq-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-cslcommands.



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 <u>Table 2-8</u> have the following fields:

Table 2-8 SIP Number Normalization Parameters

Name	Constraint	Comment
Phone Context (PHCTXT)	- Mandatory - 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 - Valid characters are Hex digits [0-9], [a-f] '+', '*', '#','-'.	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 [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 NoneValid characters are Hex digits [0-9], [a-f] or None.[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-nppcommands.

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 <u>SIP NP Measurements</u> 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 retransmits)	
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.

You can either give the rept-stat-sip command 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 is used to display the dynamic status of SIP transport. You do not need any input parameter 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, you can increase Timer G or T1.

To set timer values, use send-

 $\label{eq:msg:loc=xxxx:ds=x:da=h'08:f=h'18:d0=h'xx:d1=h'xx:d2=h'xx:d3=h'xx:d4=h'xx:d5=h'xx:d5=h'xx:d7=h'00 command, where:$

- 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. EAGLE processes the following incoming SIP requests, messages. 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: establishes 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. SIP card will not handle any SCCP traffic.

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 you turn ON the SIP feature.
- 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.



(i) 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.

(i) 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.

(i) Note

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

① 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.

(i) 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 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 sends 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

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



Table 2-11 (Cont.) Major SIP UAMs

- 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
- 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



Table 2-13 (Cont.) Normal SIP UAMs

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.

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 controls 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.
- EAGLE supports the synchronization of alarm events from the EAGLE to the NMS.
- 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 <code>ent/chg/rtrv-snmp-host</code> 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 <code>ent-snmp-host</code> 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 <code>chg-snmp-host</code> command.



Once the FAK is enabled, the system-wide SNMP options can be changed with the chqsnmpopts 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:



(i) 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:

- Connecting the Ethernet cables. See Connecting Ethernet Cables.
- Provisioning the IP Address and IP Host. See Provisioning IP Address and IP Host.
- Provisioning a Default Router and Enabling the SNMP Feature. See Provisioning Default Router and Enabling SNMP Feature.
- Provisioning V2 Traps. See #unique 51.
- 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. You also require the backplane adapter with p/n 830-1333-02 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.

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 chq-ip-lnk command is used to provision the IP link table. The chq-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 chq-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:

- 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:

- Enter the chg-ipcard: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/V3 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 V2/V3 traps to the NMSs is 162. The default heartbeat interval is 60 seconds.

SNMPv3 Configuration

For SNMPv3 Configuration, SNMP User Name and Security Level are compulsory fields. Based on the selected Security Level, the following can be the configuration scenarios:

If Security Level is AuthPriv, then Auth Protocol, Auth Password, Priv Protocol, and Priv Password must be configured.



- If Security Level is AuthNoPriv, then only Auth Protocol and Auth Password must be configured.
- If Security Level is NoAuthNoPriv, then no other fields need to be configured.

Table 3-1 SNMPv3 Configuration

Level	Authentication	Encryption	Action
NoAuthNoPriv	User name	No	Uses a username match for authentication
AuthNoPriv	MD5 or SHA	No	Provides authentication based on the Hashed Message Authentication Code (HMAC)-MD5 or HMAC-SHA algorithms
AuthPriv	MD5 or SHA	DES or AES	Provides authentication based on the HMAC-MD5 or HMAC-SHA algorithms. In addition to authentication, it provides encryption based on AES or DES.

Refer to *Commands User's Guide* for complete description of the commands to provision V2/V3 traps.

- 1. Enter the ent-snmp-host:host=<host>:ipaddr=<ip_addr>:version=<snmpv2/snmpv3> command to provision an NMS to receive the V2/V3 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. You must configure and turn on the SNMP Option before this procedure can be completed.

- 1. Display the status of the SNMP options using the rtry-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.

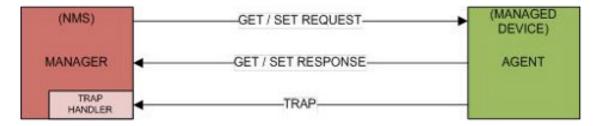
SNMP agents report management data on STPs as variables. The protocol also permits active management tasks, such as modification of certain of these variables. The variables accessible via SNMP are organized in hierarchies. These hierarchies, and other metadata (such as type and description of the variable), 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.

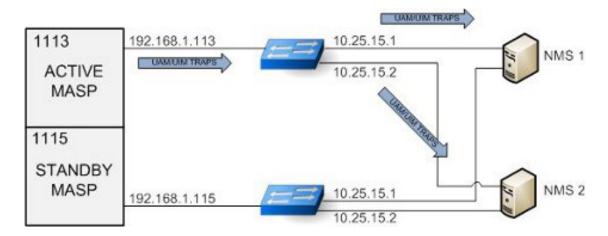
Traps are generated for UAMs and UIMs:

- 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.

1113
ACTIVE MASP

1115
STANDBY MASP

192.168.1.115

10.25.15.1

NMS 1

10.25.15.1

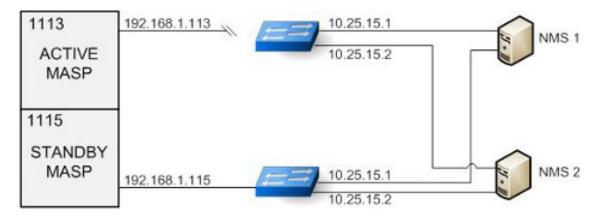
NMS 2

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.

1113
ACTIVE MASP

1115
STANDBY MASP

192.168.1.115

10.25.15.1

10.25.15.1

NMS 1

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.
- Eagle sends a resyncStartTrap 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.
- Eagle sends a resyncStopTrap to indicate all actively alarmed devices have had traps sent for their alarms, and the resynchronization is complete.
- Eagle sends a resyncRequiredTrap 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.
- EAGLE will not do any filtering of UAMs 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
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
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
::= { 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
```

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.

<u>Figure 4-1</u> shows a typical configuration for the **DTA** feature.



Customer-Specific

Database (LIDB) SCP EAGLE 5 ISS Custom SCP SS7 Domain LIDB Customers Customer-Specific Database (LIDB) SCP Custom SCP SS7 Domain LIDB Customers EAGLE 5 ISS

Figure 4-1 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.

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.

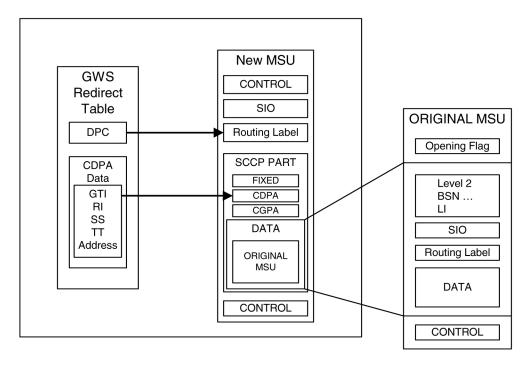


Figure 4-2 DTA Encapsulation

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 <code>gwsd</code> linkset parameter. If the <code>gwsd=on</code> 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 <code>gwsd=off</code> 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 <code>gwsd</code> 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 4-1.

Table 4-1 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 <code>gwsd</code> parameter value. If the linkset <code>gwsd=on</code> parameter is specified for the linkset, the MSU is discarded, UIM 1084 is generated, and the DTAMSULOST measurement is pegged. If the linkset <code>gwsd=off</code> 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 MSUs discarded: DTAMSULOST and MSGWSDSLIM.

The **DTAMSULOST** measurement counts the number of **MSUs** discarded because gateway screening is not available. This can be caused by a number of events, including congestion in the **EAGLE**.

The MSGWSDSLIM counts the number of MSUs discarded because the received MSU was too large to be encapsulated or because the redirect function was disabled.

DTAMSULOST and **MSGWSDSLIM** are explained in greater detail in *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 4-2 Commands for the Gateway Screening Redirect Table

Command	Explanation and action
ent-gws-redirect	The ent-gws-redirect command enters the routing table for redirected MSUs .
chg-gws-redirect	The chg-gws-redirect command modifies the existing redirect routing table.
dlt-gws-redirect	The dlt-gws-redirect command deletes the redirect table from the database.
rtrv-gws-redirect	The rtrv-gws-redirect command displays 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**. You must configure the links connecting the **EAGLE** and the **SCP** in such a way to support **SCCP** subsystem management. The application supported by the dual **SCP**s is duplicated in both entities. You can configure the applications 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, **SCCP** subsystem management diverts all traffic 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.



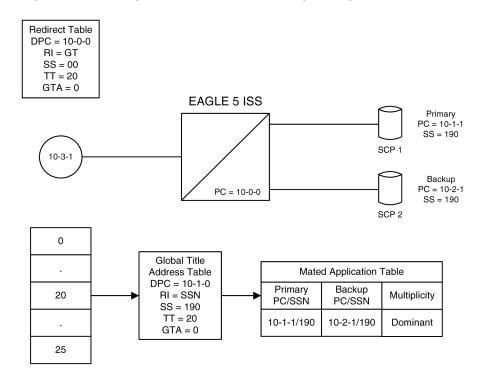


Figure 4-3 Configuration of GTT for Routing Management

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 4-3 Cards Required in Specific Situations

If	Required Card
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:

 $\label{eq:chg-feat:gws-on-if} \text{ the Gateway Screening feature is off ($\tt GWS = \tt 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 MSUs on IP cards (cards running the iplim, iplimi, ss7ipgw, ipgwi, or ipsg applications), then IP cards assigned to the iplim, iplimi, ss7ipgw, ipgwi, or ipsg applications must be in the database see the Adding an IPLIMx Card, Adding an IPGWx Card, or Adding an 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-IN, 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-I, ITU-I Spare, ITU-N Spare, or ITU-N24 point codes. The routes can be verified by entering the rtry-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
    NAME
                   3
                        4
                            5
                                 6
                                     7
ID
                                          8
                                                   10
1
    сору сору
2
    rdct rdct
3
          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*.

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-qws-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
     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"

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-gtacommands used in this procedure can output information for a long period of time, the rtry-qtt and rtry-qtacommands can be canceled and the output to the terminal stopped. There are three ways that the rtrv-gtt and rtrv-qtacommands can be canceled.

- Press the F9 function key on the keyboard at the terminal where the rtrv-qtt or rtrvgtacommands were entered.
- Enter the canc-cmd without the trm parameter at the terminal where the rtrv-qtt or rtrv-qtacommands were entered.
- Enter the canc-cmd: trm=<xx>, where <xx> is the terminal where the rtrv-gtt or rtry-gtacommands were entered, from another terminal other that the terminal where the rtrv-qtt or rtrv-qtacommands 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.

Verify that the gateway screening redirect function is disabled by entering the rtrv-qwsredirect 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
                                       GТ
```

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:enable d=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=dtac1li
```

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	002-002-00	002-002-0	005
002-002-006	002-002-007	002-002-00	002-002-0	009
004-002-001	004-003-003	144-212-00)3	
CPCA (LNP)				
005-005-002	005-005-004	005-005-005		
an a =				
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
```

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.



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.



(i) Note

If the enhanced global title translation is on, skip 5, and 6, and go to 7.

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
                  NDGT
TYPEA TTN
225
       DTA7
                  10
                           (27000 of 269999)
GTT TABLE IS 10% FULL.
START GTA
                      END GTA
                                             XLAT
                                                    RΙ
                                                          PCA
                                                                       SSN
NGT
9105551212
                                             DPCSSN GT
                                                          009-002-001
                                                                        15
```

If the global title translation data is shown in the rtrv-qtt 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 4-4.

Table 4-4 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 $\underline{7}$, $\underline{8}$, and $\underline{9}$. 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 $\underline{8}$ 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 $\underline{7}$ by entering the rtrv-gta command with the GTTSN value shown in the output of $\underline{7}$, and with the GTA, SSN, and DPC values shown in the output of $\underline{3}$. 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.

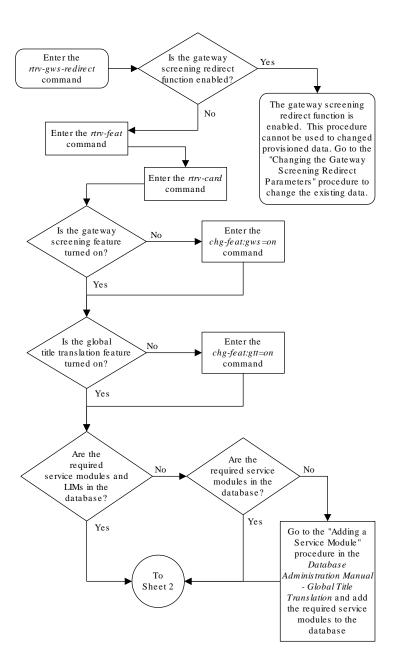
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk complete.

BACKUP (FIXED) : MASP A - Backup starts on standby MASP.

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

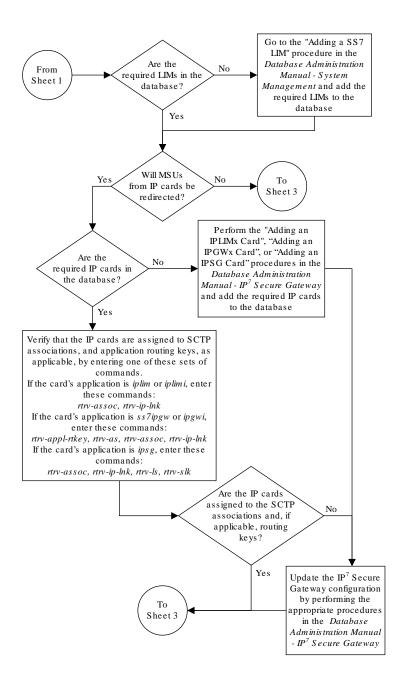


Figure 4-4 Configuring the EAGLE for the DTA Feature



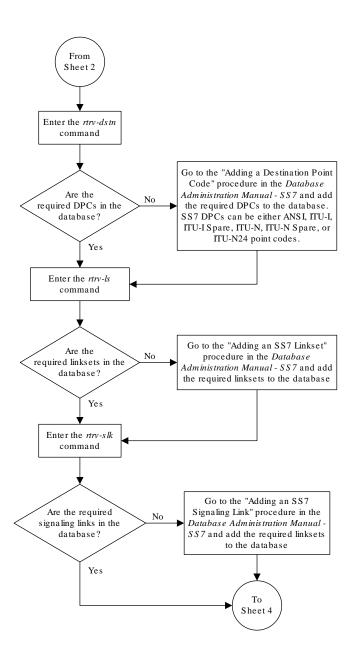
Sheet 1 of 11





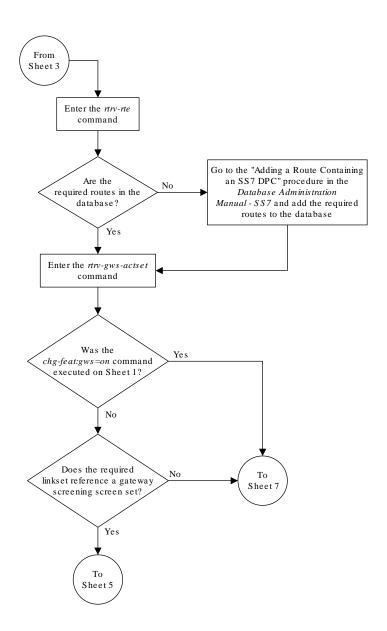
Sheet 2 of 11





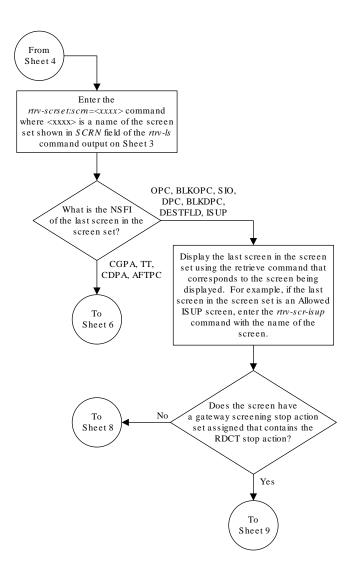
Sheet 3 of 11





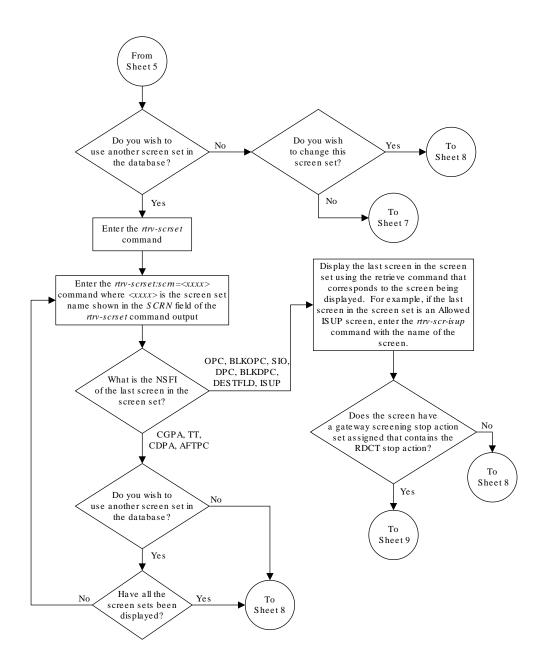
Sheet 4 of 11





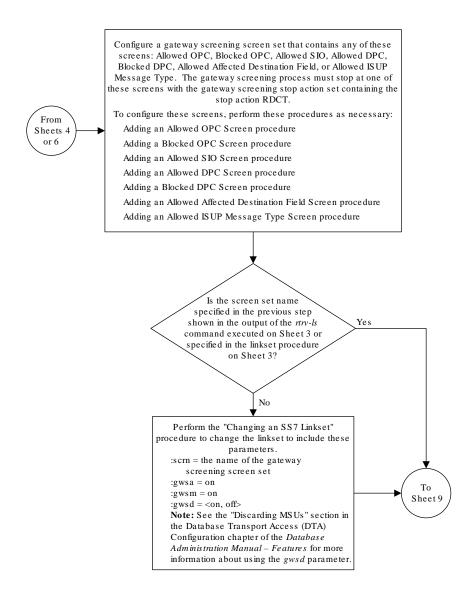
Sheet 5 of 11





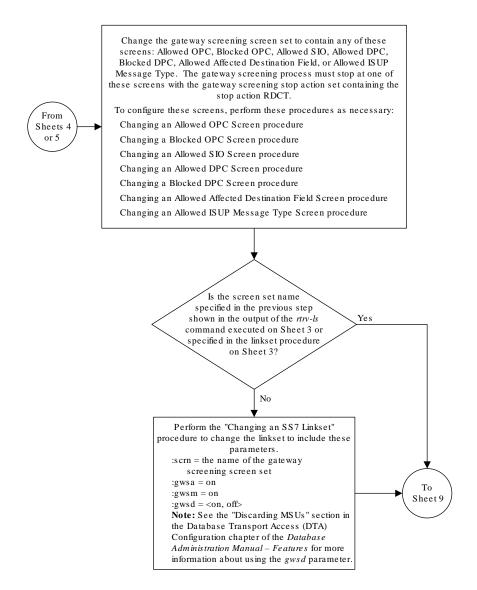
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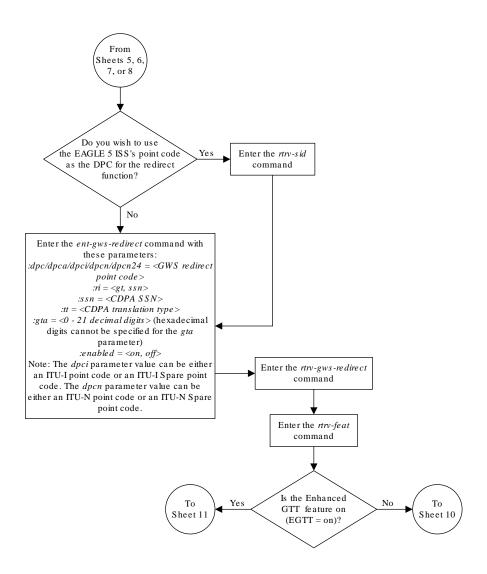
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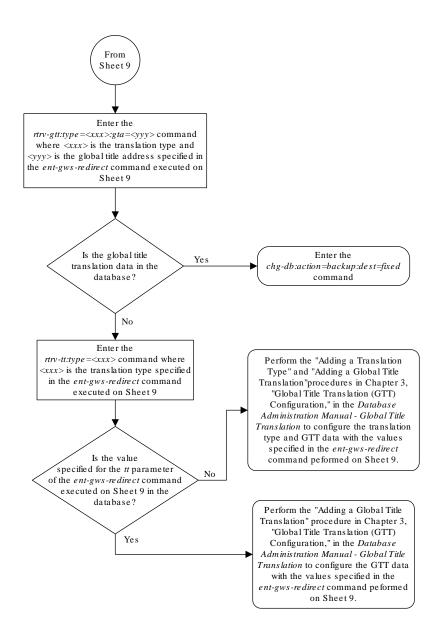
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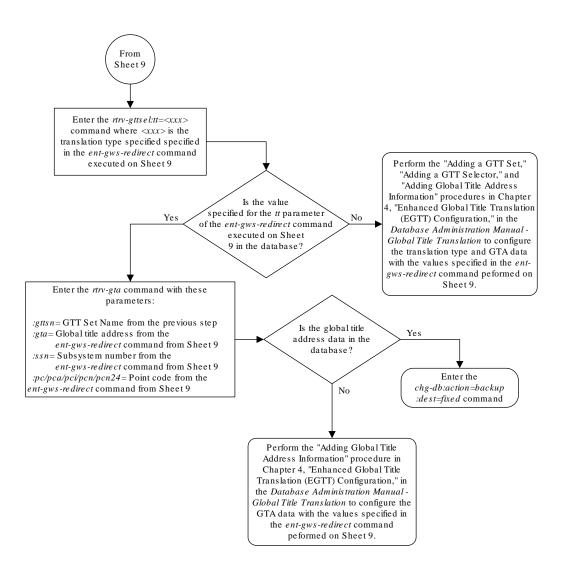
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Sheet 11 of 11

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-gtacommands used in this procedure can output information for a long period of time, the rtrv-gtt and rtrv-gtacommands can be canceled and the output to the terminal stopped. There are three ways that the rtrv-gtt and rtrv-gtacommands 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-gtacommands were entered, from another terminal other that the terminal where the rtrv-gtt or rtrv-gtacommands were entered. To enter the canc-cmd:trm=<xx> command, the terminal must allow Security Administration commands to be entered from it and the user must be allowed to enter Security Administration commands. The terminal's permissions can be verified with the rtrv-secu-trm command. The user's permissions can be verified with the rtrv-user or rtrv-secu-user commands.

For more information about the canc-cmd command, go to 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

- :qta 3365841342
- Verify the gateway screening redirect function attributes by entering the rtrv-gwsredirect 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.

Verify that the new DPC is in the database and has a route assigned to it.



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
           ALIASI
                  ALIASN/N24 LSN
                                      RC
                                            APCA
009-003-001 ----- 1s02
                                      0
                                            009-001-001
                                 RTX:No CLLI=dtaclli
```

If the required route to the **DPC** is not shown in the rtrv-rte command output, go to the "Adding a Route Containing an 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.



(i) 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 PCA 144-201-001	06-10-07 00:20:31 PCI 0-123-1 s-0-123-1	GMT EAGLE5 36.0. PCN 11211 s-11211	0 CLLI rlghncxa03w	PCTYPE ANSI
CPCA 002-002-002 002-002-006 004-002-001	002-002-003 002-002-007 004-003-003	002-002-00	8 002-002-	
CPCA (LNP) 005-005-002	005-005-004	005-005-005		
CPCI 1-001-1 1-002-1 2-001-1	1-001-2 1-002-2 7-222-7	1-001-3 1-002-3	1-001-4 1-002-4	
CPCN 02091 02191	02092 02192	02094 11177	02097	

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 chggws-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.

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.

(i) 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 $\underline{\text{steps 7}}$ and $\underline{8}$, and go to $\underline{\text{step 9}}$.

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
                                                    RΤ
                                                         PCA
                                                                       SSN
NGT
                                             DPCSSN GT
                                                         009-003-001
                                                                        45
3365841342
```

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 $\underline{step\ 5}$ 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 $\underline{step\ 5}$ and $\underline{Table\ 4-5}$.

Table 4-5 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 $\underline{\text{step 5}}$, in the $\underline{\text{TT}}$ field, is in the database by entering the $\underline{\text{rtrv-gttsel}}$ command with the $\underline{\text{tt}}$ parameter.



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-qttsel: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 $\underline{\text{step 5}}$ by entering the $\underline{\text{rtrv-gta}}$ command with the $\underline{\text{GTTSN}}$ value shown in the output of $\underline{\text{step 9}}$ and with the $\underline{\text{GTA}}$, $\underline{\text{SSN}}$, and $\underline{\text{DPC}}$ values shown in the output of $\underline{\text{step 5}}$. 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.

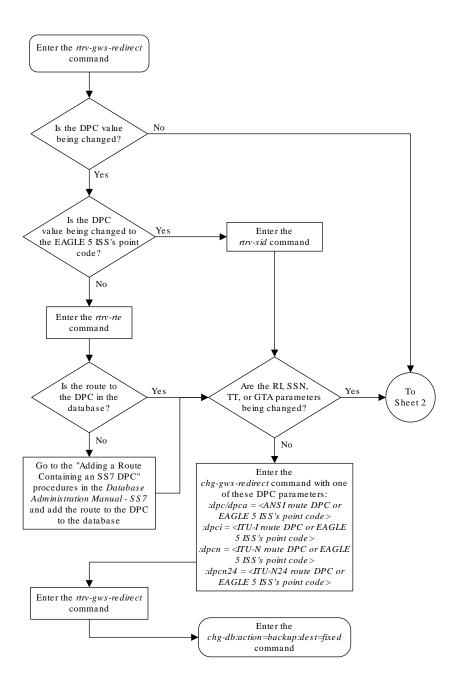
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk complete.

BACKUP (FIXED) : MASP A - Backup starts on standby MASP.

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

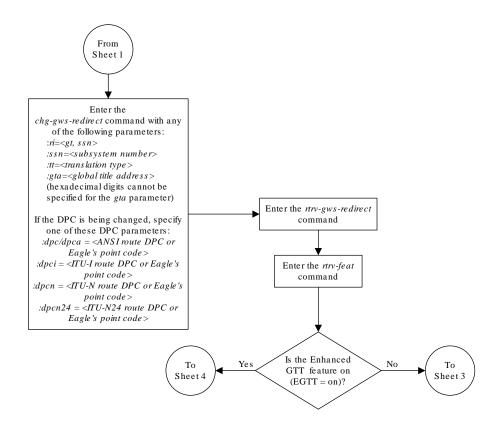


Figure 4-5 Changing the Gateway Screening Redirect Parameters



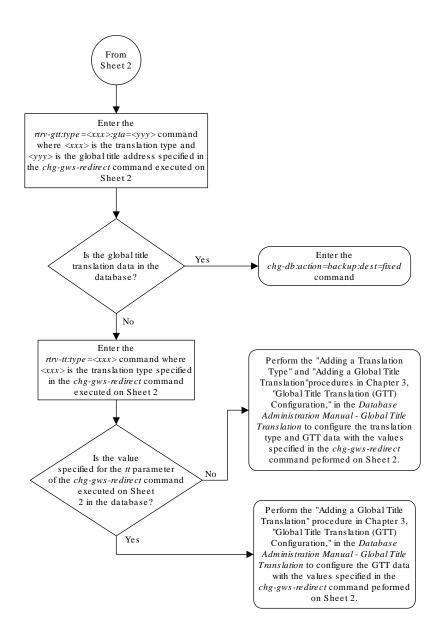
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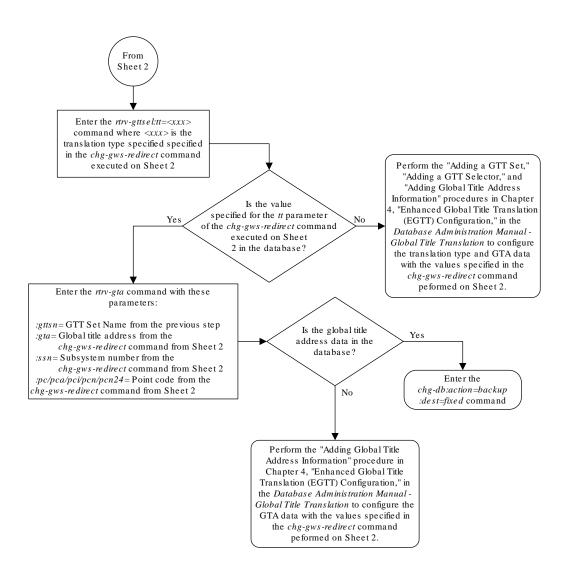
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Disabling the Gateway Screening Redirect Function

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.



 Verify that the gateway screening redirect function is enabled by entering the rtrv-gwsredirect 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
```

- 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
ID
   NAME 1 2 3
                   4 5
                          6
                              7 8
   _____ ___ ___ ___ ___ ____ ____
1
   сору сору
2
   rdct rdct
3
        copy rdct
   cr
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
     NIC PRI SI HO
                           Н1
                                  NSFI
                                          NSR/ACT
DTA3 1
                                          RDCT
           3
                                  STOP
rtrv-scr-dpc:actname=rdct
rlghncxa03w 06-10-07 00:24:31 GMT EAGLE5 36.0.0
SCREEN = ALLOWED DPC
               NC
SR
     NT
                        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
     ΝI
               NC
                        NCM
                                 NSFI
                                         NSR/ACT
```

C

rtrv-scr-destfld:actname=rdct

C

DTA5 C

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.

STOP

RDCT

These command examples are based on the example outputs shown in step 4.

```
\verb|chg-scr-opc:sr=dtal: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.

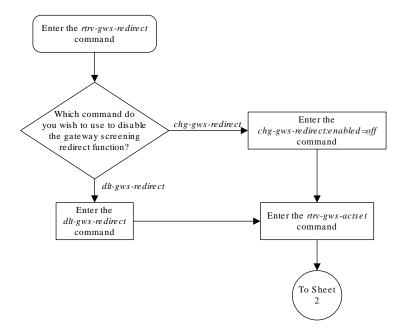
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk complete.

BACKUP (FIXED) : MASP A - Backup starts on standby MASP.

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

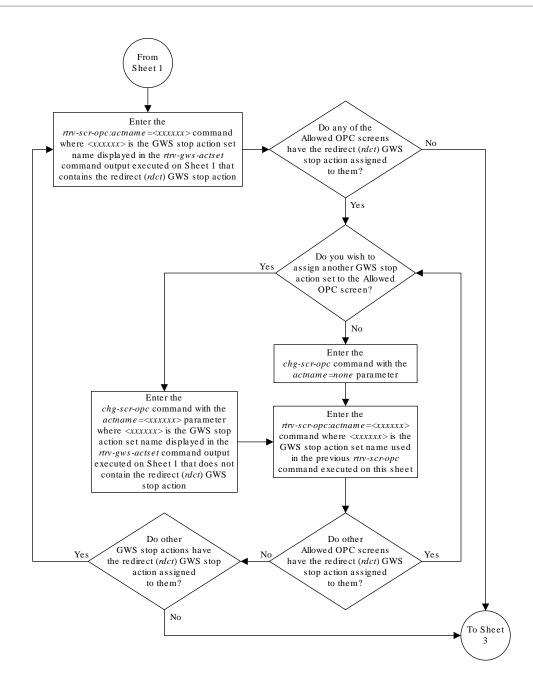


Figure 4-6 Disabling the Gateway Screening Redirect Function



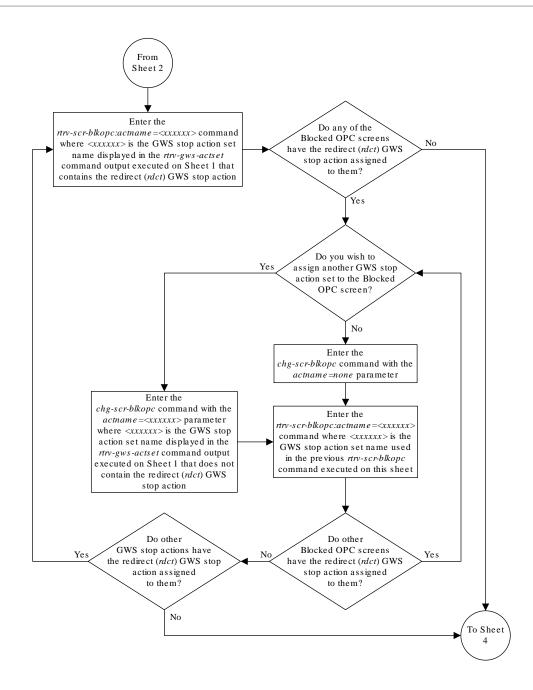
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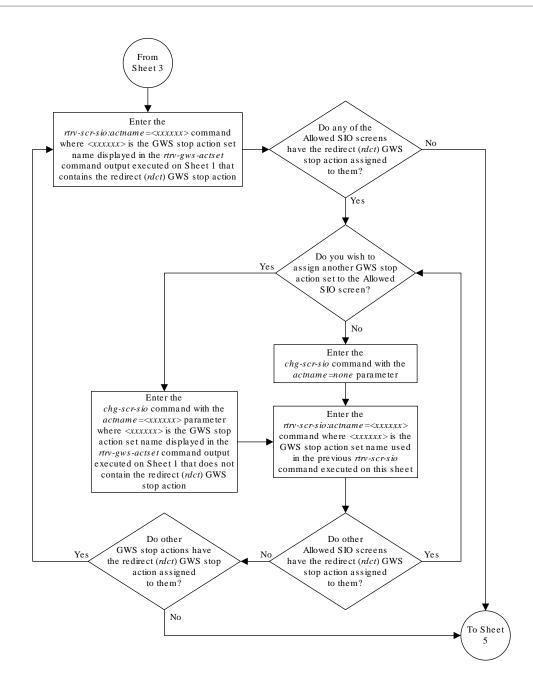
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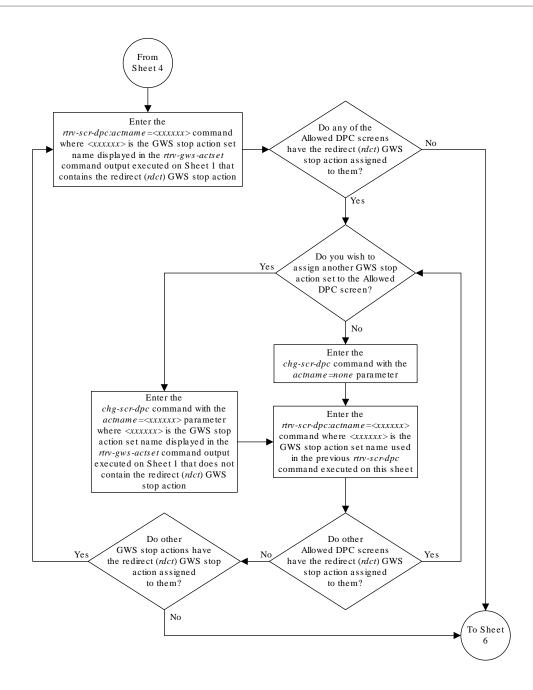
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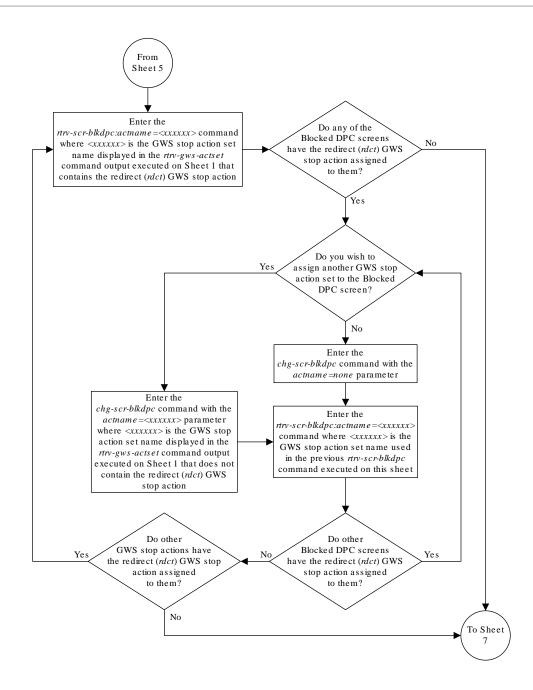
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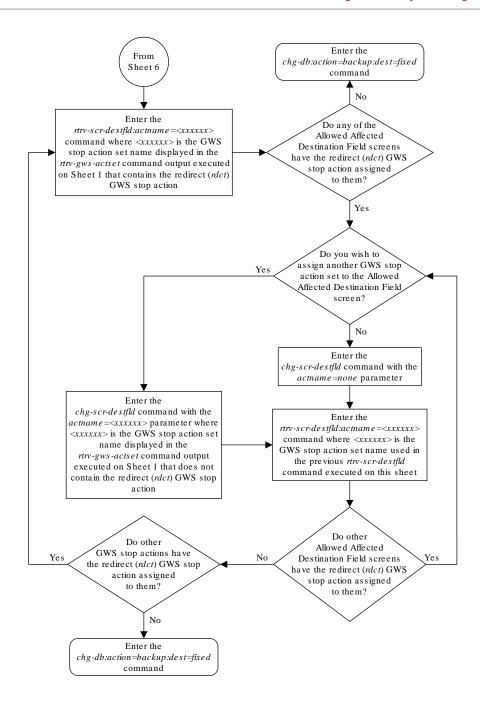
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GSM MAP Screening Configuration

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.

(i) 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.

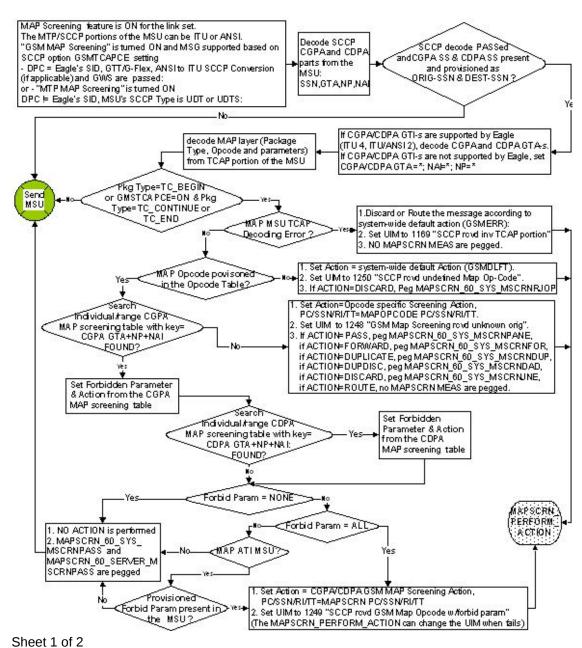
If the CGPA of the message is targeted for screening and the Enhanced GSM MAP Screening feature is not enabled and off, GSM MAP Screening checks the CGPA (calling party address) of the message to know whether or not it is targeted for screening. If the CGPA of the message is targeted for screening, GSM 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

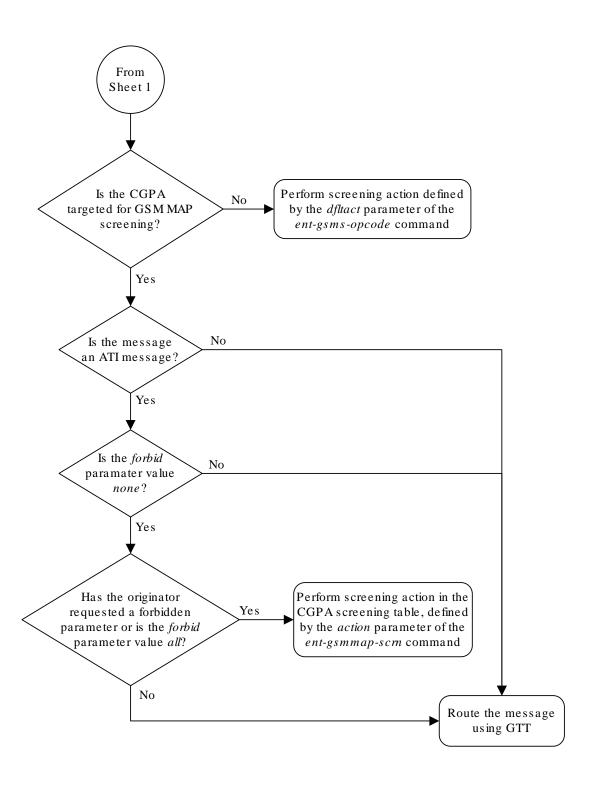


for the CGPA is none, the message is routed to the destination. If the message is an ATI request and contains the forbidden parameter value provisioned for the CGPA, or the provisioned forbidden parameter value is all, GSM MAP screening performs the screening action defined in the CGPA screening table by the action parameter of the ent-gsmmap-scrn command.

Figure 5-1 shows overview of **GSM MAP** screening functionality.

Figure 5-1 GSM MAP Screening Overview





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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.

- 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).

① 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.
- 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.

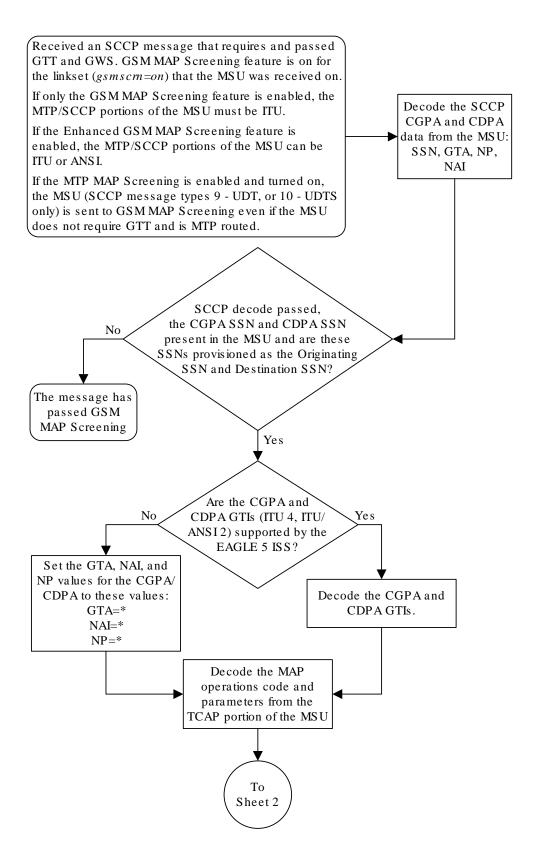


• **DUPLICATE AND DISCARD** – route the original message to the duplicate node. The original message is not sent to the original node. If, however, the duplicate node is not available for routing then the **MSU** is discarded.

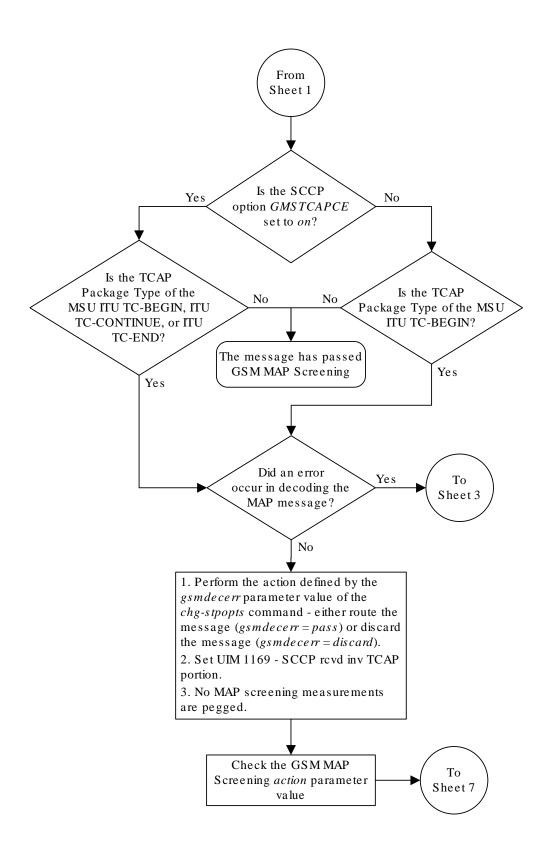
Figure 5-2 shows how **GSM MAP** screening is performed.



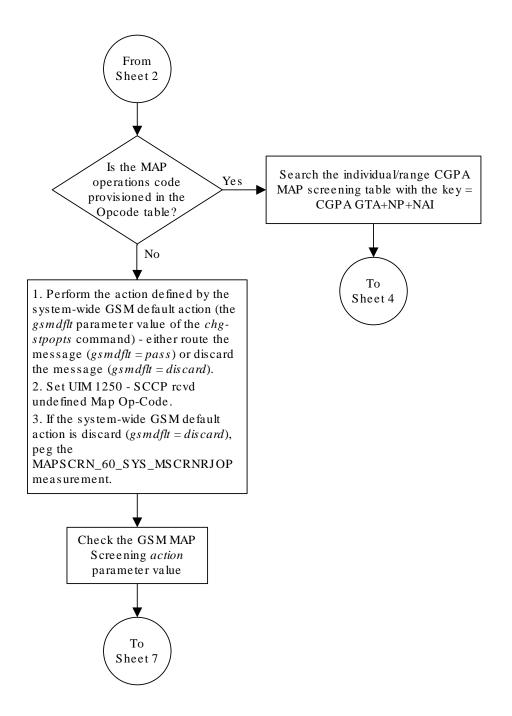
Figure 5-2 GSM MAP Screening Details



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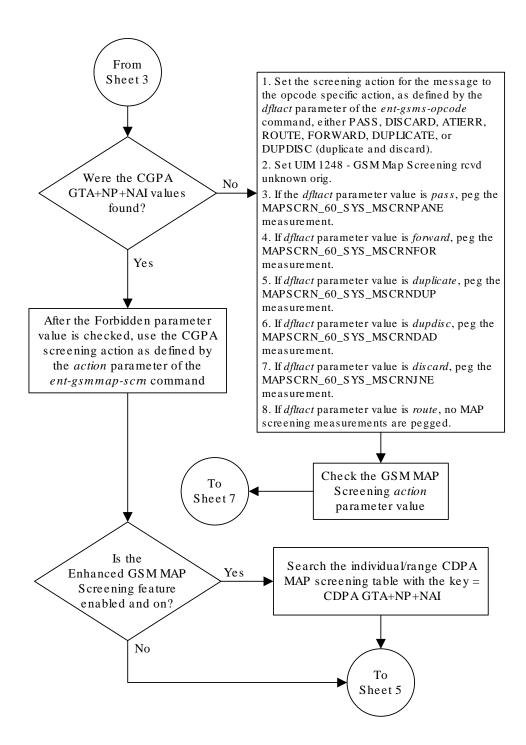


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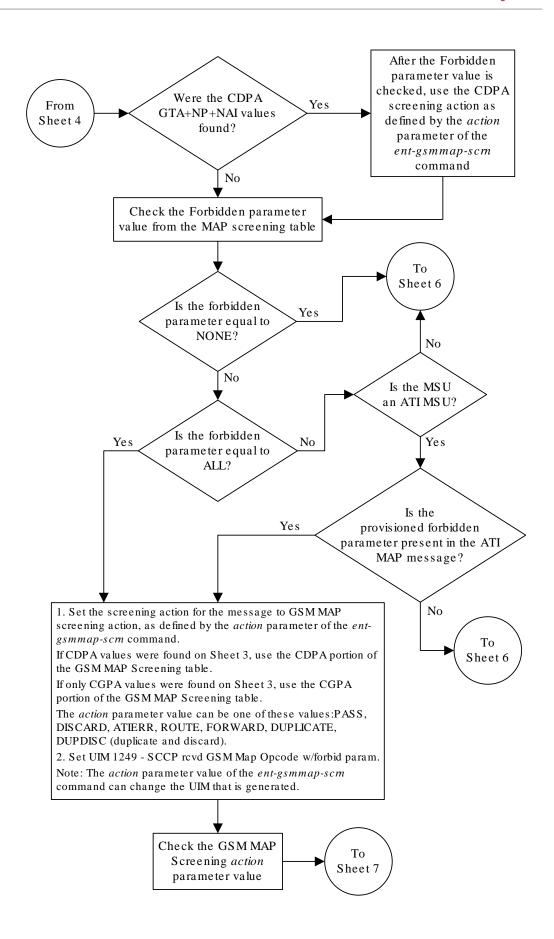
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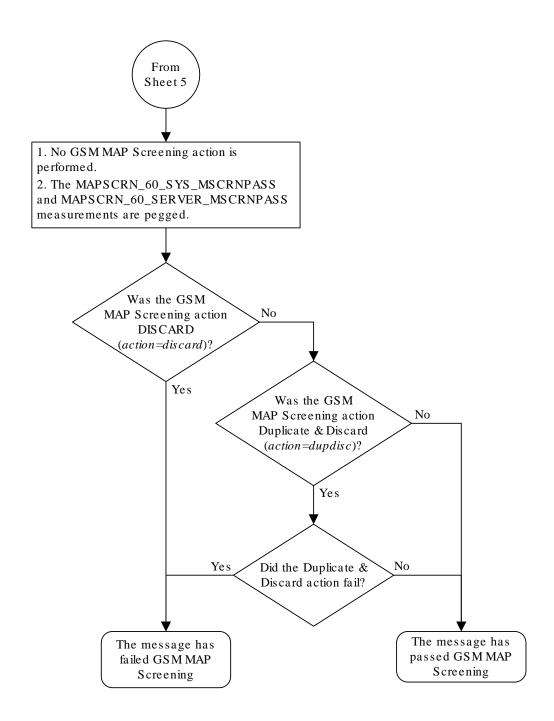


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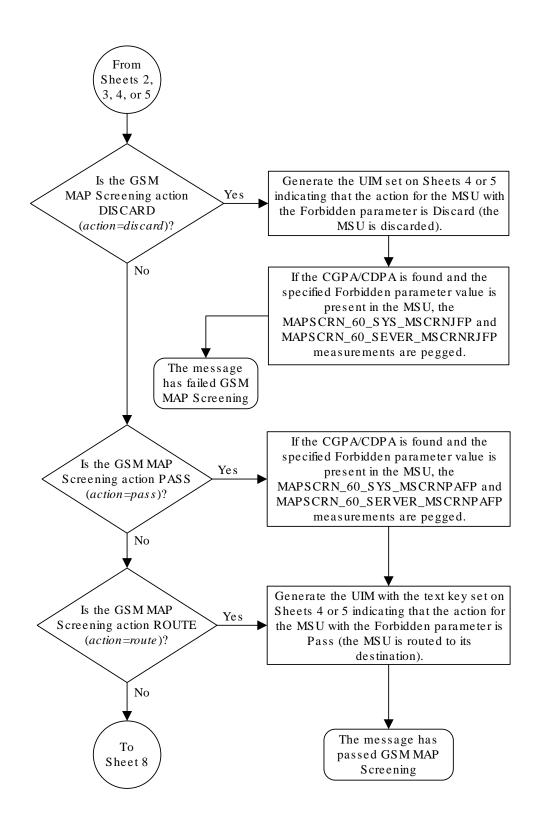


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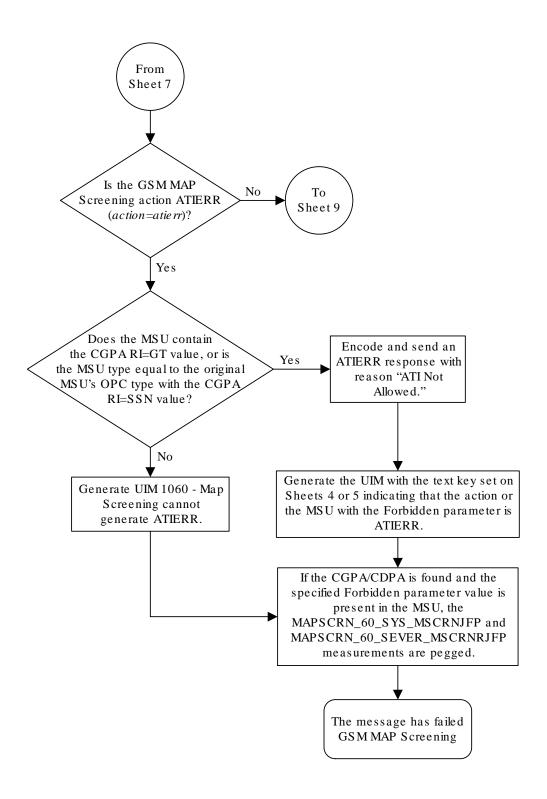
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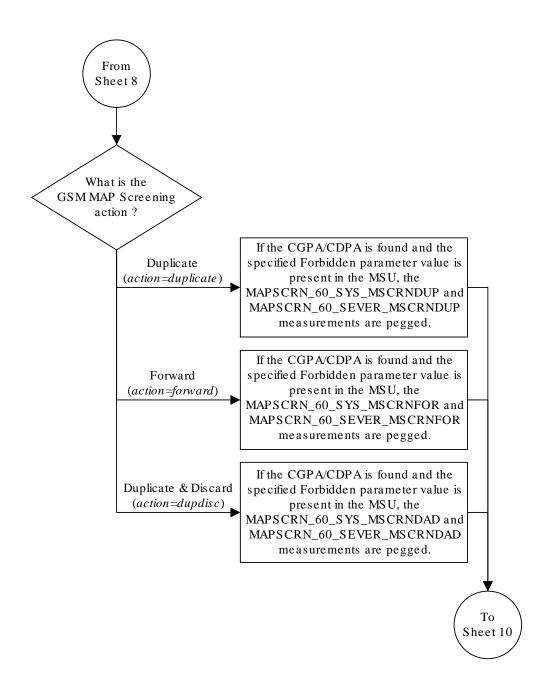
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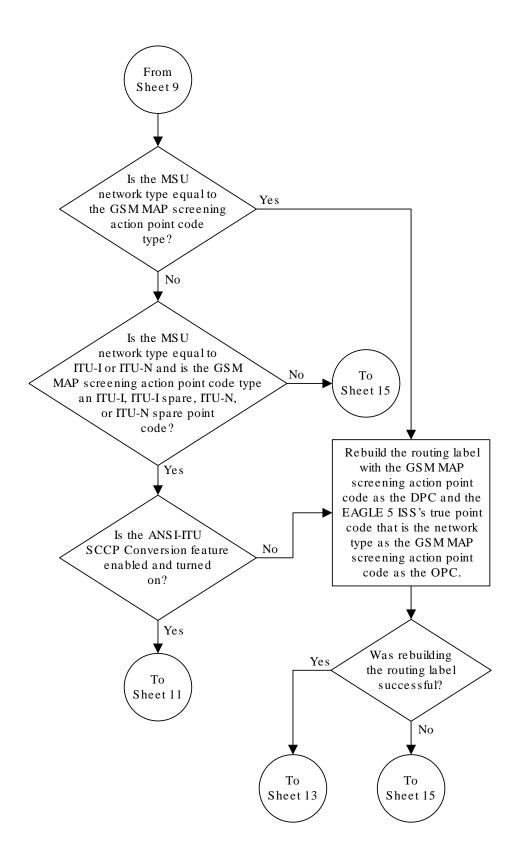
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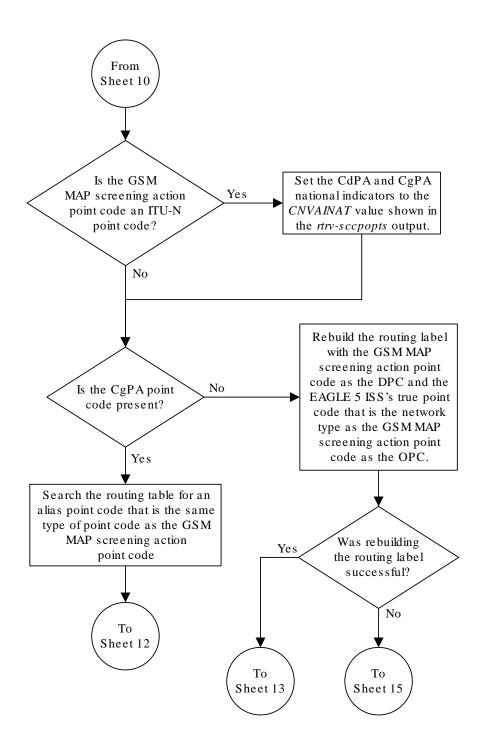
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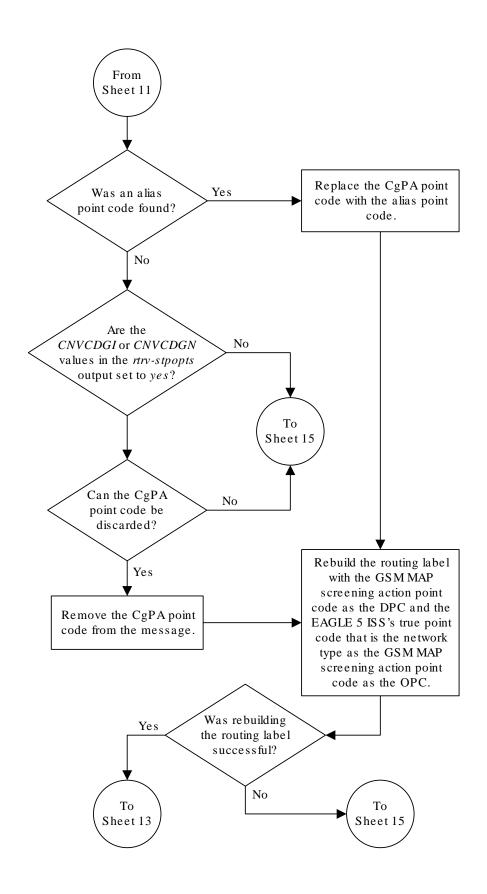
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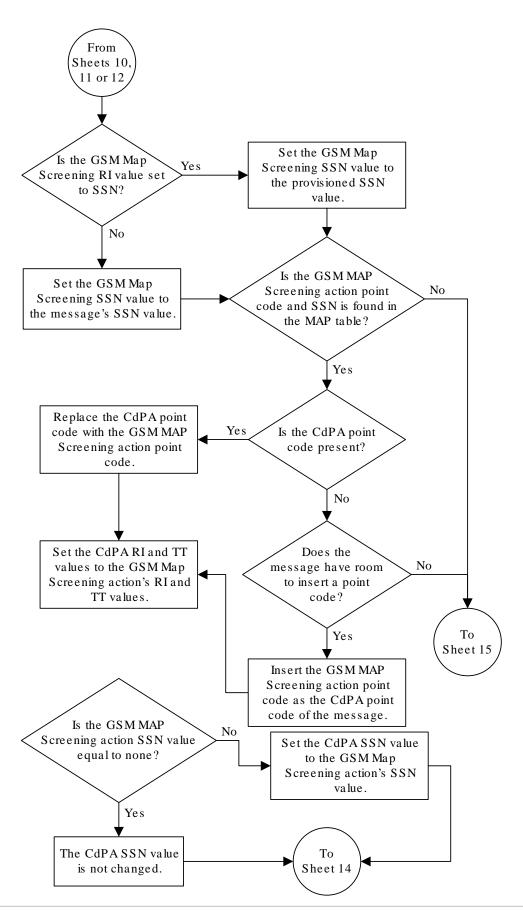




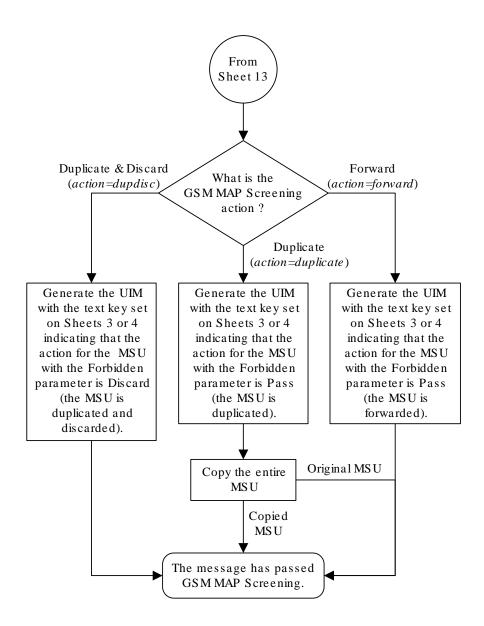


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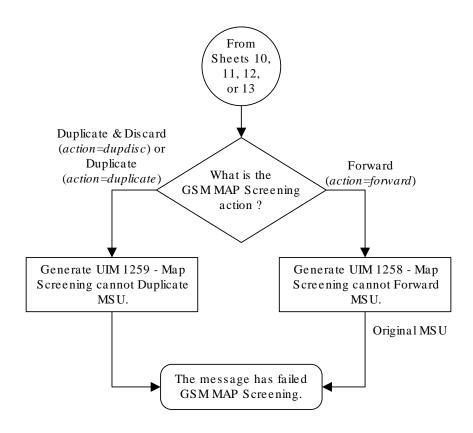


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GSM MAP Screening Example

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

Table 5-1 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.

<u>Table 5-2</u> 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 5-2 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*.

<u>Figure 5-3</u> 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.

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.





(i) Note

Once the Global Title Translation (GTT) feature is turned on with the chq-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.

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.



(i) 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-scopopts 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.
- 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.



(i) Note

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

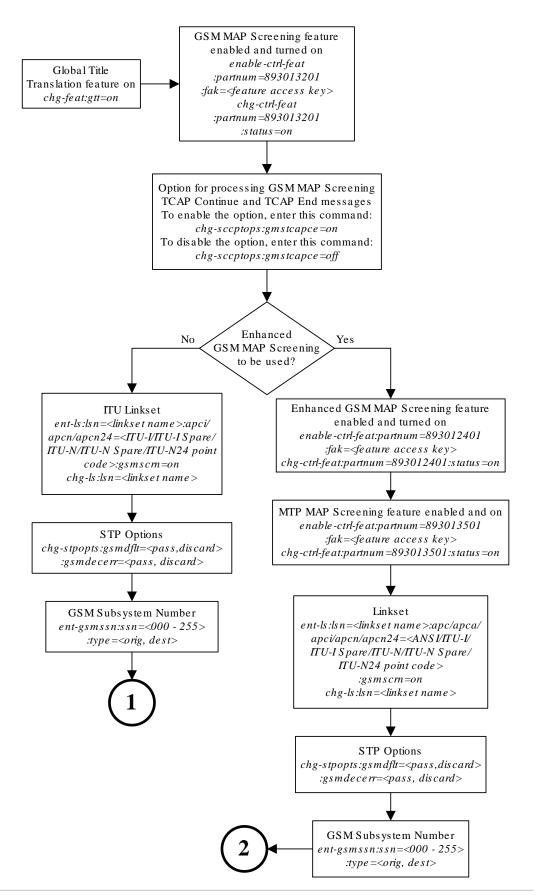
- 5. MSUs that do not require global title translation and are MTP routed can be sent to GSMMAP Screening only of the MTPMAP Screening feature is enabled with the enablectrl-feat command, and turned on with the chg-ctrl-feat command. The Enhanced **GSMMAP** Screening feature must be enabled and turned 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-1s command, specifying the qsmscrn=on parameter. If the necessary linksets are in the database, but do not contain the gsmscrn=on parameter, change these linksets with the chg-1s 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 chgstpopts command. The current values for these options can be verified with the rtrvstpopts 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 <u>Adding a GSMMAP Screening Operation Code</u> 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 5-3 GSM MAP Screening Database Relationships





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Note: The *mapset* parameter can be specified, and must be specified, if the Flexible GTT Load Sharing feature is enabled.



GSM Opcode

ent-gsms-opcode:opcode=<0-255>

:opname = <up to 8 alphabetic characters>

:dfltact=<pass, discard, atierr, route, forward, duplicate, dupdisc (duplicate and discard)> :pci/pcn/pcn24=<ITU-I/

ITU-I Spare/ITU-N/ITU-N Spare/ ITU-N24 point code> :ssn=<2 - 255, none>

 $force = \langle yes, no \rangle$

:mapset=<MAP set ID> :ri=<gt, ssn>

:tt = <0 - 255, none > (See the Note)

GSM MAP Screen

ent-gsmmap-scm:saddr=<1 to 15
decimal digits>
:eaddr=<1 to 15 decimal digits>
:opname=<from GSM Opcode>
:action=<pass, discard, atierr, route, forward, duplicate, dupdisc (duplicate and discard)>
:forbid=<call, none, state, location>
:naiv=<0-127, or *>
:npv=<0-15, or *>
:pci/pcn/pcn24=<ITU-I/ITU-I S pare/ITU-N/ITU-N S pare/ITU-N/24 point

code> :ssn=<002-255, none> :force=<yes, no>

:cgsr=<CGPA screening reference name>

> :mapset=<MAP set ID> :ri=<gt, ssn> :tt=<0 - 255, none>

(See the Note)

GSM Opcode

ent-gsms-opcode:opcode=<0-255, or *>

:opname = <up to 8 alphabetic characters>

:dfltact=<pass, discard, atierr, route, forward, duplicate,

dupdisc (duplicate and discard)> :pc/pca/pci/pcn/pcn24=<ANSI/

ITU-I/ITU-I Spare/ITU-N/ITU-N Spare/ITU-N24 point code>

:ssn=<2-255, none>

:force = < yes, no >

:mapset = <MAP set ID>:ri = < gt, ssn>

 $: r = \langle gt, ssn \rangle$ $: tt = \langle 0 - 255, none \rangle$

(See Note)

GSM MAP Screen

ent-gsmmap-scm:saddr=<1 to 15 hex digits, or *>

:eaddr=<1 to 15 hex digits>
:opname=<from GSM Opcode>

:action=<pass, discard, atierr, route, forward, duplicate, dupdisc (duplicate and discard)>

:forbid=<call, none, state, location> :naiv=<0-127, or *>

:npv=<0-15, or *>

:pc/pca/pci/pcn/pcn24=<ANS I/ITU-I/ ITU-I S pare/ITU-N/ITU-N S pare/

-1 Spare/11 U-N/11 U-N Spa ITU-N24 point code>

:ssn = <002-255, none>

:force = < yes, no >

:cgsr=<CGPA Screening Reference Name>

:cdsr=<CDPA Screening Reference

Name> :mapset=<MAP set ID>

 $: ri = \langle gt, ssn \rangle$

t=<0-255, none>

(See the Note)



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-ctrlfeat command. The status of the GSM MAP Screening feature can be verified with the rtry-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 rtry-feat command.

(i) Note

Once the global title translation feature is turned on with the chq-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 rtrvserial-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.



① 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 rtry-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.

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.

rlghncz	ka03w 09-0!	5-25 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		В	0
1203	LIMDS0	SS7ANSI	sp3	A	0				
1204	LIMDS0	SS7ANSI	sp3	A	1				
1206	LIMDS0	SS7ANSI	nsp3	A	1	nsp4		В	1
1308	LIMDS0	SS7ANSI	sp6	A	1	sp7		В	0
1314	LIMDS0	SS7ANSI	sp7	A	1	sp5		В	1

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.





(i) Note

If the rtry-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.

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
```

(i) 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).

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 rtrvserial-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.

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

 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>



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

(i) Note

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

Verify the changes by entering the rtrv-ctrl-featcommand 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.

(i) 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

(i) Note

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

12. Verify the changes by entering the rtrv-ctrl-featcommand 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.

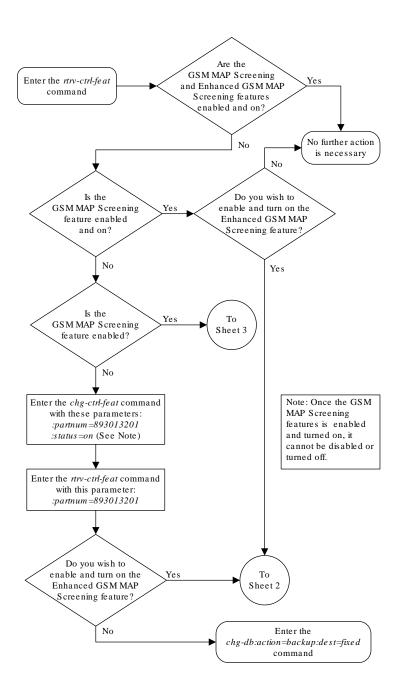
BACKUP (FIXED): MASP A - Backup on active MASP to fixed disk complete.

BACKUP (FIXED): MASP A - Backup starts on standby MASP.

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

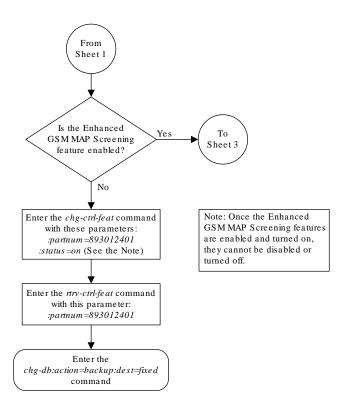


Figure 5-4 Activating the GSM MAP Screening Feature



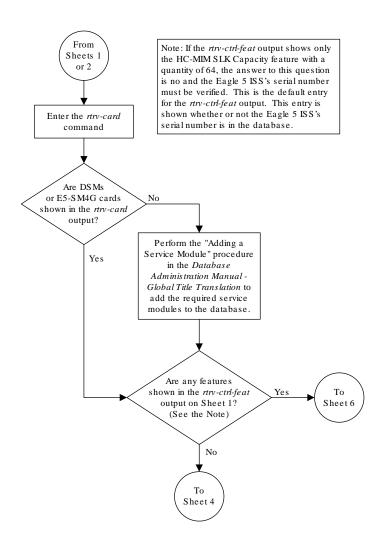
Sheet 1 of 6





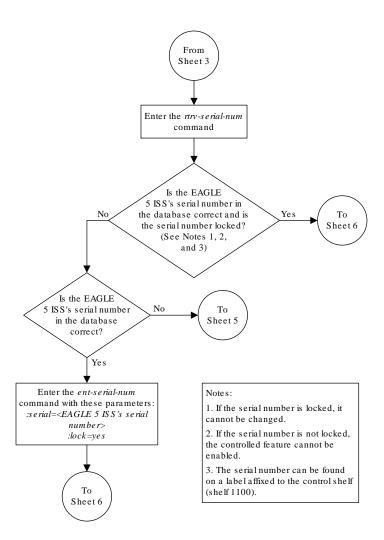
Sheet 2 of 6





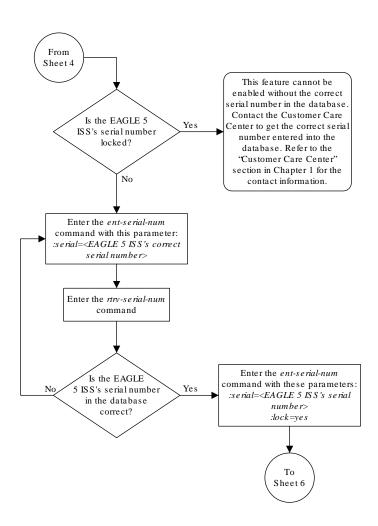
Sheet 3 of 6





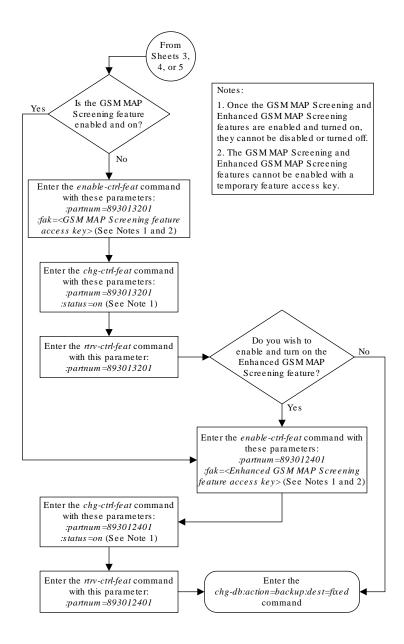
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Sheet 5 of 6





Sheet 6 of 6



Configuring the MTP MAP Screening Feature

(i) 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:

(i) 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.



① 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.

(i) 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.

(i) 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.

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:

The a ferror and a second	D	Q+ - +	0
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.

If the rtry-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 CLLIBASEDNAME = off SYSTOTSTP = off = off SYSTOTTT

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.

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.



(i) 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.

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

Verify the changes by entering the rtrv-ctrl-featcommand 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.

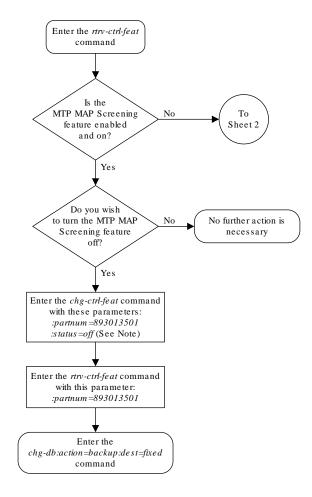
BACKUP (FIXED): MASP A - Backup on active MASP to fixed disk complete.

BACKUP (FIXED): MASP A - Backup starts on standby MASP.

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

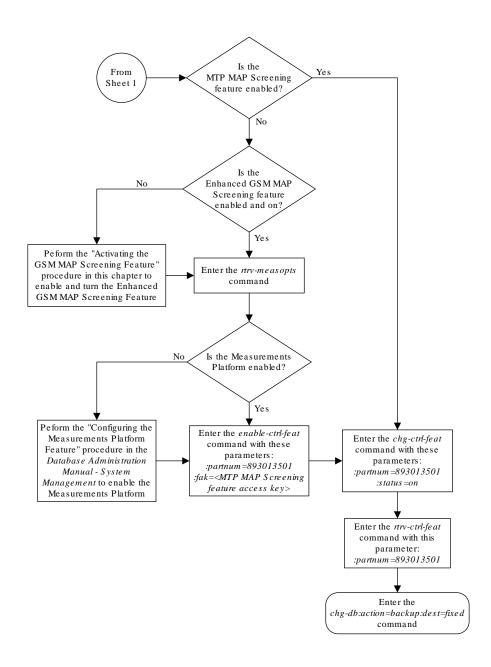


Figure 5-5 Configuring the MTP MAP Screening Feature



Sheet 1 of 2





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.

- :1sn 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.

(i) 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.

(i) 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-1s 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 5-3.



Table 5-3 GSM MAP Screening Linkset Configuration Table	Table 5-3	GSM MAP Screening	Linkset	Configuration	Table
---	-----------	-------------------	---------	---------------	-------

Linkset Names	Linkset APC	LST	GSMSCRN						
New Linksets Being Added									
lsn5	10685	а	on						
lsi7	3-150-4	a	on						
Existing Linkset Being Changed									
Isn4	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.

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	С	3	on	on	on		
lsi3	1-111-3	scr3	1	3	yes	С	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

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.

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

rlghncxa03w	06-10-10 11:43:04	GMT EAGLE5 36.0	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	002-002-0	004 002-0	02-005
002-002-006	002-002-007	002-002-0	008 002-0	02-009
004-002-001	004-003-003	144-212-0	003	
CPCA (LNP)				
005-005-002	005-005-004	005-005-005	5	
CPCI				
1-001-1	1-001-2	1-001-3	1-001	-4
CPCN				
02091	02092	02094	0209	7
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.

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.



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.





(i) 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
   DPCT
                RTX-CRITERIA
                                                    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 rtry-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
                                     15
       FULL DPC(s):
       EXCEPTION DPC(s):
                                      5
                                      0
       NETWORK DPC(s):
       CLUSTER DPC(s):
                                      1
                                     21
       TOTAL DPC(s):
       CAPACITY (% FULL):
                                      1%
                                  12000
   ALIASES ALLOCATED:
       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*.



Verify that the GSMMAP Screening feature is enabled and on by entering the rtrvctrl-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 <u>Activating the GSM MAP</u> Screening Feature procedure to enable and turn on the **GSM MAP** screening feature.

 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.

(i) 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 <u>Activating the</u> 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.



(i) 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 lsn4	APC:		SS7)			SET 2	BEI no		LNKS 2	_		DIS off	SLSCI no	NIS on
	CLLI		TF	ATCABMI	LQ MI	PRS	E ASI	L8 SI	LSRSB	ITU'	TFR (GSMS(CRN	
	lsn4c	11i	1					- 1		on	(on		
	IPGWA no	PC MAT	ΓELSN	IP7	TPS I	SUS	EALM	SLKU	JSEAL	M GT'	_	E		
					L2T	?			P	CR :	PCR			
	LOC	LINK	SLC	TYPE	SET	. Bl	PS	ECN	N N	1 1	N2			
	1205	b	0	LIMDS0	1	5	6000	BAS	SIC -			-		
	1211	a	2	LIMDS0	1	5	6000	BAS	SIC -			_		

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
```





(i) 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.



(i) 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



(i) 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 rtry-1s command specifying the linkset name specified in either steps 8 or 9 with the 1sn 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 TFATCABMLO MTPRSE ASL8 SLSRSB ITUTFR GSMSCRN CLLI lsn4clli --- 1 on IPGWAPC MATELSN IPTPS LSUSEALM SLKUSEALM GTTMODE CdPA PCR PCR L2T LINK SLC TYPE SET BPS ECM N1 56000 BASIC --- ----1205 b 0 LIMDS0 1

56000 BASIC ---

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

2

LIMDSO 1

rtrv-ls:lsn=lsn5

This is an example of the possible output.

1211 a

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 2 off off off no none 1 no a 0 CLLI TFATCABMLQ MTPRSE ASL8 SLSRSB ITUTFR GSMSCRN lsn5clli 1 on IPGWAPC MATELSN IPTPS LSUSEALM SLKUSEALM GTTMODE 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

GWS GWS GWS L3T SLT LSN APCI (SS7) SCRN SET SET BEI LST LNKS ACT MES DIS SLSCI NIS lsi7 3-150-4 off off off no off none 1 2 no a 0 CLLI TFATCABMLQ MTPRSE ASL8 SLSRSB ITUTFR GSMSCRN lsn7clli --- 1 off IPGWAPC MATELSN IPTPS LSUSEALM SLKUSEALM GTTMODE 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.

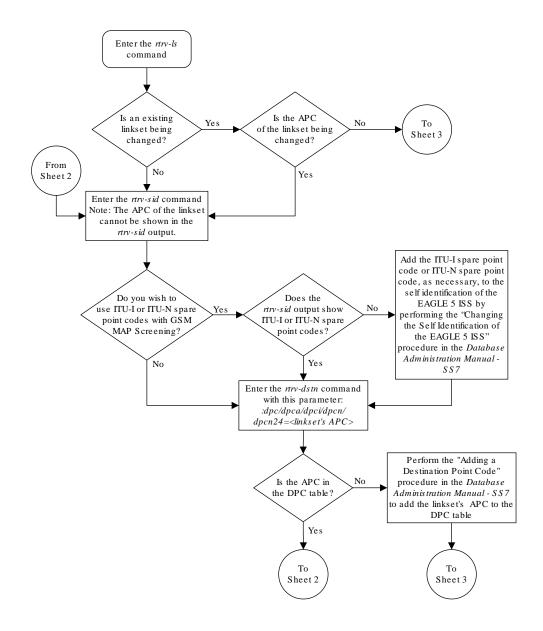
```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.

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

BACKUP (FIXED) : MASP A - Backup starts on standby MASP.

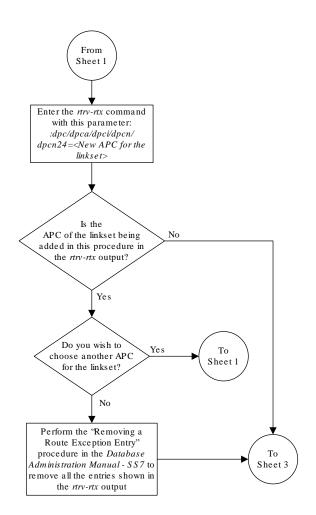
BACKUP (FIXED) : MASP A - Backup on standby MASP to fixed disk complete.
```

Figure 5-6 Configuring a Linkset for the GSM MAP Screening Feature



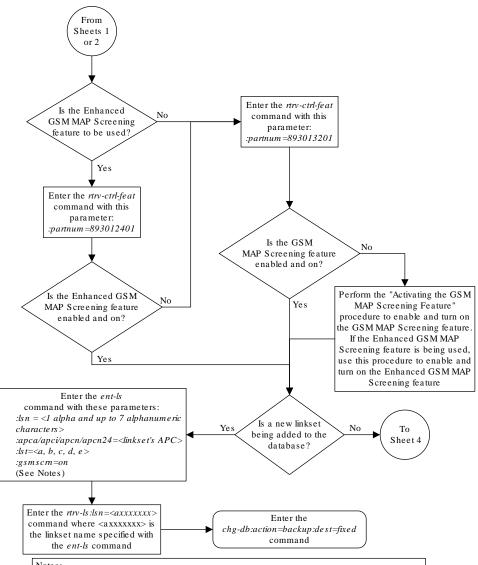
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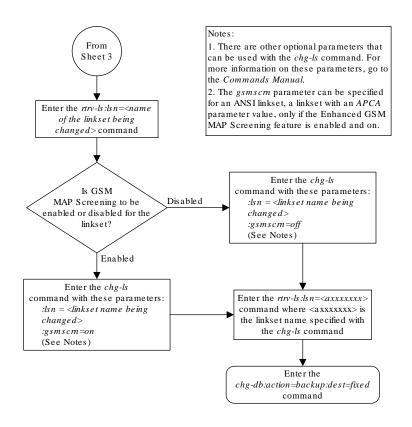


Notes:

- 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
- 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.

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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 <u>"Activating the **GSMMAP** Screening Feature"</u> procedure to enable and turn on the **GSM MAP** screening feature.

When the **GSM MAP** screening feature is activated, the values for the <code>gsmdflt</code> and <code>gsmdecerr</code> parameters are set to <code>pass</code>. The current values for these options can be verified with the <code>rtrv-stpopts</code> command.

 Verify that the GSMMAP Screening feature is enabled and on by entering the rtrvctrl-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 <u>"Activating the **GSMMAP**</u> <u>Screening Feature"</u> 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 <code>gsmdflt</code> parameter is shown in the <code>GSMSDFLT</code> field. The value for the <code>gsmdecerr</code> parameter is shown in the <code>GSMDECERR</code> 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



(i) 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.

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 chq-stpopts command with the qsmdflt and gsmdecerr parameters as shown in this example.

```
chg-stpopts:gsmdflt=discard:gsmdecerr=discard
```

If you wish to change only one option, enter the chq-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.

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.

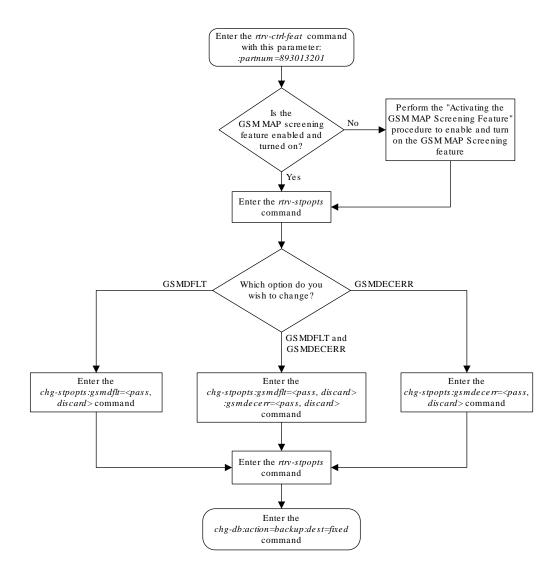
BACKUP (FIXED): MASP A - Backup on active MASP to fixed disk complete.

BACKUP (FIXED): MASP A - Backup starts on standby MASP.

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



Figure 5-7 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 5-4 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 <u>"Activating the **GSMMAP**</u> Screening Feature" procedure to enable and turn on the **GSMMAP** screening feature.

2. Display the **GSMMAP** Screening subsystem numbers in the database using the rtrvgsmssn-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
```

Add the new subsystem numbers to be screened to the database with the ent-gsmssnscrn 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.

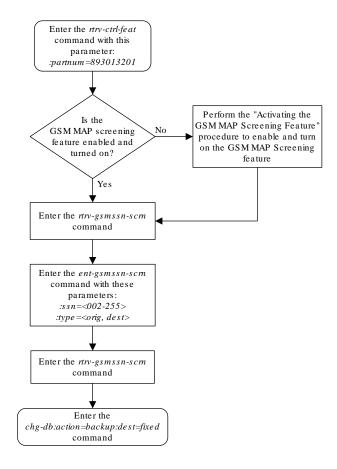
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk complete.

BACKUP (FIXED) : MASP A - Backup starts on standby MASP.

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



Figure 5-8 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
```

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.
```



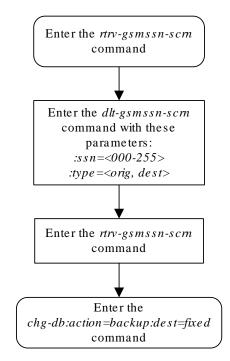
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk complete.

 ${\tt BACKUP}$ (FIXED) : ${\tt MASP}$ A - ${\tt Backup}$ starts on standby ${\tt MASP}.$

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



Figure 5-9 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.
- qt subsequent global title translation is required.
- ssn subsequent global title translation is not required. This is the default value for the riparameter.

: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 5-5 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 <u>"Activating the **GSMMAP**</u> <u>Screening Feature" procedure</u> to enable and turn on the **GSMMAP** screening feature.

① Note

If the opcode=* or the pc/pca parameters are not being used in this procedure, continue the procedure with 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 off, go to the <u>"Activating the GSMMAP Screening Feature" procedure</u> to enable and turn on the Enhanced **GSMMAP** screening feature.

Display the GSMMAP screening operation codes in the database using the rtrv-gsmsopcode 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
                                                     TT
                                                 RI
OPCODE
        OPNAME
                  DFLTACT
                             PCI
                                           SSN
                                                 RΙ
                                                     TT
OPCODE
        OPNAME
                  DFLTACT
                             PCN
                                           SSN
                                                 RΙ
                                                     TT
OPCODE
        OPNAME
                  DFLTACT
                             PCN24
                                           SSN
                                                 RI
                                                     TT
OPCODE
        OPNAME
                  DFLTACT
 2.2
        sri
                  disc
 50
        pass50
                  pass
```

GSMMS OPCODE Table (2 of 257) is 1% full

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 OPCODE PCI SSN OPNAME DFLTACT MAPSET RI OPCODE OPNAME DFLTACT PCN SSN MAPSET RI OPCODE OPNAME DFLTACT PCN24 SSN MAPSET RI OPCODE OPNAME DFLTACT 22 sri disc 50 pass50 pass

- 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 $\underline{7}$.

- 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 <u>9</u>.

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

```
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 <u>9</u>.

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 $\underline{9}$.

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 EAGL	E5 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.

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.

Add the new GSMMAP screening operation codes to the database with the ent-gsmsopcode 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=12
8: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:ma
pset=20
ent-gsms-
opcode:opcode=36:opname=for1:dfltact=forward:pca=002-002-002:ssn=1
0: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-gsmsopcode 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.

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
      dup1
      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 forl 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.

Enter the chg-db:action=backup:dest=fixed command

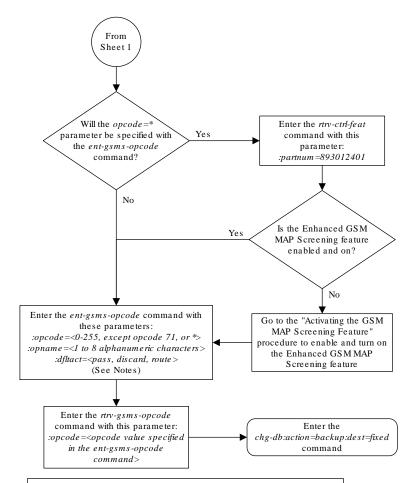


Go to the "Activating the GSM Enter the rtrv-ctrl-feat Is the GSM command with this MAP Screening Feature" MAP Screening feature parameter: procedure to enable and turn on enabled and on? :partnum=893013201 the GSM MAP Screening feature Yes Enter the rtrv-gsms-opcode command Enter the ent-gsms-opcode command with FORWARD, these parameters: DUPLICATE, What will the :opcode=71 To DUPDISC ATIERR value of the dfltact :opname =<1 to 8 alphanumeric characters> Sheet 3 :dfltact=atierr parameter be? Note: The word "none" cannot be used as a value for the opname parameter. PASS, DIS CARD, ROUTE Will the opcode = То Yes parameter be specified with Sheet 2 the ent-gsms-opcode command? No Enter the ent-gsms-opcode command with these parameters: Enter the rtrv-gsms-opcode :opcode =<0-255, except opcode 71> command with this parameter: opcode=<opcode value specified: :opname =<1 to 8 alphanumeric characters> :dfltact=<pass, discard, route>
Note: The word "none" cannot be used as a in the ent-gsms-opcode command> value for the opname parameter.

Figure 5-10 Adding a GSM MAP Screening Operation Code

Sheet 1 of 7



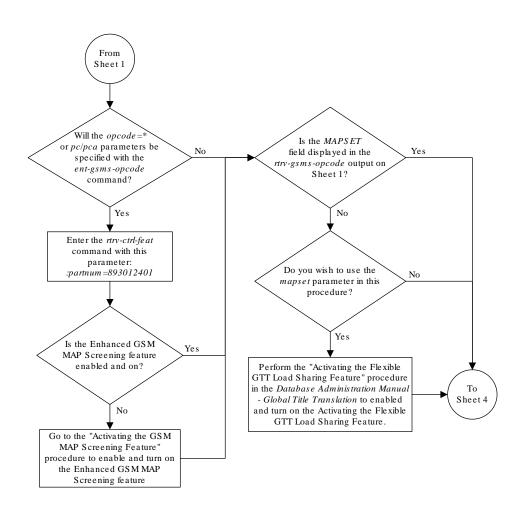


Note s:

- 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.

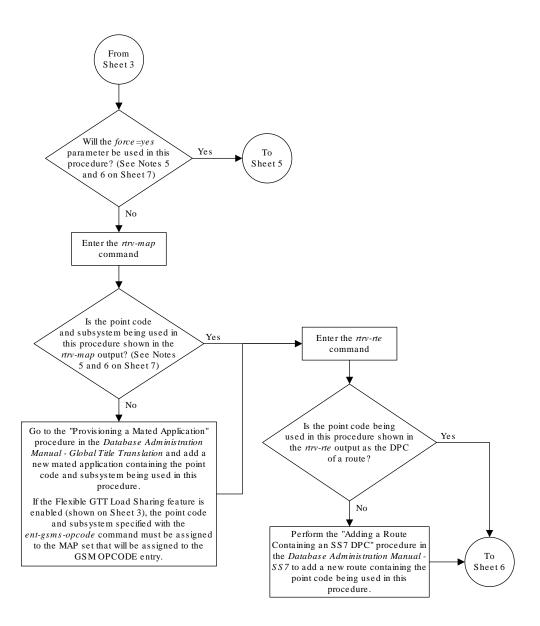
Sheet 2 of 7





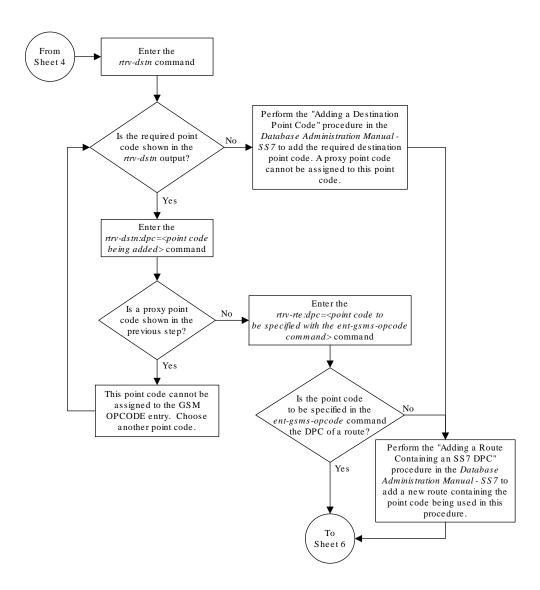
Sheet 3 of 7





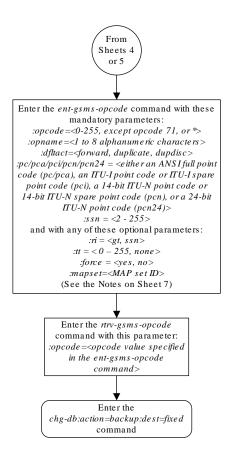
Sheet 4 of 7





Sheet 5 of 7





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 <code>opcode=*or pc/pca</code> 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 nn-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 \vec{n} 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 - ssr

tt – no value is specified. A dash is shown in the TT column of the rtrv-gsms-opcode output.

8. If the n=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 <u>Removing a GSM MAP</u> <u>Screening Entry</u> procedure to remove any **GSM MAP** screening entries that reference the opname name value being removed from the database.

 Display the GSMMAP screening opcodes in the database using the rtrv-gsms-opcode command.

This is an example of the possible output.

rlghncx	a03w 08-09	-10 11:43:0	4 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 22 25 50 71 100 150	OPNAME sri route25 pass50 ati pass100 discard1 star	DFLTACT disc route pass atierr pass disc pass				

 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
```

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

This is an example of the possible output if the rtrv-gsmmap-scrn output contains no entries that reference the opname value being removed.



SADDR	NP NAI FORBD AC	CT PCI	SSN CGSR RI	TT					
SADDR	NP NAI FORBD AC	CT PCN	SSN CGSR RI	TT					
SADDR	NP NAI FORBD AC	CT PCN24	SSN CGSR RI	TT					
SADDR	NP NAI FORBD AC	CT CGSR							
Range CgPA Enti	ries for OPNAME:	sri							
SADDR CGSR	EADDR	NP NAI FORBD ACT	PCA	SSN					
SADDR CGSR	EADDR	NP NAI FORBD ACT	PCI	SSN					
SADDR CGSR	EADDR	NP NAI FORBD ACT	PCN	SSN					
SADDR CGSR	EADDR	NP NAI FORBD ACT	PCN24	SSN					
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

EADDR

Single CgPA Entr	ries	s for	OPNAM	ME:	sri	Ĺ							
SADDR	NP	NAI	FORBD	ACI		-	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 919462000000005													
Range CgPA Entri	ies	for	OPNAMI	E: s	ri								
SADDR CGSR	EAI	ODR			NP	NAI	FORBD	ACT	PO	CA			SSN
SADDR CGSR	EAI	ODR			NP	NAI	FORBD	ACT	PO	CI			SSN

NP NAI FORBD ACT

PCN

SADDR

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 91946200000000 91946300000000 * * 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 <u>Removing a GSM MAP Screening Entry</u> procedure to remove the **CGPA** entries shown in this step.

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.

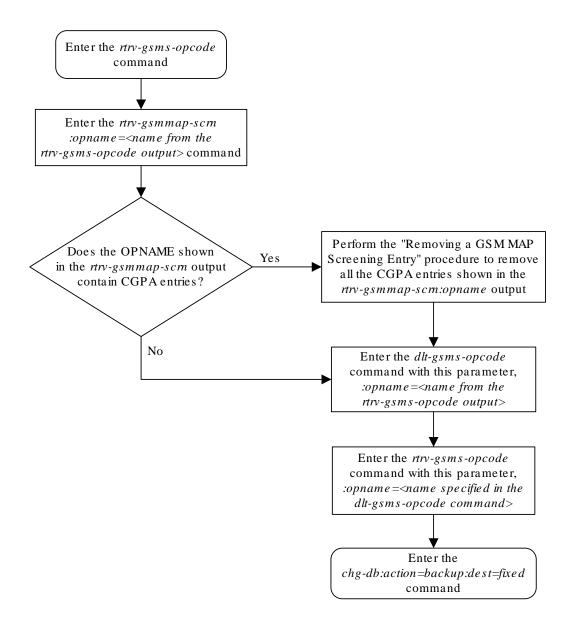
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk complete.

BACKUP (FIXED) : MASP A - Backup starts on standby MASP.

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



Figure 5-11 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	
93	dd93	dupdc	5-025-3	200	20	ssn	
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

(i) 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 §.

(i) Note

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

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 <u>"Activating the GSMMAP Screening Feature" procedure</u> 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 <u>8</u>. 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 $\underline{1}$, continue the procedure with $\underline{6}$.
 - 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 $\underline{8}$.

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 $\underline{8}$.

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 $\underline{8}$. 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
```

① 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 $\underline{8}$.

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).

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
                                           RC
                                                 APC
                                  LSN
4-038-1
         12111
                        240-111-111 ls300001 10
                                                 4-038-1
                                  ls300002 10
                                                 2-066-7
                                                 5-087-4
                                  ls300003 20
                                      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 :nmapset=
18:nri=gt:ntt=60
```

When each of these commands has successfully completed, this message appears.

```
rlghncxa03w 06-10-10 11:43:04 GMT EAGLE5 36.0.0 GSM Map Op-Code Table is (8 of 256) 3% full CHG-GSMS-OPCODE: MASP A - COMPLTD
```

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.
- I. 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 $\underline{8}$, the new opname parameter value should be specified with the <code>rtrv-gsms-opcode</code> command. For this example, enter these commands.

```
rtrv-qsms-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.

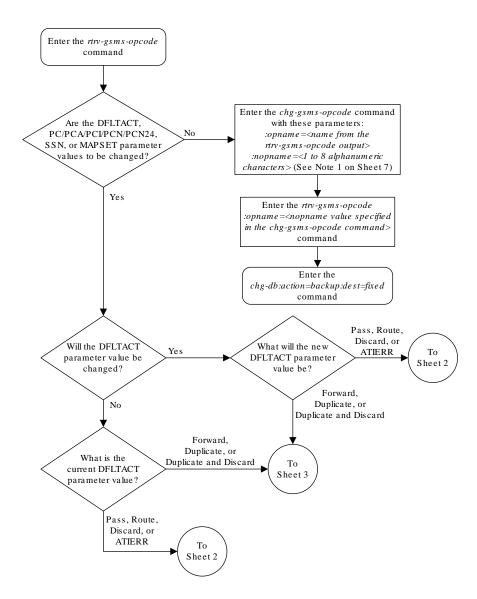
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk complete.

BACKUP (FIXED) : MASP A - Backup starts on standby MASP.

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



Figure 5-12 Changing a GSM MAP Screening Operation Code



Sheet 1 of 7





Enter the chg-gsms-opcode command with this mandatory parameter:

:opname =<name from the ntv-gsms-opcode output from Sheet 1>
and al least of these optional parameters:

:nopname = <new OPCODE name>
:ndfltact = <pass, discard, atterr, route>

Notes:

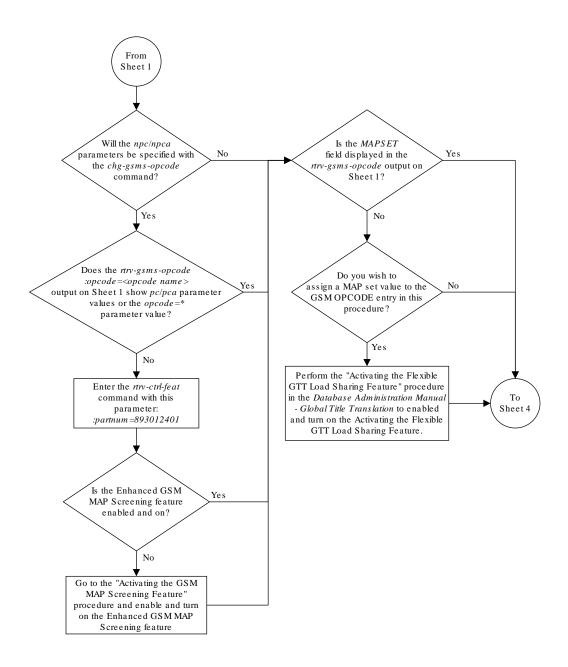
- 1. If the dfltact parameter value is being changed to atier, the OPCODE name must contain opcode 71. If the OPCODE name is being changed to a name that contains opcode 71, the dfltact parameter value must be atier.
- 2. The word "none" cannot be used as a value for the *opname* or *nopname* parameters.

Enter the ntry-gsms-opcode command with this parameter:
copname =<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

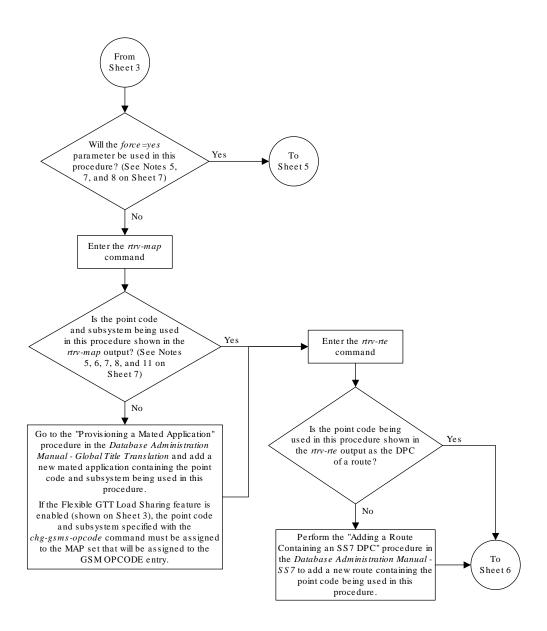
Sheet 2 of 7





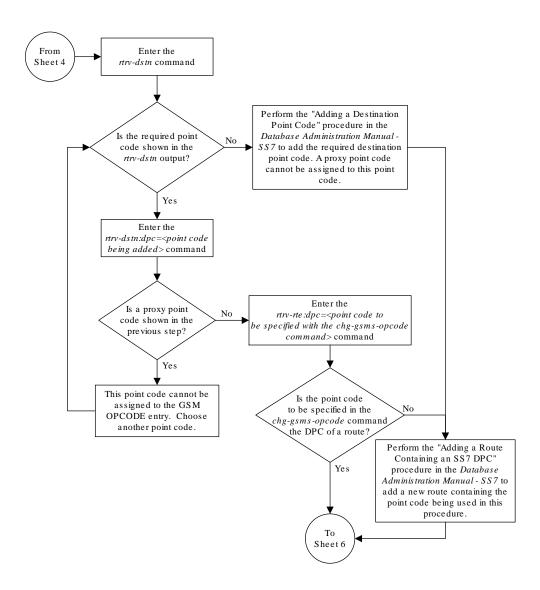
Sheet 3 of 7





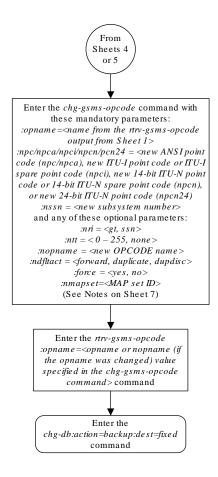
Sheet 4 of 7





Sheet 5 of 7





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 nrv-ne 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/npcn/24 and nssn values must be shown in the nnv-map output on Sheet 4. If the npc/npca/npci/npcn/npcn/24 or nssn values are not shown in the nnv-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 atier, 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 nrv-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 nrv-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 ntry-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 GSMOPCODE entry. A dash is shown in the TT column of the tt value is removed.
- 14. If, when the chg-gsms-opcode command is completed, the n 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 riparameter.
- :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.

<u>Table 5-6</u> shows the parameter combinations that can be used in this procedure.

Table 5-6 Add GSM MAP Screening Entry Parameter Combinations

Entry	Entry Without	Entry	Entry	Entry Without	Entry
Containing a	a Point Code	containing the	Containing a	a Point Code	containing the
Point Code	and SSN (See	Action ATIERR	Point Code	and SSN (See	Action ATIERR
and SSN (See	Note 1)	(See Note 1)	and SSN (See	Note 1)	(See Note 1)
Note 1)	Enhanced	Enhanced	Note 1)	GSM MAP	GSM MAP
Enhanced	GSM MAP	GSM MAP	GSM MAP	Screening	Screening
GSM MAP	Screening	Screening	Screening	Feature	Feature
Screening	Feature	Feature	Feature	Enabled and	Enabled and
Feature	Enabled and	Enabled and	Enabled and	On Only	On Only
Enabled and	On	On	On Only		
On					
Enabled and				On Only	On Only

Mandatory Parameters



Table 5-6 (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
: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 F	Parameters		
:saddr = 0 - 15	:saddr = 0 - 15	:saddr = 0 - 15	:eaddr = 0 - 15	:eaddr = 0 - 15	:eaddr = 0 - 15
(See Notes 4, 5, (See N	hex digits, or * (See Notes 4, 5, and 6)	hex digits, or * (See Notes 4, 5, and 6)	decimal digits (See Notes 4, 5, and 6)	decimal digits (See Notes 4, 5, and 6)	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 5-6 (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)	:naiv = 0 - 127, or * (See Note 8)	:naiv = 0 - 127, or * (See Note 8)	:ssn = 0 - 255, none (See Notes 13, 14, and 16)		
:pc/pca/pci/pcn/ pcn24 = point code value (See			:force=yes (See Notes 13 and 14)		
Notes 10, 11, 12, 13, and 14)			:mapset= dflt or numbered MAP set		
			ID (See Notes 13 and 14)		
:ssn = 0 - 255, none (See Notes 13, 14, and 16)			:ri = gt, ssn (See Note 16)		
:force=yes (See Notes 13 and 14)			:tt = 0 - 255, none		
:mapset = dflt or numbered MAP set ID (See Notes 13 and 14)					
:ri = gt, ssn (See Note 16) :tt = 0 - 255, none					



Table 5-6 (Cont.) Add GSM MAP Screening Entry Parameter Combinations

Entry	Entry Without	Entry	Entry	Entry Without	Entry
Containing a	a Point Code	containing the	Containing a	a Point Code	containing the
Point Code	and SSN (See	Action ATIERR	Point Code	and SSN (See	Action ATIERR
and SSN (See	Note 1)	(See Note 1)	and SSN (See	Note 1)	(See Note 1)
Note 1)	Enhanced	Enhanced	Note 1)	GSM MAP	GSM MAP
Enhanced	GSM MAP	GSM MAP	GSM MAP	Screening	Screening
GSM MAP	Screening	Screening	Screening	Feature	Feature
Screening	Feature	Feature	Feature	Enabled and	Enabled and
Feature	Enabled and	Enabled and	Enabled and	On Only	On Only
Enabled and	On	On	On Only	_	-
On			-		

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.
- 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.



Table 5-6 (Cont.) Add GSM MAP Screening Entry Parameter Combinations

Entry	Entry Without	Entry	Entry	Entry Without	Entry
Containing a	a Point Code	containing the	Containing a	a Point Code	containing the
Point Code	and SSN (See	Action ATIERR	Point Code	and SSN (See	Action ATIERR
and SSN (See	Note 1)	(See Note 1)	and SSN (See	Note 1)	(See Note 1)
Note 1)	Enhanced	Enhanced	Note 1)	GSM MAP	GSM MAP
Enhanced	GSM MAP	GSM MAP	GSM MAP	Screening	Screening
GSM MAP	Screening	Screening	Screening	Feature	Feature
Screening	Feature	Feature	Feature	Enabled and	Enabled and
Feature	Enabled and	Enabled and	Enabled and	On Only	On Only
Enabled and	On	On	On Only		
On					

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 5-7 Example CGPA GSM MAP Screening Configuration Table

CGSR	SADDR	EADDR	NPV	NAIV	OPNAME	FORBID
cg01	9194600000		5	75	pass50	none
cg02	25255510000 0	25270000000 0	12	37	discard1	all
cg03	8284540000	8284600000			ati	state



Table 5-7 (Cont.) Example CGPA GSM MAP Screening Configuration Table

CGSR	SADDR	EADDR	NPV	NAIV	OPNAME	FORBID
cg04	2416546464		0	127	route25	none
cg05	854000000	857000000	3	99	dd93	all
cg06	15436300000 0	15500000000 0	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 5-8 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/	SSN	MAPSET		
			PCI/PCN/				
			PCN24				
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		

 Display the GSMMAP screening operation codes in the database using the rtrv-gsmsopcode 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 36	OPNAME for1	DFLTACT fwd	PCA 002-002-002	SSN 10	RI gt	TT 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 187	OPNAME dup187	DFLTACT dupl	PCN 11519	SSN 79	RI gt	TT 50
OPCODE	OPNAME	DFLTACT	PCN24	SSN	RI	TT
OPCODE 22 25 50 71 150	OPNAME sri route25 pass50 ati discard1 star	DFLTACT disc route pass atierr disc 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 36	OPNAME for1	DFLTACT fwd	PCA 002-002-002	SSN 10	MAPSET 25	RI gt	TT 40
OPCODE 93 139	OPNAME dd93 fwd139	DFLTACT dupdc fwd	PCI 5-025-3 3-159-7	SSN 200 128	MAPSET 20 DFLT	ssn	TT 10 -
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

(i) Note

If the desired **GSM MAP** screening operation code entry is not shown in the rtrv-gsms-opcode output, go to the <u>"Adding a **GSMMAP** Screening Operation Code" procedure</u> 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	ΤT
SADDR	NP	NAI	FORBD	ACT	PCI	SSN	CGSR :	RI	тт
SADDR	NP	NAI	FORBD	ACT	PCN	SSN	CGSR :	RI	TT
SADDR	NP	NAI	FORBD	ACT	PCN24	SSN	CGSR :	RI	тт
SADDR	NP	NAI	FORBD	ACT	CGSR				

Range CgPA Entries for OPNAME: pass50

Range CgPA E	TICITES TOT OPNA	ME. passou		
SADDR CGSR	EADDR	NP NAI FORBD ACT	PCA	SSN
SADDR CGSR	EADDR	NP NAI FORBD ACT	PCI	SSN
SADDR CGSR	EADDR	NP NAI FORBD ACT	PCN	SSN
SADDR CGSR	EADDR	NP NAI FORBD ACT	PCN24	SSN
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 NA	I FORBD	ACT	PCA	SSN	CGSR	RI	TT
SADDR	NP NA	I FORBD	ACT	PCI	SSN	CGSR	RI	ТТ
SADDR	NP NA	I FORBD	ACT	PCN	SSN	CGSR	RI	TT



SADDR	NP NAI FORBD AC	T PCN24	SSN CGSR RI TT
SADDR	NP NAI FORBD AC	T CGSR	
Range CgPA Entr	ies for OPNAME:	discard1	
SADDR SSN CGSR	EADDR	NP NAI FORBD ACT	PCA
SADDR CGSR	EADDR	NP NAI FORBD ACT	PCI SSN
SADDR CGSR	EADDR	NP NAI FORBD ACT	PCN SSN
SADDR CGSR	EADDR	NP NAI FORBD ACT	PCN24 SSN
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				
	NP NAI FORBD ACT CGSR 1 0 locat atier atil						
Range CgPA Entr	ies for OPNAME: ati						
	EADDR NP NAI FORBD ACT	PCA					
SADDR CGSR	EADDR NP NAI FORBD ACT	PCI	SSN				
SADDR CGSR	EADDR NP NAI FORBD ACT	PCN	SSN				
SADDR CGSR	EADDR NP NAI FORBD ACT	PCN24	SSN				



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 NA	I FORBD	ACT	PCA	SSN	CGSR	RI	TT
SADDR	NP NA	I FORBD	ACT	PCI	SSN	CGSR	RI	TT
SADDR	NP NA	I FORBD	ACT	PCN	SSN	CGSR	RI	TT
SADDR	NP NA	I 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		
	ies for OPNAME: sri			
SADDR SSN CGSR		NAI FORBD ACT	PCA	
SADDR CGSR	EADDR NF	NAI FORBD ACT	PCI	SSN
SADDR CGSR	EADDR NE	NAI FORBD ACT	PCN	SSN
SADDR CGSR	EADDR NF	NAI FORBD ACT	PCN24	SSN
SADDR	EADDR NF	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	r PCA	SS	SN CGSR RI TT	
SADDR	NP NAI FORBD ACT	r PCI	SS	SN CGSR RI TT	
SADDR	NP NAI FORBD ACT	r PCN	SS	SN CGSR RI TT	
SADDR	NP NAI FORBD ACT	r PCN24	SS	SN CGSR RI TT	
SADDR	NP NAI FORBD ACT	CGSR			
Range CgPA Entr	ies for OPNAME: d	dup187			
SADDR SSN CGSR	EADDR	NP NAI FORBI) ACT	PCA	
SADDR CGSR	EADDR	NP NAI FORBI) ACT	PCI	SSN
SADDR	EADDR	NP NAI FORBI	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 En	tries for OPNAME: dup18	37		
	NP NAI FORBD ACT	PCA	SSN CGSR MAPSET	ΓRI TT
SADDR	NP NAI FORBD ACT	PCI	SSN CGSR MAPSET	r RI TT
SADDR	NP NAI FORBD ACT	PCN	SSN CGSR MAPSE	r RI TT
SADDR	NP NAI FORBD ACT	PCN24	SSN CGSR MAPSET	r RI TT
SADDR	NP NAI FORBD ACT CGS	SR		
	ries for OPNAME: dup18'	7		
	EADDR NP NA	AI FORBD ACT	PCA	SSN
SADDR CGSR	EADDR NP NA	AI FORBD ACT	PCI	SSN
SADDR CGSR	EADDR NP NA	AI FORBD ACT	PCN	SSN
SADDR CGSR	EADDR NP NA	AI FORBD ACT	PCN24	SSN
SADDR	EADDR NP NA	AI 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 <u>"Activating the GSMMAP Screening Feature" procedure</u> 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
             NCAI PRX
  PPCA
                         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
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
PCT
            Mate PCI
                         SSN RC MULT SRM MRC GRP NAME SSO
4-102-6
                         150 10 SOL *N *N GRP01
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.

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 rtry-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 EAGLE	E5 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 rtry-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-gsmmapscrn command.



(i) 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 5-6 for the parameter combinations that can be used with the ent-gsmmapscrn command.

For this example, enter these commands:

```
ent-gsmmap-
scrn:saddr=9194600000:npv=5:naiv=75:opname=pass50 :forbid=none:acti
on=pass:cgsr=cg01
ent-gsmmap-
scrn:saddr=252555100000:eaddr=252700000000:npv=12:naiv=37 :opname=d
iscard1:forbid=all :action=discard:cgsr=cg02
ent-gsmmap-
scrn:saddr=8284540000:eaddr=8284600000:opname=ati :forbid=state:act
ion=atierr:cgsr=cg03
```



```
ent-gsmmap-
scrn:saddr=2416546464:opname=route25:forbid=all :action=route:npv=0
:naiv=127:cgsr=cg04
ent-gsmmap-
scrn:saddr=854000000:eaddr=857000000:opname=dd93 :forbid=all:action
=forward:npv=3:naiv=99:pci=3-201-7:ssn=100:cgsr=cg05 :mapset=dflt
ent-gsmmap-
scrn:saddr=154363000000:eaddr=1550000000000:opname=sri :forbid=all:a
ction=duplicate:npv=8:naiv=86:pcn=9384:ssn=30:cgsr=cg06 :mapset=10
ent-gsmmap-
scrn:saddr=368900000:eaddr=369000000:opname=dup187 :forbid=all:action=dupdisc:npv=9:naiv=111:pci=4-102-6:ssn=150:cgsr=cg07 :mapset=20
```

When each of these commands has successfully completed, this message appears.

```
rlghncxa03w 06-10-20 09:07:58 GMT EAGLE5 36.0.0 GSM Map Screening table is (1512 of 4000) 38% full ENT-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					
·-	NP NAI FORBD ACT CGS 5 75 none pass cg0								
Range CgPA Entr	ries for OPNAME: pass50								
SADDR SSN CGSR	EADDR NP NA	I FORBD ACT	PCA						
SADDR CGSR	EADDR NP NA	I FORBD ACT	PCI	SSN					
SADDR	EADDR NP NA	I 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 TTSADDR 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 MAPSE	ET RI TT
SADDR	NP NAI FORBD ACT	PCN	SSN CGSR MAPSE	ET RI TT
SADDR	NP NAI FORBD ACT	PCN24	SSN CGSR MAPSE	ET RI TT
SADDR	NP NAI FORBD ACT	CGSR		
Range CgPA Entr	ies for OPNAME: a	ati		
SADDR CGSR	EADDR	NP NAI FORBD ACT	PCA	SSN
SADDR CGSR	EADDR	NP NAI FORBD ACT	PCI	SSN
SADDR CGSR	EADDR	NP NAI FORBD ACT	PCN	SSN
SADDR CGSR	EADDR	NP NAI FORBD ACT	PCN24	SSN
SADDR	EADDR	NP NAI FORBD ACT	CGSR	
8284540000	8284600000	* * state atier of	eg03	
	. 13 /4540			

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 TT	NP NAI FORBD A	CT PCA	SSN CGSR	MAPSET RI			
SADDR	NP NAI FORBD A	CT PCI	SSN CGSR	MAPSET RI TT			
SADDR	NP NAI FORBD A	CT PCN	SSN CGSR	MAPSET RI TT			
SADDR	NP NAI FORBD A	CT PCN24	SSN CGSR	MAPSET RI TT			
SADDR	NP NAI FORBD A	CT CGSR					
2416546464	0 127 all ro	oute cg04					
Range CgPA Entr	ies for OPNAME:	ati					
SADDR CGSR	EADDR	NP NAI FORBD ACT	PCA	SSN			



SADDR CGSR	EADDR	NP 1	NAI	FORBD	ACT	PCI	SSN
SADDR CGSR	EADDR	NP 1	NAI	FORBD	ACT	PCN	SSN
SADDR CGSR	EADDR	NP I	NAI	FORBD	ACT	PCN24	SSN
SADDR	EADDR	NP I	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 TT	NP NAI FORBD AC	CT PCA	SSN CGSR	MAPSET RI					
SADDR	NP NAI FORBD AC	CT PCI	SSN CGSR	MAPSET RI TT					
SADDR	NP NAI FORBD AC	CT PCN	SSN CGSR	MAPSET RI TT					
SADDR	NP NAI FORBD AC	CT PCN24	SSN CGSR	MAPSET RI TT					
SADDR	NP NAI FORBD AC	CT CGSR							
Range CgPA Entr	ries for OPNAME:	dd93							
SADDR CGSR	EADDR	NP NAI FORBD	ACT PCA	SSN					
SADDR CGSR	EADDR	NP NAI FORBD	ACT PCI	SSN					
	857000000	3 99 all	fwd 3-201-7	100					
MAPSET = DFLT R SADDR CGSR	RI=ssn TT=- EADDR	NP NAI FORBD	ACT PCN	SSN					
SADDR CGSR	EADDR	NP NAI FORBD	ACT PCN24	SSN					
SADDR	EADDR	NP NAI FORBD	ACT CGSR						

rtrv-gsmmap-scrn:opname=sri

GSM Map Screening table is (1512 of 4000) 38% full



This is an example of the possible output.

rlqhncxa03w	08-09-20	09:07:58 GMT	EAGLE5	39.2.0
-------------	----------	--------------	--------	--------

Single CgPA Entries for OPNAME: sri									
SADDR	NP NAI FORBD AC	!T	PCA		SSN CGSR	MAPSET RI	TT		
SADDR	NP NAI FORBD AC	!T	PCI		SSN CGSR	MAPSET RI	TT		
SADDR	NP NAI FORBD AC	!T	PCN		SSN CGSR	MAPSET RI	TT		
SADDR	NP NAI FORBD AC	!T	PCN24		SSN CGSR	MAPSET RI	TT		
SADDR	NP NAI FORBD AC	T CGS	R						
	ries for OPNAME:	sri							
SADDR CGSR	EADDR	NP NA	I FORBD	ACT	PCA	SSN			
SADDR CGSR	EADDR	NP NA	I FORBD	ACT	PCI	SSN			
SADDR	EADDR	NP NA	I FORBD	ACT	PCN	SSN			
CGSR 1534363000000 cg06	155000000000	8 86	all	dupl	9384	30			
MAPSET = 10 RI= SADDR CGSR	ssn TT=- EADDR	NP NA	I FORBD	ACT	PCN24	SSN			
SADDR	EADDR	NP NA	I 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

NP NAI FORBD ACT CGSR

Single CgPA Entries for OPNAME: dup187 SADDR NP NAI FORBD ACT PCA SSN CGSR MAPSET RI 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



Range CgPA Entr	ies for OPNAME:	dup1	L87				
SADDR CGSR	EADDR	NP	NAI	FORBD	ACT	PCA	SSN
SADDR CGSR	EADDR	NP	NAI	FORBD	ACT	PCI	SSN
368900000 cg07 MAPSET = 20 RI=	369000000 ssn TT=-	9	111	all	dupdc	4-102-6	150
SADDR CGSR	EADDR	NP	NAI	FORBD	ACT	PCN	SSN
SADDR CGSR	EADDR	NP	NAI	FORBD	ACT	PCN24	SSN
SADDR	EADDR	NP	NAI	FORBD	ACT (CGSR	

 Add the new CDPAGSMMAP screening entries to the database with the ent-gsmmapscrn command.

GSM Map Screening table is (1512 of 4000) 38% full

(i) 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 <u>Table 5-6</u> 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:ac
tion=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
```

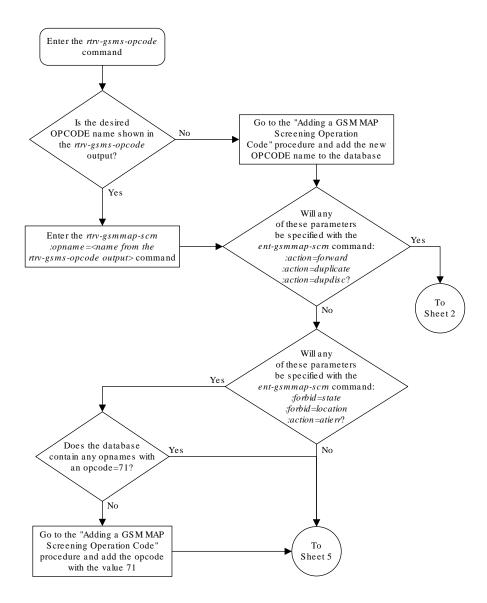
13. Backup the new changes using the chg-db:action=backup:dest=fixed command.

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

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

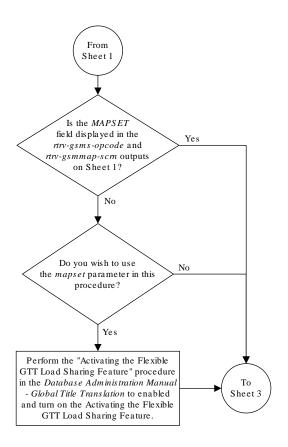


Figure 5-13 Adding a GSM MAP Screening Entry



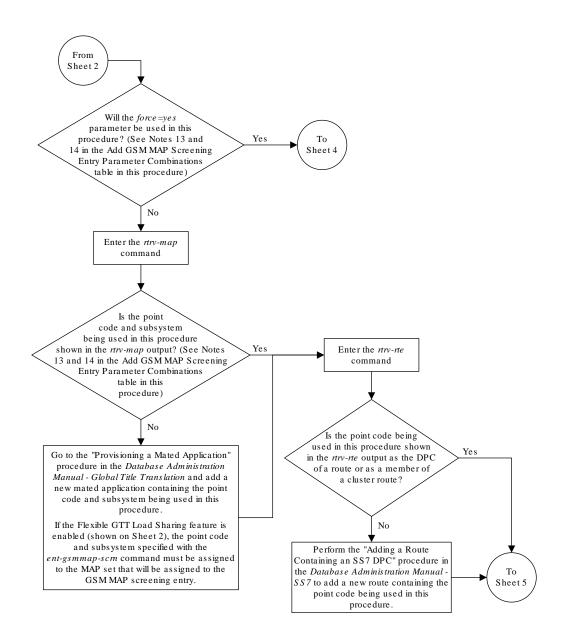
Sheet 1 of 8





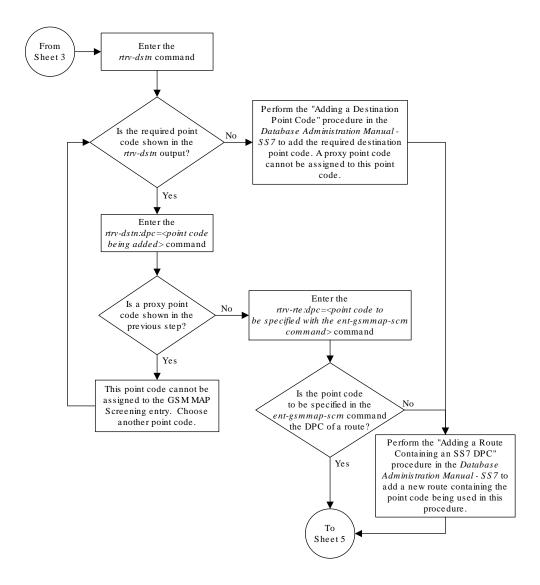
Sheet 2 of 8





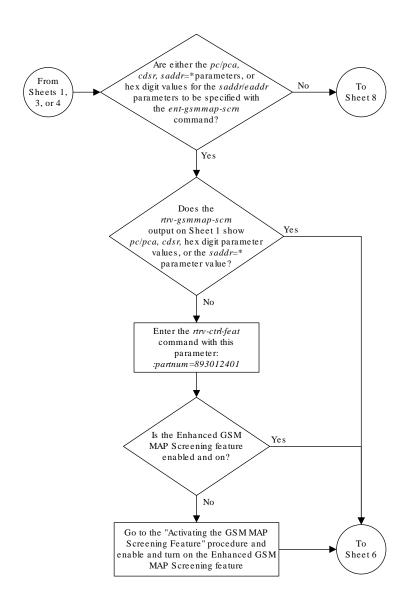
Sheet 3 of 8





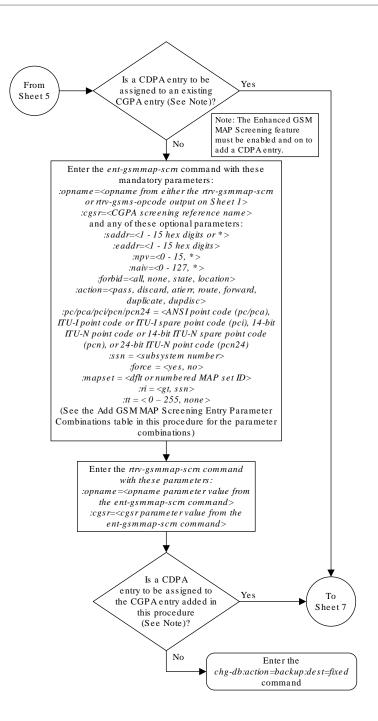
Sheet 4 of 8





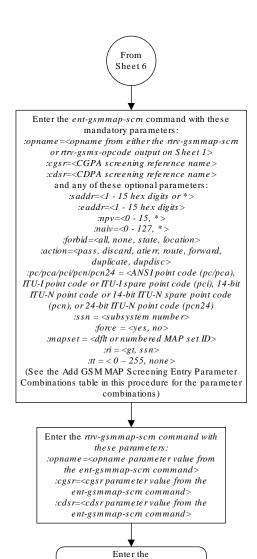
Sheet 5 of 8





Sheet 6 of 8

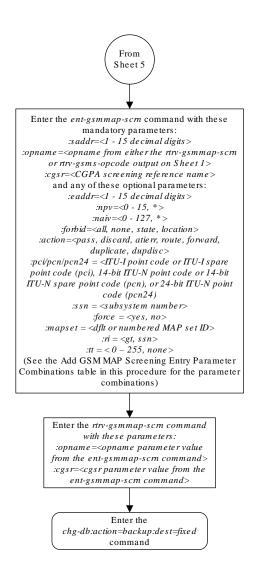




 $\begin{array}{c} \textit{chg-db:action=backup:dest=fixed} \\ \text{command} \end{array}$

Sheet 7 of 8





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.

 Display the GSMMAP screening operation codes in the database using the rtrv-gsmsopcode 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 22 25 50 71 150	OPNAME sri route25 pass50 ati discard1 star	DFLTACT disc route pass atierr disc pass				

GSMMS OPCODE Table (10 of 257) is 4% full

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 AC	T PCA	SSN CGSR RI	TT			
SADDR	NP NAI FORBD AC	T PCI	SSN CGSR RI	TT			
SADDR	NP NAI FORBD AC	T PCN	SSN CGSR RI	TT			
SADDR	NP NAI FORBD AC	T PCN24	SSN CGSR RI	TT			
	NP NAI FORBD AC 5 75 none pa						
Range CgPA Entr	ies for OPNAME:	pass50 					
SADDR CGSR	EADDR	NP NAI FORBD ACT	PCA	SSN			
SADDR CGSR	EADDR	NP NAI FORBD ACT	PCI	SSN			
SADDR CGSR	EADDR	NP NAI FORBD ACT	PCN	SSN			
SADDR CGSR	EADDR	NP NAI FORBD ACT	PCN24	SSN			
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.

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			
-	NP NAI FORBD ACT CGS	_					
Range CgPA Entr	Range CgPA Entries for OPNAME: ati						
SADDR CGSR	EADDR NP NA	AI FORBD ACT	PCA	SSN			



SADDR SSN CGSR	EADDR	NP	NAI	FORBD	ACT	PCI	
SADDR SSN CGSR	EADDR	NP	NAI	FORBD	ACT	PCN	
SADDR CGSR	EADDR	NP	NAI	FORBD	ACT	PCN24	SSN
	EADDR 8284600000 919461900000000 919463000000000		NAI * 1 *	locat	ACT atier atier atier	ati2	

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

119IIIICAAUSW 00 07 20 07.07.30 GM1 EAGLES 37.2.0							
Single CgPA Entries for OPNAME: sri							
	NP NAI FORBD AC		SSN CGSR RI TT				
SADDR	NP NAI FORBD AC	CT PCI	SSN CGSR RI TT				
SADDR	NP NAI FORBD AC	CT PCN	SSN CGSR RI TT				
SADDR	NP NAI FORBD AC	CT PCN24	SSN CGSR RI TT				
SADDR	NP NAI FORBD AC	CT CGSR					
Range CgPA Enti	ries for OPNAME:	sri					
SADDR CGSR	EADDR	NP NAI FORBD ACT	PCA SSN				
SADDR CGSR	EADDR	NP NAI FORBD ACT	PCI SSN				
SADDR CGSR	EADDR	NP NAI FORBD ACT	PCN SSN				
	155000000000	8 86 all dupl	9384 30				
SADDR CGSR	EADDR	NP NAI FORBD ACT	PCN24 SSN				
SADDR	EADDR	NP NAI FORBD ACT	CGSR				
GSM Map Screening table is (1512 of 4000) 38% full							



① 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 *	_	NAI 15	FORBD all	ACT pass	CDSR cd01				

Range CdPA Entries for OPNAME: pass50 and CGSR: cg01

SADDR CDSR	EADDR	NP	NAI	FORBD	ACT		PCA	SSN
SADDR CDSR	EADDR	NP	NAI	FORBD	ACT		PCI	SSN
SADDR CDSR	EADDR	NP	NAI	FORBD	ACT		PCN	SSN
SADDR CDSR	EADDR	NP	NAI	FORBD	ACT		PCN24	SSN
SADDR	EADDR	NP	NAI	FORBD	ACT	CDS	SR	

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	ТТ

SSN



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

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 * * state atier cd15

91946300000000 919464000000000 11 95 locat atier ati7 80354900000000 80365000000000 * * 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

SADDR EADDR NP NAI FORBD ACT PCN SSN CDSR

CDSR



SADDR CDSR	EADDR	NP NAI FORBD ACT PCN24	SSN
SADDR	EADDR	NP NAI FORBD ACT CDSR	
GSM Map Scr	eening 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
```

```
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 AC	CT PCN	SSN CGSR RI TT
SADDR	NP NAI FORBD AC	CT PCN24	SSN CGSR RI TT
SADDR	NP NAI FORBD AC	CT CGSR	
Range CgPA Entr	ries for OPNAME:	pass50	
SADDR CGSR	EADDR	NP NAI FORBD ACT	PCA SSN
SADDR CGSR	EADDR	NP NAI FORBD ACT	PCI SSN
SADDR CGSR	EADDR	NP NAI FORBD ACT	PCN SSN
SADDR CGSR	EADDR	NP NAI FORBD ACT	PCN24 SSN
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.

919461000000130 2 16 locat atier ati5

EADDR

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 PCNSSN CDSR RI TT SADDR NP NAI FORBD ACT PCN24 SSN CDSR RI TT NP NAI FORBD ACT

Range CdPA Entries for OPNAME: ati and CGSR: cg03 SADDR EADDR PCA SSN NP NAI FORBD ACT CDSR SADDR EADDR NP NAI FORBD ACT PCI SSN CDSR SADDR EADDR NP NAI FORBD ACT PCN SSN CDSR

NP NAI FORBD ACT

SADDR

SSN

PCN24



CDSR

```
SADDR EADDR NP NAI FORBD ACT CDSR 919463000000000 919464000000000 11 95 locat atier ati7 803549000000000 8036500000000000 * * 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.

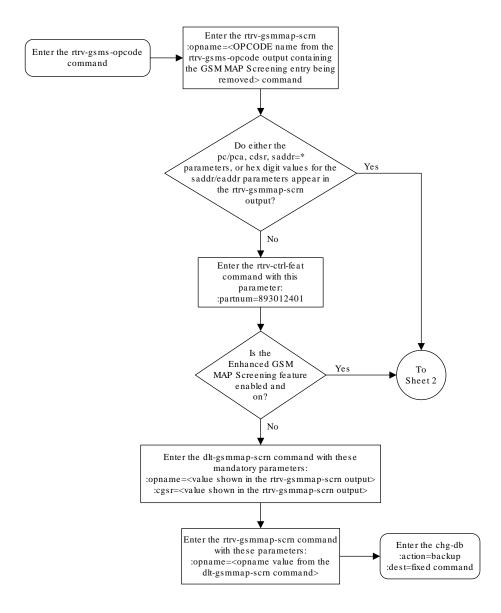
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk complete.

BACKUP (FIXED) : MASP A - Backup starts on standby MASP.

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

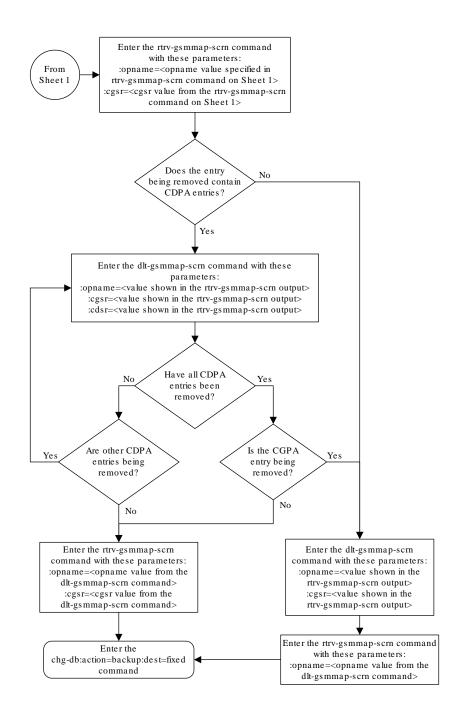


Figure 5-14 Removing a GSM MAP Screening Entry



Sheet 1 of 2





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 5-9 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 Parame	ters (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			



Table 5-9 (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
: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			:force=yes (See Notes 11 and 12)		
value (See Notes 7, 8, 9, 10, 11, and 12)			:nmapset = dflt or numbered MAP set ID (See Notes 11 and 12)		
:nssn = 0 - 255, none (See Notes 7, 8, 9, 10, 11, 12, and 14)			:nri = gt, ssn (See Note 14)		
:force=yes (See Notes 11 and 12) :nmapset = dflt or numbered MAP set ID (See Notes 11 and 12)			:ntt = 0 - 255, none (See Note 15)		



Table 5-9 (Cont.) Change GSM MAP Screening Entry Parameter Combinations

Entry	Entry Without	Entry	Entry	Entry Without	Entry
Containing a	a Point Code	containing the	Containing a	a Point Code	containing the
Point Code	and SSN	Action ATIERR	Point Code	and SSN	Action ATIERR
and SSN	Enhanced	Enhanced	and SSN	GSM MAP	GSM MAP
Enhanced	GSM MAP	GSM MAP	GSM MAP	Screening	Screening
GSM MAP	Screening	Screening	Screening	Feature	Feature
Screening	Feature	Feature	Feature	Enabled and	Enabled and
Feature	Enabled and	Enabled and	Enabled and	On Only	On Only
Enabled and	On	On	On Only	_	-
On			•		

:nri = gt, ssn (See Note 14)

:ntt = 0 - 255,

none (See Note

15)



Table 5-9 (Cont.) Change GSM MAP Screening Entry Parameter Combinations

Entry Containing a Point Code and SSN Enhanced GSM MAP Screening Feature	Entry Without a Point Code and SSN Enhanced GSM MAP Screening Feature Enabled and	Entry containing the Action ATIERR Enhanced GSM MAP Screening Feature Enabled and	Entry Containing a Point Code and SSN GSM MAP Screening Feature Enabled and	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
Enabled and On	On	On	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-qsms-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:
- 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



Table 5-9 (Cont.) Change GSM MAP Screening Entry Parameter Combinations

Entry	Entry Without	Entry	Entry	Entry Without	Entry
Containing a	a Point Code	containing the	Containing a	a Point Code	containing the
Point Code	and SSN	Action ATIERR	Point Code	and SSN	Action ATIERR
and SSN	Enhanced	Enhanced	and SSN	GSM MAP	GSM MAP
Enhanced	GSM MAP	GSM MAP	GSM MAP	Screening	Screening
GSM MAP	Screening	Screening	Screening	Feature	Feature
Screening	Feature	Feature	Feature	Enabled and	Enabled and
Feature	Enabled and	Enabled and	Enabled and	On Only	On Only
Enabled and	On	On	On Only	•	•
On			•		

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 <code>chg-gsmmap-scrn</code> 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.
- Display the GSM MAP screening operation codes in the database using the rtrv-gsmsopcode 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 22 25 50 71 150	OPNAME sri route25 pass50 ati discard1 star	DFLTACT disc route pass atierr disc 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 AC	г РСА	SSN CGSR RI	TT
SADDR	NP NAI FORBD AC	r PCI	SSN CGSR RI	TT
SADDR	NP NAI FORBD AC	r pcn	SSN CGSR RI	TT
SADDR	NP NAI FORBD AC	r PCN24	SSN CGSR RI	TT
	NP NAI FORBD ACT			
	ies for OPNAME: a			
	EADDR		ACT PCA	
SADDR CGSR	EADDR	NP NAI FORBD	ACT PCI	SSN
SADDR CGSR	EADDR	NP NAI FORBD	ACT PCN	SSN
SADDR CGSR	EADDR	NP NAI FORBD	ACT PCN24	SSN
8284540000 919461888888888	EADDR 8284600000 919461900000000 919463000000000	* * state a 4 1 locat a	atier cg03 atier ati2	

GSM Map Screening table is (1512 of 4000) 38% full

rtrv-gsmmap-scrn:opname=dd93

This is an example of the possible output.

Single CgPA Entries for OPNAME: dd93

5 5					
SADDR	NP NAI	FORBD ACT	PCA	SSN CGSR RI T	Т
SADDR	NP NAI	FORBD ACT	PCI	SSN CGSR RI T	Т
SADDR	NP NAI	FORBD ACT	PCN	SSN CGSR RI T	Т
SADDR	NP NAI	FORBD ACT	PCN24	SSN CGSR RI T	Т
SADDR	NP NAI	FORBD ACT	CGSR		
Range CgPA	Entries for	OPNAME: do	193		

----- angle cgpa Entries for Opname. dd93

SADDR EADDR NP NAI FORBD ACT PCA SSN

CGSR



SADDR CGSR	EADDR	NP	NAI	FORBD	ACT	PCI	SSN
854000000 cg05 RI=ssn TT=-	857000000	3	99	all	fwd	3-201-7	100
SADDR CGSR	EADDR	NP	NAI	FORBD	ACT	PCN	SSN
SADDR CGSR	EADDR	ΝP	NAI	FORBD	ACT	PCN24	SSN
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

GSM Map Screening table is (1512 of 4000) 38% full

Single CgPA Entries for OPNAME: dd93							
	NP NAI FORBD AC	г	PCA		SSN CGSR	MAPSET	RI
SADDR	NP NAI FORBD AC	Γ	PCI		SSN CGSR	MAPSET	RI
SADDR	NP NAI FORBD AC	Γ	PCN		SSN CGSR	MAPSET	RI
SADDR	NP NAI FORBD AC	Γ	PCN24		SSN CGSR	MAPSET	RI
SADDR	NP NAI FORBD AC	r cgs	R				
	ies for OPNAME:						
	EADDR		I FORBD	ACT	PCA	S	SN
SADDR SSN CGSR	EADDR	NP NA	I FORBD	ACT	PCI		
	857000000	3 99	all	fwd	3-201-7	1	.00
MAPSET = DFLT R	I=ssn TT=-						
SADDR CGSR	EADDR	NP NA	I FORBD	ACT	PCN	S	SN
SADDR CGSR	EADDR	NP NA	I FORBD	ACT	PCN24	S	SN
SADDR	EADDR	NP NA	I FORBD	ACT	CGSR		



① 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.

 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 NP NAI FORBD ACT PCN24 SSN CDSR RI TT SADDR 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 NP NAI FORBD ACT SADDR EADDR * * state atier cd15 4329290000 5450000000 919463000000000 919464000000000 11 95 locat atier ati7 80354900000000 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		
	CgPA Entries for				
SADDR CDSR			NAI FORBD ACT		SSN
SADDR CDSR	EADDR	NP	NAI FORBD ACT	PCI	SSN
SADDR CDSR	EADDR	NP	NAI FORBD ACT	PCN	SSN
SADDR CDSR	EADDR	NP	NAI FORBD ACT	PCN24	SSN
SADDR	EADDR	NP	NAI FORBD ACT	CDSR	

GSM Map Screening table is (1512 of 4000) 38% full

(i) 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

```
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
```

```
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



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.

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
```



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=pass
chg-gsmmap-
scrn:opname=dd93:cgsr=cg05:nforbid=none:naction=pass :npci=5-79-2:n
ssn=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
```

```
rlghncxa03w 08-09-20 09:07:58 GMT EAGLE5 39.2.0

SADDR EADDR NP NAI FORBD ACT CDSR MAPSET RI 8284540000 * * 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 FO	RBD ACT	PCA	SSN CGSR	MAPSET	RI	
SADDR	NP NAI FO	RBD ACT	PCI	SSN CGSR	MAPSET	RI	
SADDR	NP NAI FO	RBD ACT	PCN	SSN CGSR	MAPSET	RI	



SADDR	NP NAI FORBD AG	CT PCN24	SSN CGSR MA	APSET RI					
SADDR	NP NAI FORBD AG	CT CGSR							
Range CgPA Entries for OPNAME: dd93									
SADDR CGSR	EADDR	NP NAI FORBD ACT	PCA	SSN					
SADDR CGSR	EADDR	NP NAI FORBD ACT	PCI	SSN					
	860000000 =ssn TT=-	3 99 none pass	5-79-2	89					
SADDR CGSR	EADDR	NP NAI FORBD ACT	PCN	SSN					
SADDR CGSR	EADDR	NP NAI FORBD ACT	PCN24	SSN					
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.

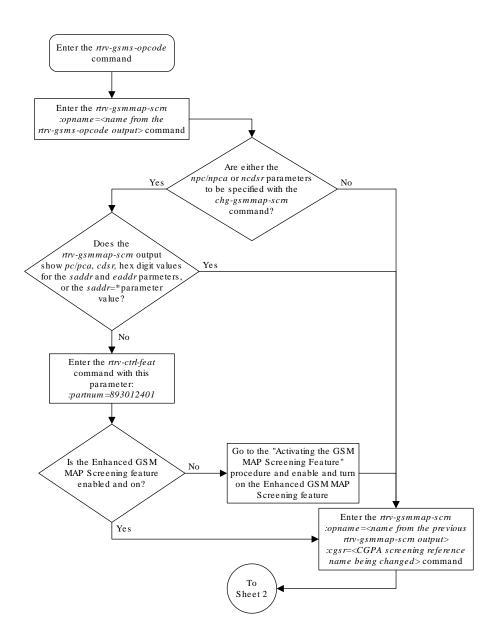
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk complete.

BACKUP (FIXED) : MASP A - Backup starts on standby MASP.

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

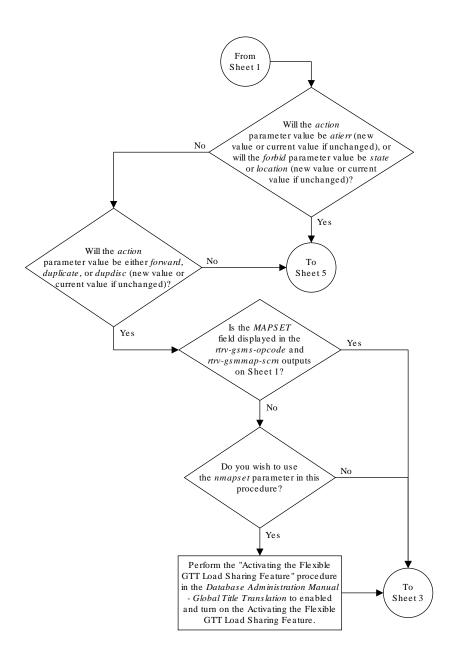


Figure 5-15 Changing a GSM MAP Screening Entry



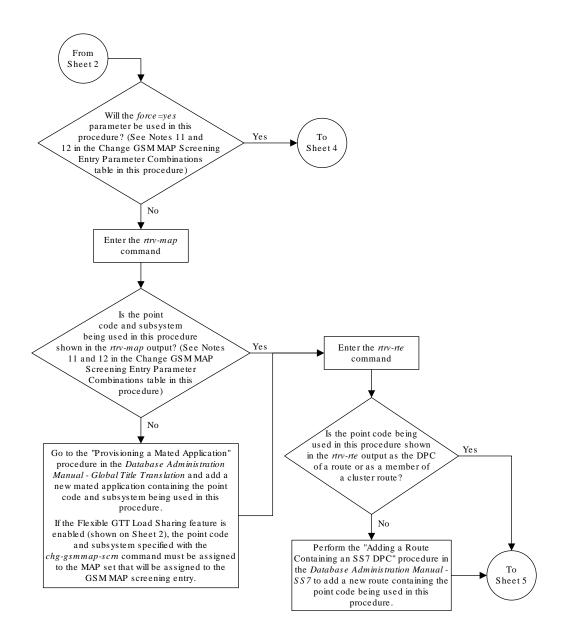
Sheet 1 of 6





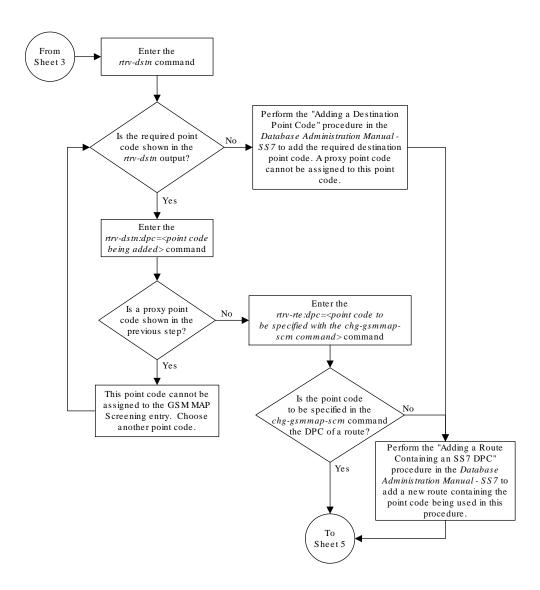
Sheet 2 of 6





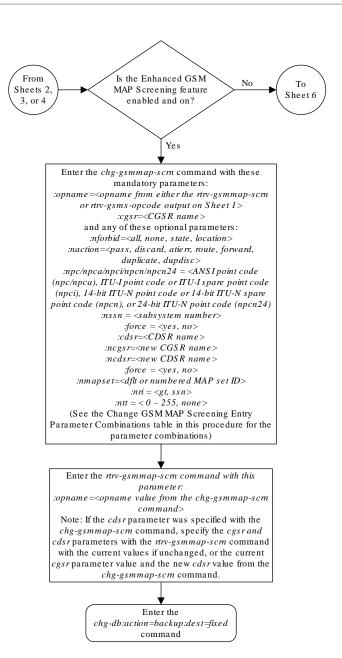
Sheet 3 of 6





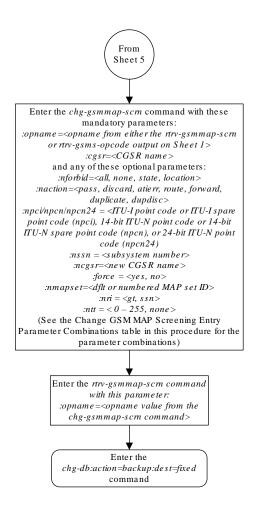
Sheet 4 of 6





Sheet 5 of 6





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 chq-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 rtrvscopopts output. The GMSTCAPCE field of the rtrv-scopopts 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-scopopts output, perform the "Activating the GSMMAP Screening Feature" procedure to enable and turn on the **GSM MAP** screening feature.

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
```



(i) Note

The rtry-scopopts command output contains other fields that are not used by this procedure. If you wish to see all the fields displayed by the rtry-scopopts command, see the rtrv-sccpopts command description in the Commands Manual.

If the GSMTCAPCE field is not shown in the rtry-scopopts 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.

Change the qsmtcapce 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.

chq-sccpopts:qsmtcapce=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
```

(i) 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.
```



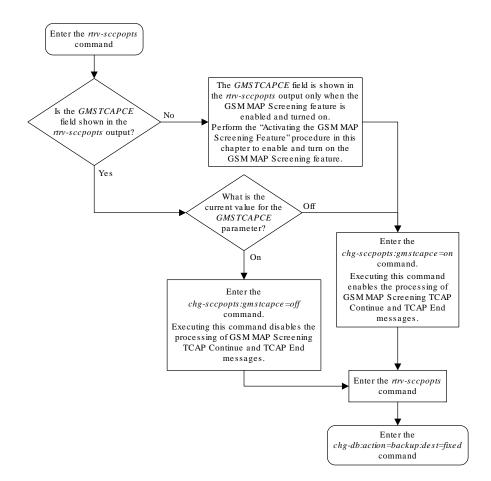
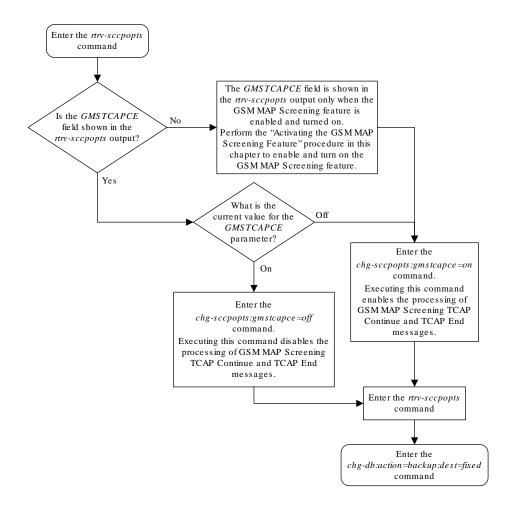




Figure 5-16 Changing the GSM MAP Screening TCAP Continue and End Message Processing Option



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 <u>Figure 6-1</u>). This monitoring method involves costs for cable installation and maintenance for each **SS7** link that is to be monitored.



NOC **TAC** NOC Data Sentinel Alarm Database Gateway Server Server Server Server **Ethernet WAN** SS7 Monitoring Links cables Sentinel i2000 Shelf **EAGLE** LIM LIM

Figure 6-1 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 <u>Figure 6-2</u>). 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.

TAC/ NOC NOC i3000 shelves Sentinel/IMF Data Alarm Database Gateway Server Server Server Ethernet WAN **EAGLE** High-Speed Link ESPs/IMFs GPSM II IP Signaling Network ATM IPLIM **IPGW** Redundant IMT Connections IPSG Switch IPSG Switch LIM STC Switch STC Switch LIM

Figure 6-2 EAGLE 5 Integrated Monitoring Support Network Connectivity

As can be seen in Figure 6-2, 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 STCs or FC-capable cards serve as IP routers, the ESP/IMF subsystem may communicate directly with the SS7 LIMs. Figure 6-3 shows the logical communications pathway.



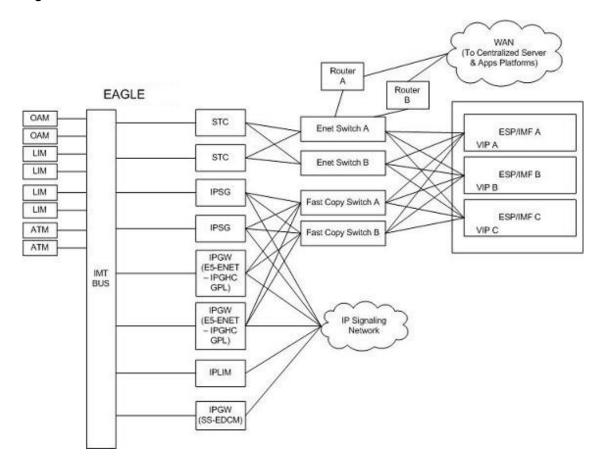


Figure 6-3 ESP/IMF/EAGLE Network

The STC communicates to the LIM by the IMT bus; the IP messages are simply encapsulated in an IMT wrapper between the cards. The STCs are provisioned in an n+1 configuration for redundancy. Each STC Ethernet port has a separate connection path to each Ethernet switch in order to provide an alternate path in the event of an Ethernet link failure. Note that the figure depicts a redundant network; this assures that a single network failure will not halt EAGLE or ESP/IMF operations. As shown in Figure 6-3, 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 <u>Figure 6-4</u>, <u>Figure 6-5</u>, and <u>Figure 6-6</u>).



EAGLE Sentinel/IMF Obtain link information needed to build EMP Service Request request message. Verify EAGLE link information. Build and send service request Select available application handler message to Sentinel/IMF PM. based upon link information. Return IP address and port of assigned application handler in response EMP Service Accept Obtain new destination IP address message. and port from response. Establish socket connection to Sentinel/IMF application handler and EMP Provisioning Info provide EAGLE link Establish EAGLE connection at provisioning data. the application handler socket. EMP Link Data Copy operations begin. Process MSU. EMP Link Data EMP Link Data

Figure 6-4 Ethernet Link Establishment - EMP Link Data

The diagram depicts an example of normal link data message flow.

Figure 6-5 Ethernet Link Establishment - EMP Fast Copy Link PDU

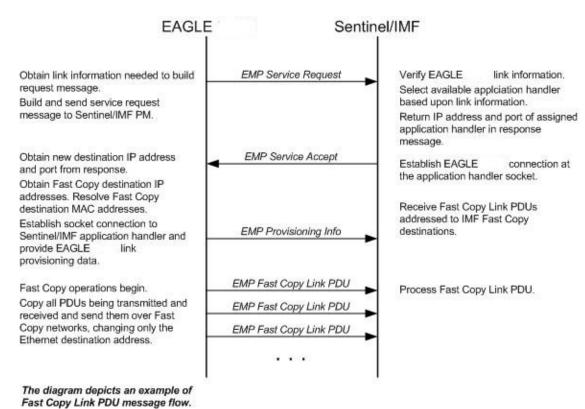
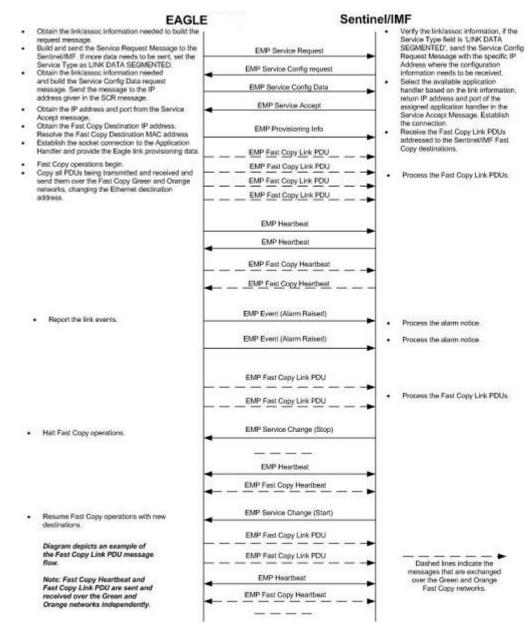




Figure 6-6 Ethernet Link Establishment - EMP Fast Copy Link PDU Modified for the IPGHC GPL



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 6-6, 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 source 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 source clock for the high-speed links using external timing. The high-speed source 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.

<u>Table 6-1</u> shows the signaling links on these cards can be monitored by this feature.

Table 6-1 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 6-1 (Cont.) Monitored Card Types

Notes:

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

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.

Monitoring can be performed on E5-E1T1 cards, E5-E1T1-B cards, E5-ENET cards, and E5-ENET-B cards using only the IMF.

Monitoring can be performed on channelized E1 signaling links and unchannelized E1 signaling links (assigned to the LIME1 card type). A channelized E1 signaling link is a signaling link that is assigned to a channelized E1 port, shown by the entry CHAN in the LINKCLASS field in the rtrv-e1 output. An unchannelized E1 signaling link is a signaling link that is assigned to an unchannelized E1 port, shown by the entry UNCHAN in the LINKCLASS field in the rtrv-e1 output.

The signaling links assigned to the cards running either the ss7ansi or ccs7itu applications are low-speed signaling links transmitting at either 56 kbps or 64 kbps. Signaling links assigned to the atmansi and atmitu applications are high-speed signaling links transmitting at 1.544 Mbps (atmansi) or 2.048 Mbps (atmitu). Signaling links assigned to the iplim, iplimi, ss7ipgw, 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).

(i) 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 6-3:

 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.



These **IP** addresses can be changed, as well as the **PVNIP** address in the **EAGLE**, contact the Customer Care Center (refer to <u>My Oracle Support (MOS)</u> 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.



① 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.

 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 $\tt E5IS$ field should be set to on. If the Time Slot Counter Synchronization feature is on, the $\tt TSCSYNC$ 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 $\underline{2}$.

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 <u>Configuring the FCMODE Option for the EAGLE 5 Integrated Monitoring Support Feature</u>
- PVN, PVNMASK, FCNA, FCNB values <u>Configuring the IP Addresses for the EAGLE</u>
 <u>5 Integrated Monitoring Support Feature</u>
- Add STC cards <u>Adding a Signaling Transport Card (STC)</u>
- 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





(i) 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 chq-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
```

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.

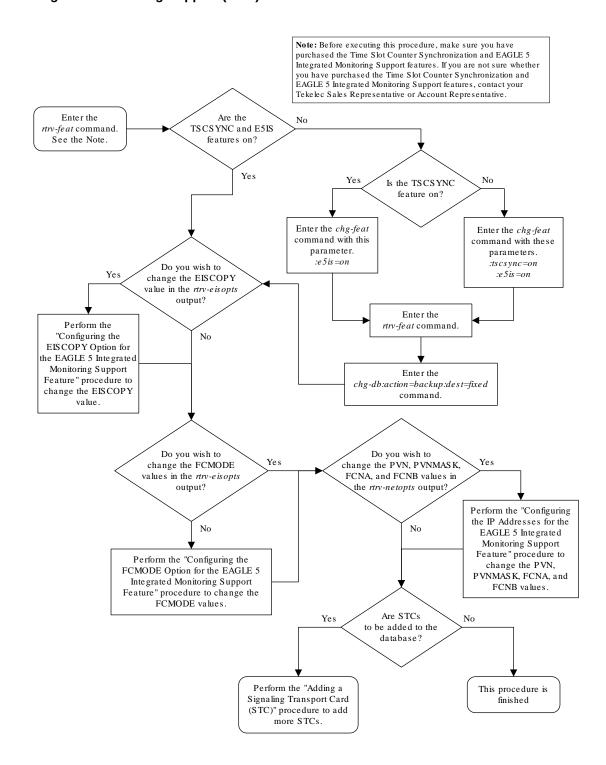
These messages should appear, the active Maintenance and Administration Subsystem Processor (MASP) appears first.

```
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.
```

- 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 rtry-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 6-7 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.

① 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.



```
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 USAGE	CPU 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 $\underline{5}$.

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 $\underline{5}$.

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 $\underline{4}$.

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.
```

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
   PORT IPADDR SUBMASK DUPLEX SPEED MACTYPE AUTO MCAST
LOC
        192.1.1.1
1201 A
                     255.255.255.128 HALF
                                        10
                                             802.3 NO
                                                        NO
1203 A
        192.1.1.12
                                             DIX
                                                    YES NO
                    255.255.255.0 ----
                                        ---
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 128.252.10.5 255.255.255 140.188.13.33

1301 128.252.0.0 255.255.0.0 140.188.13.34

1301 150.10.1.1 255.255.255 140.190.15.3

1303 192.168.10.1 255.255.255 150.190.15.23

1303 192.168.0.0 255.255.255.0 150.190.15.24

IP Route table is (5 of 2048) 0.24% full
```

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 <u>Configuring the IP Addresses for the EAGLE 5 Integrated Monitoring Support Feature</u> procedure to change the required IP addresses before proceeding to <u>9</u>.

- 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 <u>Configuring the FCMODE</u> <u>Option for the EAGLE 5 Integrated Monitoring Support Feature</u>. 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.

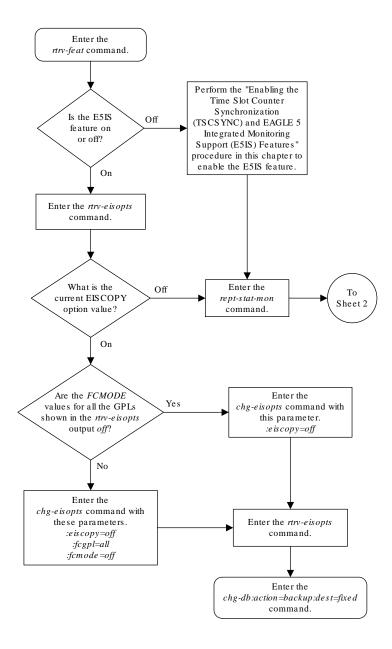
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk complete.

BACKUP (FIXED) : MASP A - Backup starts on standby MASP.

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

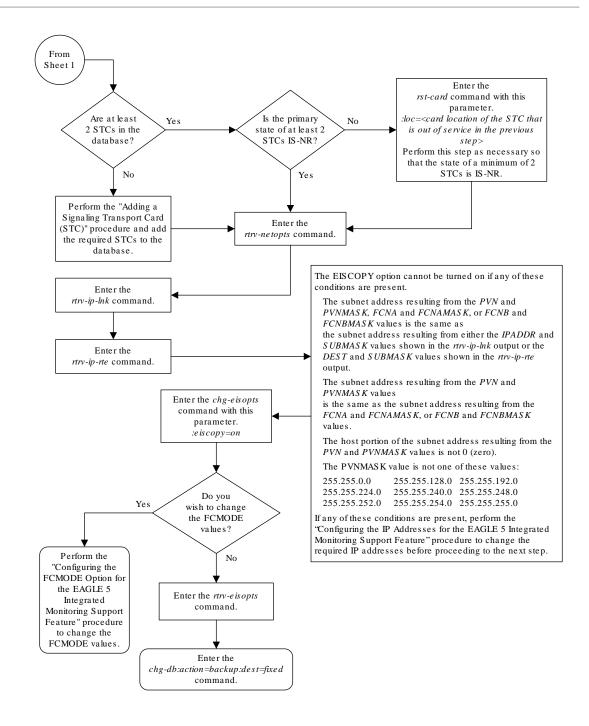


Figure 6-8 Configuring the EISCOPY Option for the EAGLE 5 Integrated Monitoring Support Feature



Sheet 1 of 2





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 FCcapable 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 FCcapable 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 fcqpl 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 fcqpl parameter is all.

To change the FCMODE values, the EISCOPY value, shown in the rtry-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.

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.



(i) 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 rtry-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.

Continue the procedure by performing one of these steps.

- If the EISCOPY value is OFF, perform Configuring 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 $\frac{4}{3}$.

4. Display the signaling links that are assigned to the cards displayed in <u>3</u> 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 lsngtwyl 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.

rlghncz	xa03w 10-07-24	4 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	d 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 $\frac{7}{2}$.

7. Display the signaling links that are assigned to the cards displayed in $\underline{6}$ by entering this command.

```
rtrv-slk:type=ipsg
```

This is an example of the possible output.

SLK table is (5 of 1200) 1% full.

rlghncxa03w 10-07-24 11:13:29 GMT EAGLE5 42.0.0

LOC LIN	K LSN	SLC	TYPE	ANAME	SLKTPS/ RSVDSLKTPS	MAXSLKTPS
1201 A	lsnipsg		IPSG	assoc1	10	500
1202 A	lsnipsgl		IPSG	assoc2	10	500



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.

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.

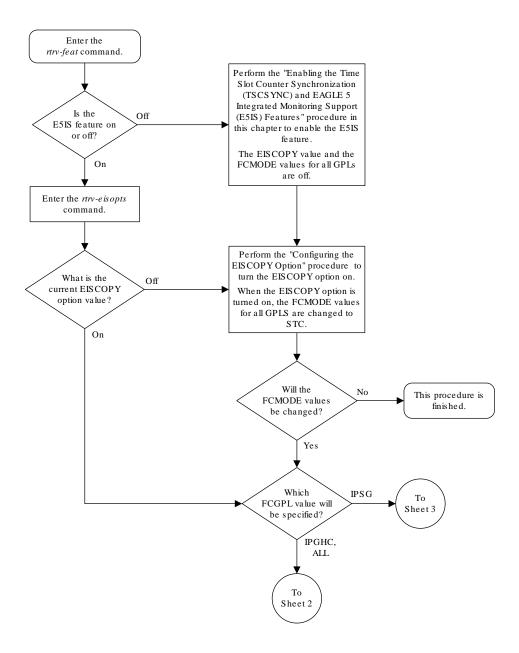
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk complete.

BACKUP (FIXED) : MASP A - Backup starts on standby MASP.

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

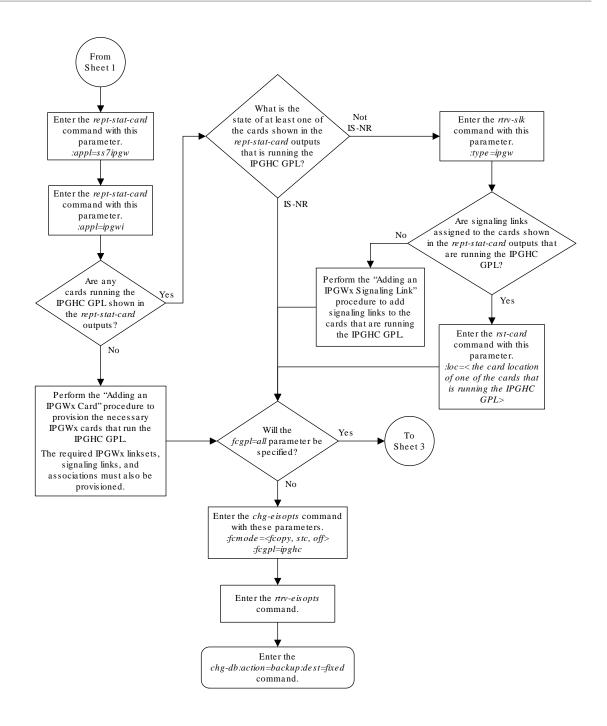


Figure 6-9 Configuring the FCMODE Option for the EAGLE 5 Integrated Monitoring Support Feature



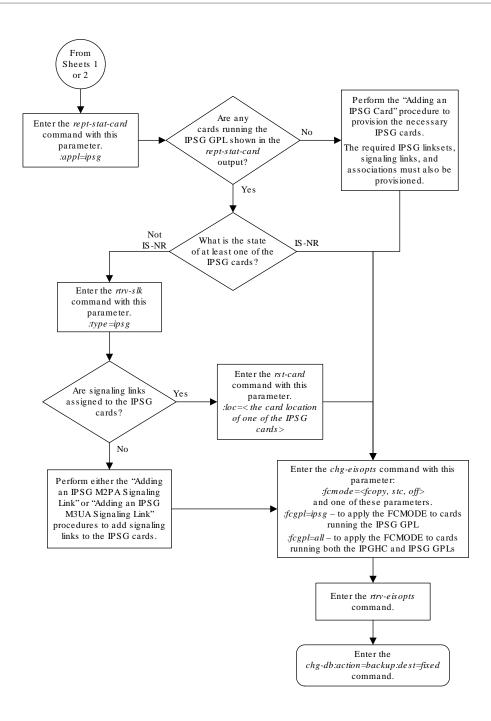
Sheet 1 of 3





Sheet 2 of 3





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 <code>ipaddr</code> and <code>submask</code> parameter values of the <code>chg-ip-lnk</code> command, or the <code>dest</code> and <code>submask</code> parameter values of the <code>ent-ip-rte</code> 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 (E51S) 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.

① 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 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.

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 rtry-



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
                                                         NΩ
```

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
                     255.255.255.255 150.190.15.23
1303 192.168.10.1
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 <code>ipaddr</code> or <code>dest</code> parameter values are Class B **IP** addresses. The <code>ipaddr</code>, <code>dest</code>, and <code>submask</code> parameter values can be verified by entering the <code>rtrv-ip-lnk</code> and <code>rtrv-ip-rte</code> commands in $\underline{4}$ and $\underline{5}$.

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 $\underline{4}$, or the dest and submask values of the rtrv-ip-rte command in $\underline{5}$. Continue the procedure with $\underline{7}$.

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.
```

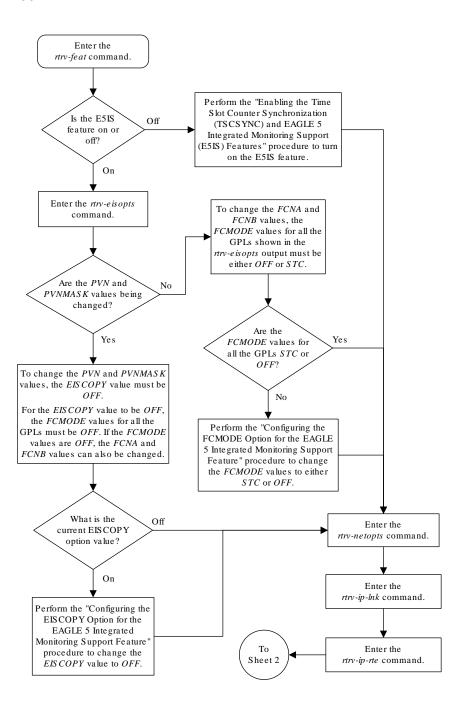
If you do not wish to change the <code>EISCOPYValue</code> or change the <code>FCMODEValues</code>, this procedure is finished.

If you wish to change the EISCOPYvalue, perform Configuring the EISCOPY Option for the EAGLE 5 Integrated Monitoring Support Feature.

If you wish to change the FCMODEvalues, perform Configuring the FCMODE Option for the EAGLE 5 Integrated Monitoring Support Feature.

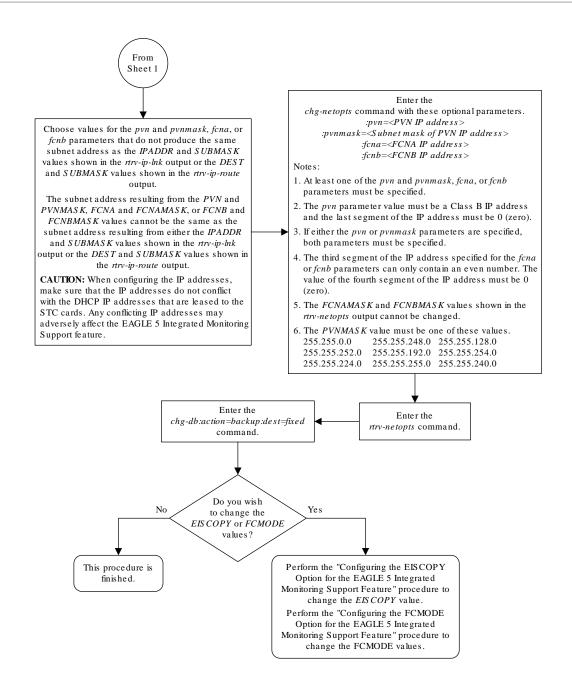


Figure 6-10 Configuring the IP Addresses for the EAGLE 5 Integrated Monitoring Support Feature



Sheet 1 of 2





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 6-2.

Table 6-2 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 <u>Table 6-3</u>. The dual-slot **STC** is connected to the network through the odd numbered card slot connector.

Table 6-3 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 <u>Table 6-3</u>, 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 MSUs being handled by the EAGLE

(i) Note

For systems running VxWorks6.9, a maximum of 1000 TPS is supported for each link when copied to the IMF server in STC mode.

(i) 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.

(i) 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.

rlghnc	xa03w 09-0!	5-28 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		В	0
1203	LIMDS0	SS7ANSI	sp3	A	0				
1204	LIMDS0	SS7ANSI	sp3	A	1				
1206	LIMDS0	SS7ANSI	nsp3	A	1	nsp4		В	1
1301	E5-SM4G	SCCPHC							
1308	LIMDS0	SS7ANSI	sp6	A	1	sp7		В	0
1314	LIMDS0	SS7ANSI	sp7	A	1	sp5		В	1

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.

(i) 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*.

(i) Note

If the EAGLE Integrated Monitoring Support feature is not on, go to the <u>Enabling the Time Slot Counter Synchronization (TSCSYNC) and EAGLE 5 Integrated Monitoring Support (E5IS) Features</u> procedure and enable the **EAGLE** Integrated Monitoring Support feature.

If **HIPR2** cards are not required for provisioning **STC** cards, refer to <u>STC Provisioning</u> 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.

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

rlghncxa03	w 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.

rlghncxa0	3w 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 $\underline{9}$.

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 <u>Configuring the MFC Option</u> procedure to turn on the MFC option.

If the MFC option is on, or the <u>Configuring the MFC Option</u> 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 $\frac{7}{2}$.

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

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



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 6-3. 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 $\underline{9}$. 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
      TYPE
                        LSET NAME LINK SLC LSET NAME
                                                              LINK SLC
                APPL
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 $\underline{9}$ into service using the alw-card command specifying the card location specified in $\underline{9}$. For this example, enter these commands.

```
alw-card:loc=1303
alw-card:loc=2101
alw-card:loc=2102
```

When the ${\tt alw-card}$ 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.

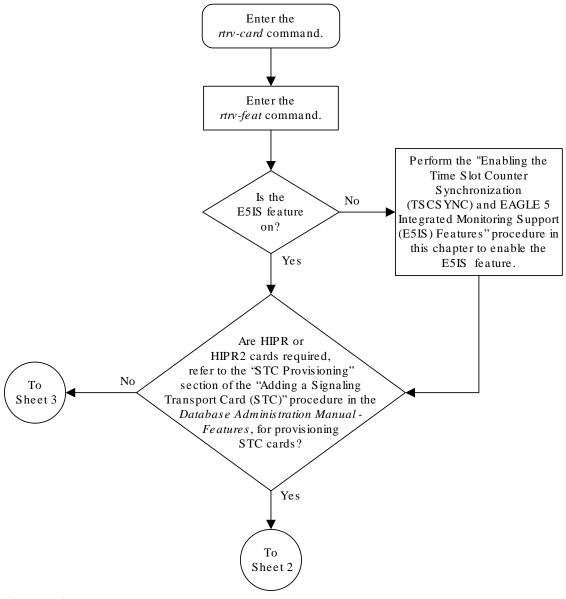
```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.

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

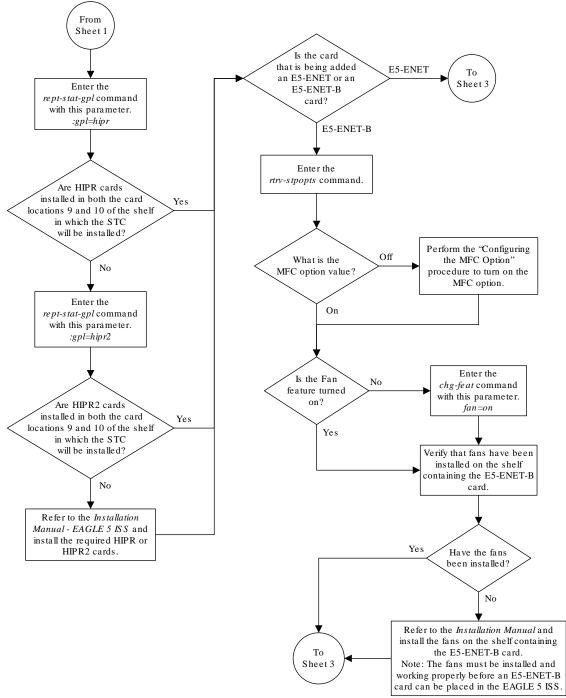
BACKUP (FIXED) : MASP A - Backup starts on standby MASP.

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

Figure 6-11 Adding a Signaling Transport Card (STC)

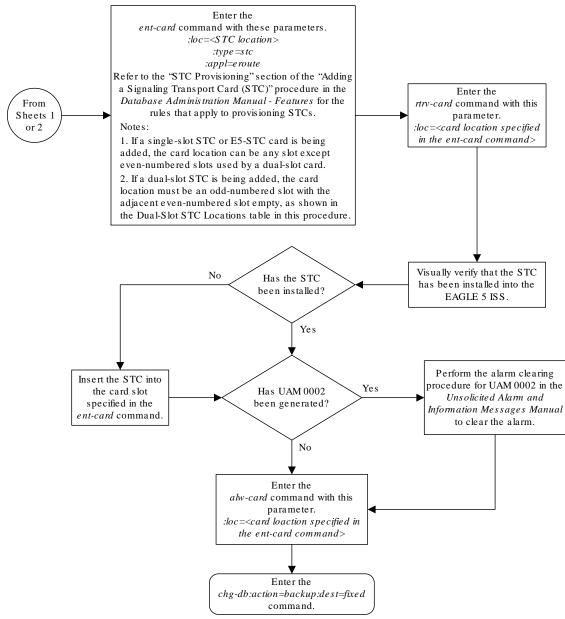






Sheet 2 of 3





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.



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.

rlghncz	xa03w 09-05	5-28 09:12:	:36 GMT EAGLE5	45.0.	. 0				
CARD	TYPE	APPL	LSET NAME	LINK	SLC	LSET	NAME	LINK	SLC
1101	DSM	VSCCP							
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		В	0
1202	LIMDS0	SS7ANSI	sp2	A	1	nsp3		В	0
1203	LIMDS0	SS7ANSI	sp3	A	0				
1204	LIMDS0	SS7ANSI	sp3	A	1				
1206	LIMDS0	SS7ANSI	nsp3	A	1	nsp4		В	0
1212	DSM	VSCCP							
1214	TSM	GLS							
1301	LIMATM	ATMANSI	lsnatm1	A	0				
1303	STC	EROUTE							
1308	LIMDS0	SS7ANSI	sp6	A	0	sp7		В	0
1311	LIMDS0	SS7ANSI	sp2	A	2	sp1		В	1
			sp7	A1	1	sp3		B1	2
1315	LIMDS0	SS7ANSI	sp7	A	2	sp5		В	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
    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
              = Valid
 DBD STATUS
 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.

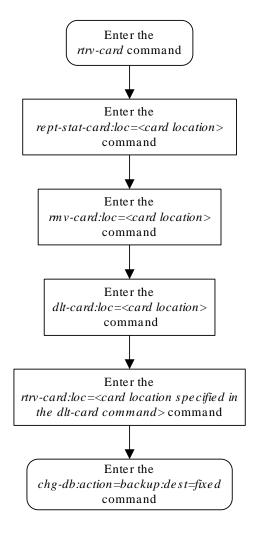
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk complete.

BACKUP (FIXED) : MASP A - Backup starts on standby MASP.

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



Figure 6-12 Removing a Signaling Transport Card (STC)







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.

(i) 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 STC functionality
- EDCM-A card (870-2508-xx) used for STC functionality

(i) 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.

(i) Note

If another chg-stpopts:on=mfc or chg-stpopts:off=mfc command is issued within 10 seconds, the second command is rejected.

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.

```
chq-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
```

Verify the changes using the rtrv-stpopts command. This is an example of the possible output.

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.
```



