

**Oracle® Communications  
EAGLE**

Database Administration - Features User's Guide

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# Chapter 1

## Introduction

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

## Overview

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

- SIP Number Portability
- E5-OAM SNMP
- STPLAN
- Database Transport Access
- GSM MAP Screening
- Eagle Integrated Monitoring Support

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

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

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

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

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

### SIP Number Portability

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

The feature runs on the E5-SM8G-B card(s)

### E5-OAM SNMP

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

### STPLAN

The STPLAN feature provides a TCP/IP connection from any interface shelf to support external applications. Message signaling units (MSUs) that are processed by the EAGLE can be copied and

directed through the LAN interface to an external server or microcomputer application such as a usage measurements system. The gateway screening feature must be available on the STP in order to use the STPLAN feature.

The feature requires an STPLAN card, either the DCM, SSED-CM-A, or E5-SLAN card running the `stplan` application.

### Database Transport Access

The Database Transport Access (DTA) feature provides a mechanism for the redirection of specific Message signaling units (MSUs) to a customized database. The EAGLE 5 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 5's signaling links to be monitored by an IMF (integrated message feeder) without additional intrusive cabling. Message Signaling Units (MSUs), alarms, and events are copied to the Sentinel/IMF to provide the network traffic monitoring. The monitored traffic is delivered to the Sentinel/IMF using the EAGLE 5's STCs (Signaling Transport Cards) which are connected to the ESP/IMF subsystem by Ethernet links. The ESP/IMF subsystem delivers the monitored traffic to the Sentinel/IMF. EAGLE 5 ESP (extended services platform)/

## Scope and Audience

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

## Manual Organization

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

This document is organized into the following sections.

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

*SIP Number Portability Configuration* describes the SIP-based Number Portability feature and the procedures necessary to configure the EAGLE 5 to support this feature.

*E5-OAM SNMP Configuration* describes support for SNMP V2 traps on the E5-OAM feature and the procedures necessary to configure the EAGLE 5 to support this feature.

*STPLAN Configuration* describes the STPLAN feature and the procedures necessary to configure the EAGLE 5 to support this feature.

*Database Transport Access (DTA) Configuration* describes the Database Transport Access (DTA) feature and the procedures necessary to configure the EAGLE 5 to support this feature.

*GSM MAP Screening Configuration* describes the GSM MAP Screening feature and the procedures necessary to configure the EAGLE 5 to support this feature.





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

*Reference Information* describes the procedure for configuring the EAGLE 5 to support the Message Flow Control (MFC) option.

## Documentation Admonishments

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

**Table 1: Admonishments**

Icon	Description
 DANGER	<b>Danger:</b> (This icon and text indicate the possibility of <i>personal injury</i> .)
 WARNING	<b>Warning:</b> (This icon and text indicate the possibility of <i>equipment damage</i> .)
 CAUTION	<b>Caution:</b> (This icon and text indicate the possibility of <i>service interruption</i> .)
 TOPPLE	<b>Topple:</b> (This icon and text indicate the possibility of <i>personal injury and equipment damage</i> .)

## My Oracle Support (MOS)

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

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

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

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

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

## Emergency Response

In the event of a critical service situation, emergency response is offered by the Customer Access Support (CAS) main number at **1-800-223-1711** (toll-free in the US), or by calling the Oracle Support hotline for your local country from the list at <http://www.oracle.com/us/support/contact/index.html>. The emergency response provides immediate coverage, automatic escalation, and other features to ensure that the critical situation is resolved as rapidly as possible.

A critical situation is defined as a problem with the installed equipment that severely affects service, traffic, or maintenance capabilities, and requires immediate corrective action. Critical situations affect service and/or system operation resulting in one or several of these situations:

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

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

## Related Publications

For information about additional publications that are related to this document, refer to the *Related Publications Reference* document, which is published as a separate document on the Oracle Technology Network (OTN) site. See [Locate Product Documentation on the Oracle Technology Network Site](#) for more information.

## Documentation Availability, Packaging, and Updates

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

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

The electronic file of each manual is also available from the [Tekelec Customer Support](#) site. This site allows for 24-hour access to the most up-to-date documentation, including the latest versions of Feature Notices.

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

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

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

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

## Locate Product Documentation on the Oracle Technology Network Site

Oracle customer documentation is available on the web at the Oracle Technology Network (OTN) site, <http://docs.oracle.com>. You do not have to register to access these documents. Viewing these files requires Adobe Acrobat Reader, which can be downloaded at [www.adobe.com](http://www.adobe.com).



1. Log into the Oracle Technology Network site at <http://docs.oracle.com>.
2. Select the **Applications** tile.  
The **Applications Documentation** page appears.
3. Select **Apps A-Z**.
4. After the page refreshes, select the **Communications** link to advance to the **Oracle Communications Documentation** page.
5. Navigate to your Product and then the Release Number, and click the **View** link (note that the Download link will retrieve the entire documentation set).
6. To download a file to your location, right-click the **PDF** link and select **Save Target As**.

## Maintenance and Administration Subsystem

The Maintenance and Administration Subsystem (MAS) is the central management point for the EAGLE 5. 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 5 control shelf. The control cards must be E5-based cards.

### E5-based Control Cards

The E5-based set of EAGLE 5 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 Master clocks throughout the EAGLE 5, and distributes Shelf ID to the EAGLE 5. Each E5-TDM card contains one fixed SATA drive that is used to store primary and

backup system databases, measurements, and Generic Program Loads (GPLs). E5-TDM cards are located in slots 1114 and 1116 of the control shelf.

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

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

## **EAGLE Database Partitions**

The data that the EAGLE uses to perform its functions are stored in two separate areas: the fixed disk drives, and the removable media. The following sections describe these areas and data that is stored on them. These areas and their partitions are shown in [Figure 1: EAGLE Database Partitions \(E5-Based Control Cards\)](#).

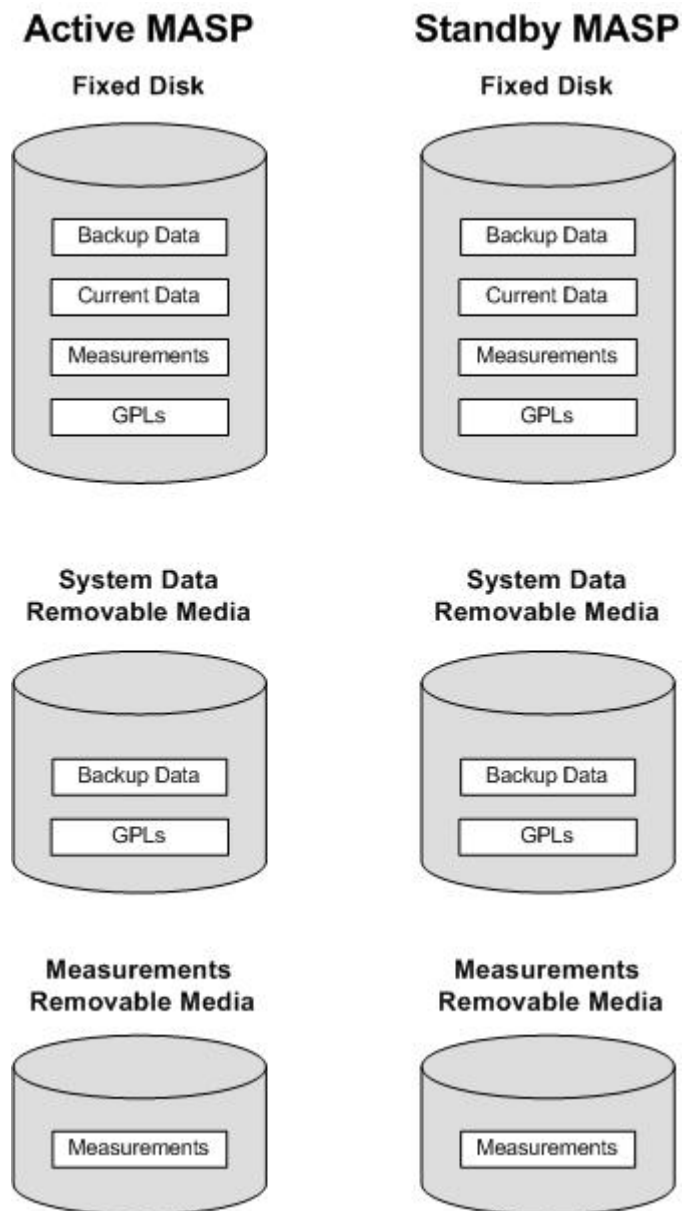


Figure 1: EAGLE Database Partitions (E5-Based Control Cards)

#### Fixed Disk Drive

There are two fixed disk drives on the EAGLE. The fixed disk drives contain the “master” set of data and programs for the EAGLE. The two fixed disk drives are located on the terminal disk modules (E5-TDMs). 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 GPLs is stored on the fixed disk, in the GPL partition. There is an approved GPL and a trial GPL for each type of GPL in this set and a utility GPL, which has only an approved version. Copies of these GPLs are downloaded to the EAGLE 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

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Chapter 2, SIP Number Portability Configuration, describes the SIP-based Number Portability feature and the procedures necessary to configure the EAGLE 5 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 E5-SM8G-B hardware.

The ON Only Feature Access Key (P/N 893-0406-01) controls SIP-based Number Portability functionality.

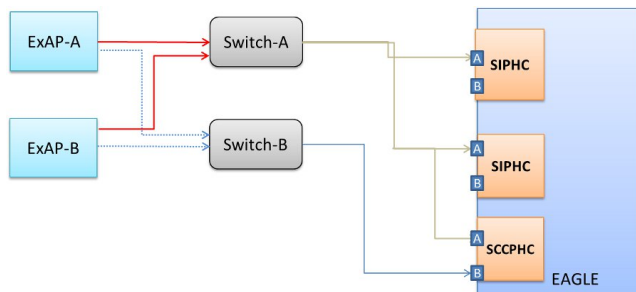
### SIP NP Architecture

- The SIPHC GPL for SIP NP solution
- The SIP NP feature runs on E5-SM8G-B
- The SIPHC GPL communicates with OAMHC cards and MCP cards over the IMT bus
- The SIP card connects to ExAP using port A
- The SIP card connects to SIP signaling network using port B

### ExAP Interface

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

The SIP NP feature performs lookup RxDB using Normalized DN. For RTDB, lookup is performed first on individual entries, and if no match is found, then on range DNs. See [Figure 2: SIP Card Interface with ExAP](#).



**Figure 2: SIP Card Interface with ExAP**

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

### Performance

- TCP is the supported protocol.
- The supported rate is 500 TPS per card. Sending unsupported SIP messages may degrade this rate.

- The maximum traffic supported per card is 500 TPS. A customer provided load-balancer may be required, in front of the STP SIP cards, in order to load-share the traffic between the cards and the sites. For more information on load sharing, see [SIP Redundancy](#).
- Card Protection/Traffic Protection is not guaranteed and may have unpredictable results if the traffic exceeds 500 TPS.
- **Note:** A UIM will alarm if SIP card reaches or exceeds 100% of capacity.

### Capacity

A maximum of 100 phone contexts plus a default phone context can be provisioned. A maximum of 50 unique prefixes per phone context with a maximum of 500 prefixes in the NPBYPASS list is permitted. The same prefix can be present with another phone context. There is a maximum of 16 connections allowed per SIP card.

## Hardware Requirements

The hardware requirements and configuration include these items:

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

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

- The Ethernet Interface A0 is used for ExAP connectivity and B0 will be used for signaling network.
- The SIP card interface LED turns AMBER once the Ethernet interface comes UP.
- The SIP card interface LED turns GREEN once at least one connection on the card is UP.

Refer to *Hardware* for more information about the E5-SM8G-B card.

## SIP Redundancy

Redundancy is divided into the signaling network side redundancy and private network side redundancy.

### Signaling Network Redundancy

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

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

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

### Private Network Redundancy

The SIP Card connects to ExAP using a Private Network. Port A on the SIP card will be reserved for ExAP connection. There is no ExAP redundancy. If the connection to ExAP goes down, the SIP card continues to operate with the existing RxDB. *Figure 3: SIP Redundancy* shows signaling network and private network side redundancy.

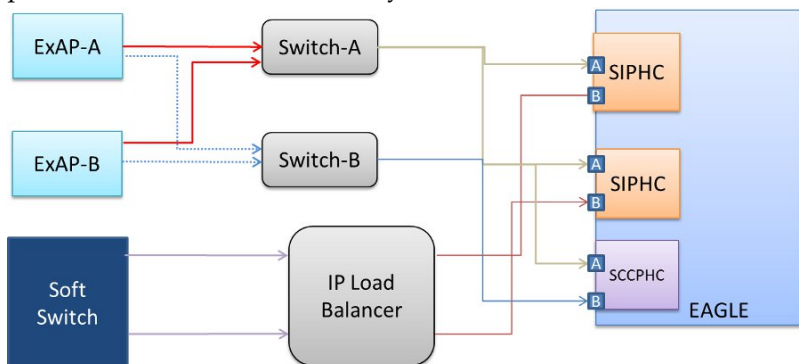


Figure 3: SIP Redundancy

## System Prerequisites

Before any feature that is described in this manual can be enabled, the prerequisites listed in *Table 2: System Prerequisites* are required in the system.

Table 2: System Prerequisites

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



Prerequisite	Verification and Provisioning
	Enter the <code>chg-stpopts:on=mfc</code> command to turn on the mfc feature option.

## SIP NP Feature Prerequisites

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

- The EAGLE 5 must be configured with ELAP or EPAP or both
- SM cards must be E5-SM8G-B

## SIP Configuration Procedure

The EAGLE 5 configuration of the SIP NP feature consists of the following steps. The steps contain links and references to detailed procedures and information needed to complete each step.

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

Refer to the procedures in *Database Administration Manual - System Management* for configuring the Measurements Platform feature and the EAGLE OA&M IP Security feature in the EAGLE 5.

The EAGLE 5 can collect daily and 30-minute measurements for the SIP NP local subsystem. SIP NP measurements are collected only by the EAGLE 5 Measurements Platform. UI measurements reports are not available for SIP NP.

11. Verify, and provision if needed, SIP NP Maintenance. See [SIP NP Maintenance](#).

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

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

The SIP NP feature must be enabled using the SIP NP feature part number 893040601 and a feature access key.

**Note:** Controlled features must be purchased before you can receive the feature access key to use to enable the feature. If you are not sure if you have purchased a feature and received the feature access key, contact your Sales Representative or Account Representative.

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

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

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

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

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

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

```
enable-ctrl-feat:partnum=893040601:fak=<feature access key>
```

**Note:** The feature access key is provided when the feature is purchased. If you do not have the controlled feature part number or the feature access key for a feature, contact your Sales Representative or Account Representative.

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 45.0.0
The following features have been permanently enabled:
Feature Name          Partnum    Status    Quantity
HC-MIM SLK Capacity  893012707 on         64
SIPNP                 893040601 off         ----
;
```

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

```
chg-ctrl-feat:partnum=893040601:status=on
```

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

```
rlghncxa03w 12-10-29 16:40:40 EST EAGLE5 45.0.0
The following features have been permanently enabled:
Feature Name          Partnum    Status    Quantity
```

```

HC-MIM SLK Capacity      893012707  on          64
SIPNP                   893040601  on          ----
;

```

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

```
chg-db:action=backup:dest=fixed
```

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

```

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

```

## Provisioning the SIP NP Options

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

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

**Table 3: 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.
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.

Name	Constraints	Comment
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) Default: RN	Format of the RN parameter in 302 the Response. If <code>includeRN=on</code> , then <code>rn</code> parameter will be encoded, as per RNFMT, and the contact URI will be encoded as a DN.
NPRSPFMT	RN (Routing Number (RN) only (i.e., without CC or ASD or DN) RNDN (Routing Number (RN) + DN (on which RTDB lookup was performed) CCRNDN (Country Code (CC) + Routing Number (RN) + DN (without DEFCC)) RNASDDN (Routing Number (RN) + ASD + DN (on which RTDB lookup was performed) RNASD (Routing Number (RN) + ASD)	Format of the Contact Header in the Response.  If <code>includeRN=off</code> , the <code>rn</code> parameter will not be encoded and NPRSPFMT will define the format of the contact URI.

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

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

- If the SIP NP feature is not enabled or turned on, go to [Enabling SIP NP, Setting STP Options, and Turning On SIP NP](#) to enable and turn on the SIP NP feature. Then continue with [Step 2](#).
  - If the SIP NP feature is enabled and turned on, continue with [Step 2](#).
2. Display the status of the SIP NP options, using the `rtrv-sipopts` command.
  3. Change the SIP NP options to the desired settings, by entering the `chg-sipopts` command with at least one of the SIP NP option parameters specified. Example:

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

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

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

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

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

## Provisioning SIP Cards

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

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

## Provisioning IP Hosts and IP Links

SIP Connections must be set up before the SIP NP feature is available:

### CHG-IP-LNK / RTRV-IP-LNK

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

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

### ENT-IP-HOST / DLT-IP-HOST / RTRV-IP-HOST

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

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

### ENT-IP-RTE

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

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

### CHG-IP-CARD

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

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

Refer to *Commands Manual* 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 4: SIP Transport Input Parameters](#).

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

**Table 4: 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.
Rport - Remote Port	Integer Optional	IP port of remote end. Remote PORT is mandatory for TCP.
Prot - Protocol	TCP Optional Default - TCP	Underlying protocol
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=tcpl101`

### CHG-IP-CONN

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

1. `chg-ip-conn:cname=tcpl101: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 `pxstrip` (yes or no). The default value for `pxstrip` is no. For example:

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

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

## Provisioning SIP Connection Information

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

The number normalization rules in [Table 5: SIP Number Normalization Parameters](#) have the following fields:

**Table 5: 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

Name	Constraint	Comment
	'+', '*', '#', '-'.	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 None - Valid 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:pfcc=*6-7-2
```

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

## Configuring the Measurements Platform

The EAGLE 5 can collect daily and 30-minute measurements for the SIP NP service. SIP NP measurements are collected only by the EAGLE 5 Measurements Platform. Only `rept-meas` reports are available for SIP NP.

See [SIP NP Measurements](#) and refer to *Measurements* manual for information about measurements for SIP NP.

Refer to the procedures in the *Database Administration Manual - System Management* for configuring the Measurements Platform feature in the EAGLE 5.

### 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 6: SIP Measurement Registers**

Register	Description
INVITERCVD	Total number of SIP INVITE received (including re-transmits)
CANCRVD	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
NPBYPASSUC	Number of SIP INVITE messages for which RxDB lookup was not performed
INVALIDDN	Number of SIP INVITE messages for which RxDB lookup returned "DN not found"
NPRNNF	Number of SIP INVITE messages for which RxDB lookup returned "RN not found"

## SIP NP Maintenance

### REPT-STAT-SIP

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

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

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

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

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

### REPT-STAT-IPCONN

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

```
REPT-STAT-IPCONN
```

### Timers

#### SEND-MSG Command

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

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

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

To set timer values, use

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

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

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

## Supported SIP Messages

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

The SIP NP feature creates the following SIP requests:

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

The SIP NP feature processes the following SIP responses:

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

## Functionality

### General Feature Information

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

SIP functionality is divided into three categories:

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

### RxDB Interface and Download Information

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

- If the SIP card receives a SIP INVITE request when the SIP card is in MPS\_UNAVAILABLE state and NP Lookup is required, SIP 500 "Server Internal Error" response will be encoded and sent back to the originator.

### Number Normalization Logic

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

### 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*.
- When SIP INVITE request is received, EAGLE responds back with 100 (Trying).
- The SIP NP feature supports SIP INVITE with SIP URI with user = phone and TEL URI.
- EAGLE supports SIP NP parameters "rn", "rn-context" and "npdi" in TEL/SIP URI. Each parameter can appear only once in the URI.

### SIP NP Prefix Screening

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

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

- If incoming SIP Request message does not contain both "npdi" and "rn", then SIP Application will perform prefix search in NPBYPASS list.
- Before CSL lookup is performed, received digit strings will be conditioned as follows:
  - If the dialed string begins with "+", then it is stripped
  - If all visual characters are removed
  - If Default Country Code (DEFCC) is present in the dialed string, it is also stripped
 The resulting string is the Conditioned Digit String.
- The Conditioned Digit string is searched in NPBYPASS list for the longest matching prefix.

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

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

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

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

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

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

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

### NP Lookup Processing

#### Number Normalization

SIP NP supports two types of numbers in a URI:

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

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

#### RxDB Lookup

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

#### SIP Outbound

SIP Outbound considers three scenarios:

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

#### Lookup Failure

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

#### NP Lookup Successful but RN not found

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

#### NP Lookup Successful and RN is found

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

## SIP Card Availability

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

## SIP Congestion

Congestion conditions include:

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

## SIP Alarm and Information Messages

The following UAMs are related to the SIP Application:

**Table 7: 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 8: 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
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 9: 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 10: 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
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 11: SIP UIMs**

1120 - TRBL Queue is full: elements overwritten
1187 - Table Checksum Mismatch
1188 - DB Subset Checksum Mismatch
1194 - IP connection Refuses, 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.

# Chapter 3

## E5-OAM SNMP Configuration

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### Topics:

- [E5-OAM SNMP Feature Overview.....44](#)
- [Hardware Requirements .....45](#)
- [E5-OAM SNMP Configuration Procedure.....45](#)
- [Connecting Ethernet Cables.....45](#)
- [Provisioning IP Address and IP Host.....45](#)
- [Provisioning Default Router and Enabling SNMP Feature.....46](#)
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- [Provisioning the SNMP Options and Turning on the SNMP Feature.....47](#)
- [Functionality .....47](#)
- [SNMP MIBs .....52](#)

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 5 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-snmpp-host` commands. It allows configured NMSs to request a resynchronization for all of the existing UAMs. Each provisioned NMS receives a heartbeatTrap at a rate determined by the NMS declaration, so the NMS will know it is connected during low periods of UAM/UIM activity.

### General Feature Information

- An ON-OFF feature "SNMP Traps on E5OAM" with P/N 893-0404-01 is used to control the activation of the SNMP agent on the E5-OAM.
- The EAGLE only supports SNMP V2c traps, a SET for starting/stopping the resynchronization, and a limited GET to determine the status of the resynchronizations.
- Synchronization of alarm events from the EAGLE to the NMS are supported by the EAGLE.

### Feature Key Activation

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

### SNMP Agent Activation

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

### NMS Provisioning

The SNMP FAK must be enabled before any NMS hosts can be provisioned. One or two NMSs can be provisioned to receive traps and UIMs. For each NMS, a host name and IP address must be specified with the `ent-snmpp-host` command. Optional parameters allow the SNMP command and trap port numbers to be changed, as well as allow the TRAP community string to be specified for the traps sent to the NMS, and set the heartbeat interval. Once a host is provisioned, the optional parameters may be changed with the `chg-snmpp-host` command.

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

## Hardware Requirements

The hardware requirements and configuration include these items:

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

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

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

## E5-OAM SNMP Configuration Procedure

The EAGLE 5 configuration of the SNMP feature consists of the following steps. The steps contain links and references to detailed procedures and information needed to complete each step:

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

## Connecting Ethernet Cables

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

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

## Provisioning IP Address and IP Host

An SNMP IP Address and IP Host must be set up before the SNMP feature is available:

**CHG-IP-LNK / RTRV-IP-LNK**

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

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

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

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

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

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

## **Provisioning Default Router and Enabling SNMP Feature**

A Default Router must be assigned before the SNMP Feature is enabled:

#### **CHG-IP-CARD / RTRV-IP-CARD**

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

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

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

## **Provisioning V2 Traps**

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

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

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

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

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

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

## Provisioning the SNMP Options and Turning on the SNMP Feature

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

1. Display the status of the SNMP options using the `rtrv-snmppopts` command.
2. Change the SNMP options to the desired settings by entering the `chg-snmppopts` command.  
Example:  
Enter the `chg-snmppopts:snmpuim=on` command to enable sending UIMs as traps to the NMS.
3. Verify the changes by entering the `rtrv-snmppopts` 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-snmppopts` and `rtrv-snmppopts` commands.

## Functionality

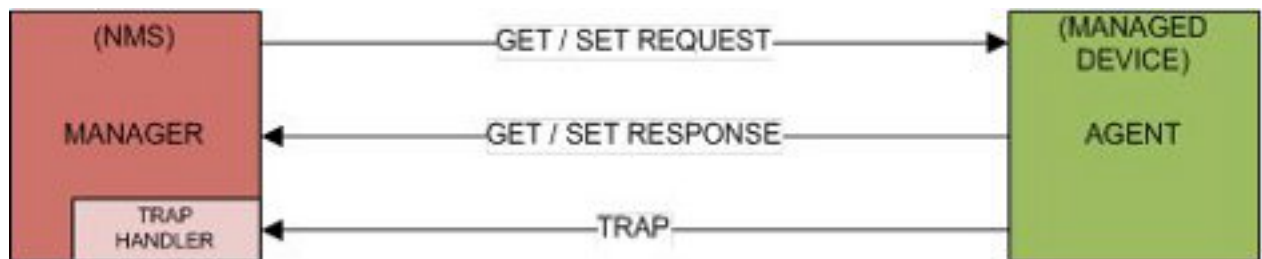
In the Eagle SNMP configuration, one or more administrative computers, called *managers*, have the task of monitoring a group of devices on the computer network. Each managed system (i.e., STP) executes a software component called an *agent* which reports information via SNMP to the manager.

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 4: SNMP Basic Block Diagram](#).



**Figure 4: 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.

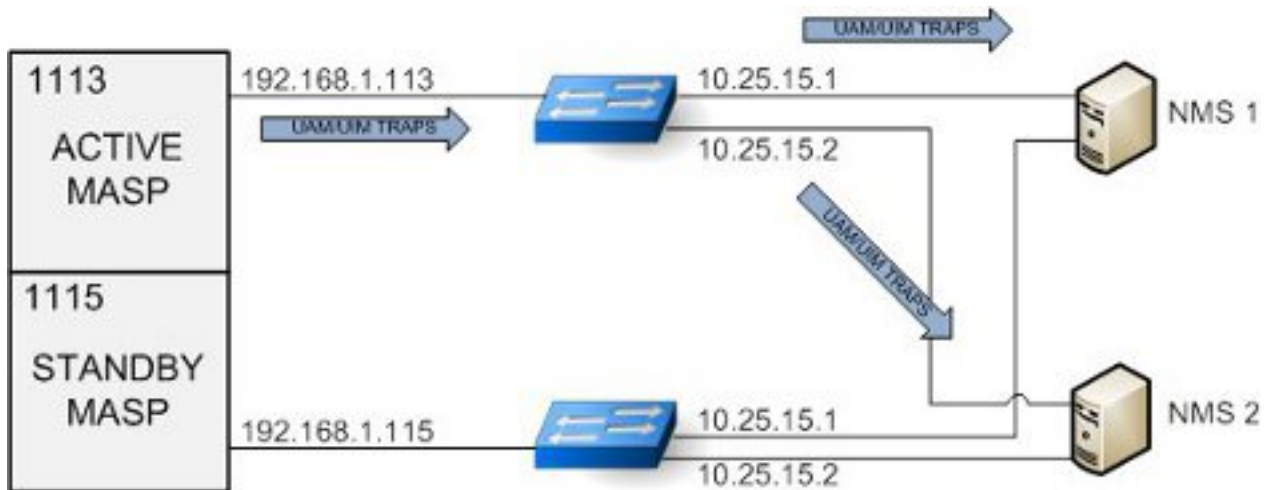
Traps are generated for UAMs and UIMs:

- 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.



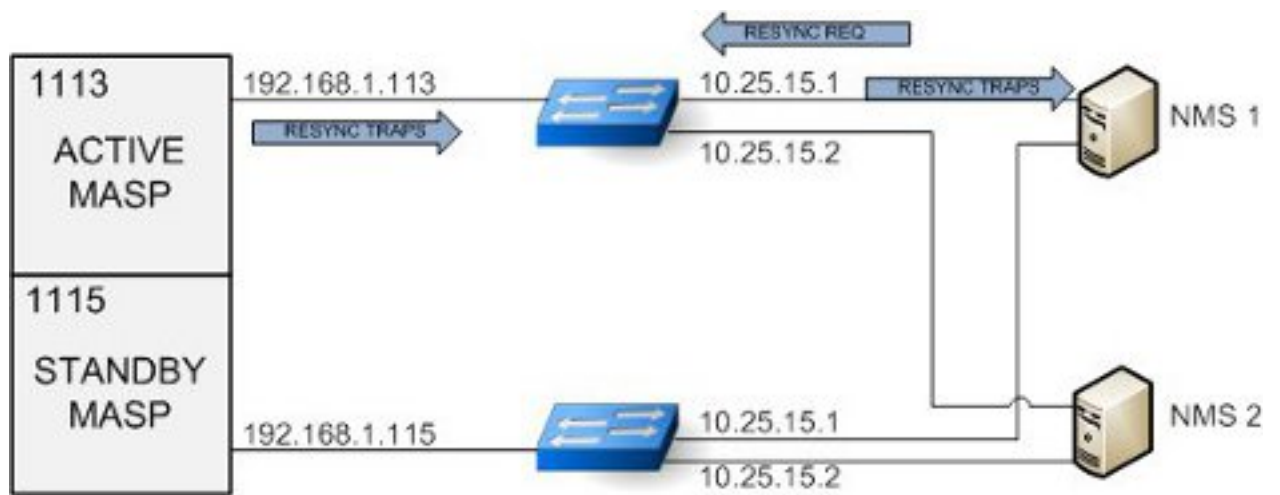
### Data Flows

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 5: UAM/UIM Trap Flow](#) 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 5: UAM/UIM Trap Flow**

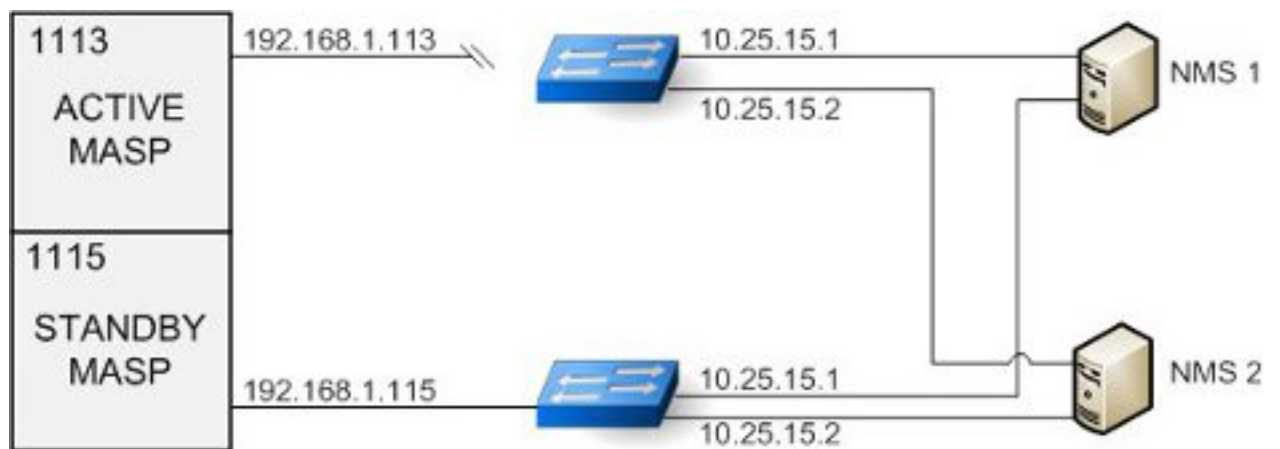
When an NMS becomes out of sync with the Eagle alarm status, the NMS may issue a *SET request* to initiate a resynchronization. The *SET request* is directed to the Active MASP only. Incoming synchronous EAGLE alarms and UIMs are buffered during an active resynchronization, and transmitted to the NMS once the resynchronization is complete in the same order they were received. The *resynchAlarmTrap* responses will be returned from the Active MASP. See [Figure 6: Resynchronization Request/Trap Flow](#).



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

**Figure 6: Resynchronization Request/Trap Flow**

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 7: UAM/UIM Trap Flow with Active Link Down](#).



**Figure 7: 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 8: UAM/UIM Trap Flow with Standby Link Down](#).

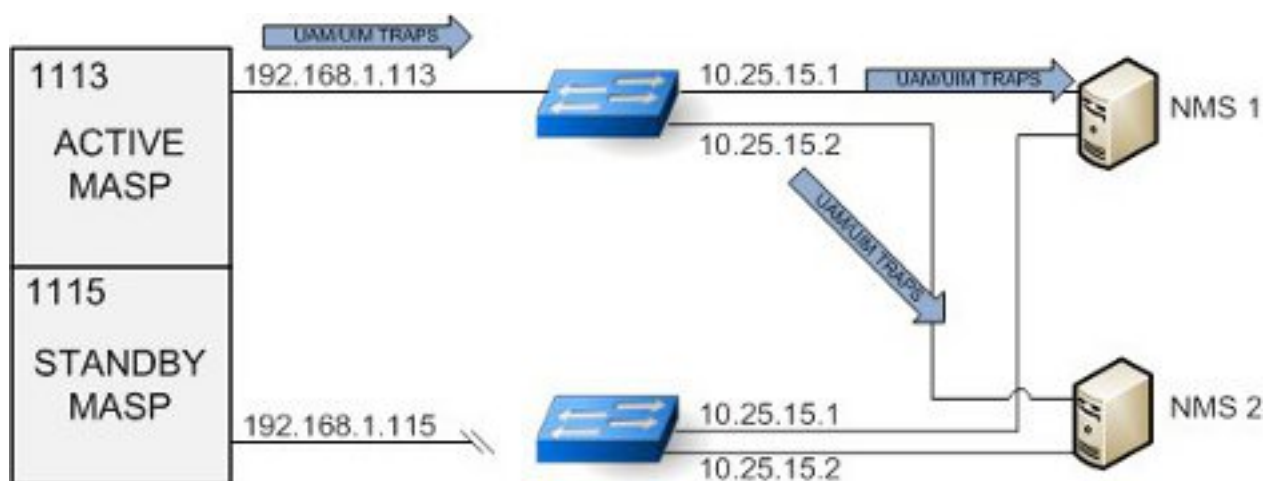


Figure 8: UAM/UIM Trap Flow with Standby Link Down

### Resynchronization

- Resynchronization requests from an NMS should only be sent under the following conditions:
  - When a Heartbeat Trap has not been received within a few seconds of the time provisioned on Eagle for that NMS,
  - When the server has been restarted.
  - When a Sequence number mis-match is detected on NMS.
- A scheduled resynchronization is not recommended.
- A resyncStartTrap is sent by the Eagle to acknowledge that the Eagle is processing the resynchronization request.
- A resyncAlarmTrap is sent by the Eagle and generated to the NMS that requested the resynchronization for each active alarm.
- A resyncStopTrap is sent by the Eagle to indicate all actively alarmed devices have had traps sent for their alarms, and the resynchronization is complete.
- A resyncRequiredTrap is sent by the Eagle to the NMS to all configured NMSs to indicate that the active OAM has determined there is a need to resynchronization with all NMSs. Currently this may be due to either: an OAM reboot or during a resynchronization the buffer area holding incoming UAM/UIMs has been exceeded, and one or more of the incoming UAM/UIMs have been lost.

### Assumptions

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

- UAM # 316 - Route is prohibited
- UAM # 178 - Security Log failed
- UAM # 337 - DPC-SS status changed

### Limitations

- If alarm inhibits are turned on for a device, alarms at the inhibited level(s) are not displayed. Since the SNMP traps use the same trigger mechanisms for their generation as the other alarms, then they are also not displayed when the alarm is inhibited. The customer who chooses to use alarm inhibits with SNMP on EAGLE does so at their own risk.
- Only the Active OAM is the source for traps.
- The NMS will receive traps from one of two EAGLE SNMP IP addresses. It will be up to the NMS to correlate these SNMP Traps and know that the information from an Eagle can be coming from one of two IP addresses.
- No filtering of UAMs will be done by EAGLE for SNMP traps.
- Resynchronization requests must be sent to the active MASP. Resynchronization requests sent to the standby MASP will not be acknowledged.
- During a resynchronization, all UAM/UIMs to all NMSs will be buffered until the resynchronization is completed irrespective of which NMS has initiated the resynchronization. Then the Buffered UAM/UIMs will be displayed on all NMSs before synchronous alarm and UIMs are displayed. During the brief interval of resynchronization there might be no UAM/UIM stream available on the NMS even if it is not the originator of resynchronization request.
- Calculations for the buffer area for incoming UIM/UAMs during a resynchronization are based on 7000 active alarms, an incoming rate of new UAM/UIMs of total 8 per second, and a trap rate of 84 traps per second. If these limits are exceeded, the buffer limit may be reached and a resyncRequiredTrap will be sent out to all NMSs. In order to avoid resynchronization loop issues, the user can do the following:
  - Clean up their network to avoid the excessive alarms and UIMs.
  - Use the `chg-snmptsts: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 included on the Documentation DVD

### TEKELEC-TOPLEVEL-REG

```
TEKELEC-TOPLEVEL-REG DEFINITIONS ::= BEGIN
-- Copyright 2000 Tekelec Corporation
IMPORTS
enterprises FROM RFC1155-SMI;
tekelecCorp OBJECT IDENTIFIER ::= { enterprises 323 }
tekelecPrivate OBJECT IDENTIFIER ::= { tekelecCorp 1 }
tekelecRegistration OBJECT IDENTIFIER ::= { tekelecCorp 2 }
tekelecGeneric OBJECT IDENTIFIER ::= { tekelecCorp 3 }
```

```

tekelecCapabilities OBJECT IDENTIFIER ::= { tekelecCorp 4 }
tekelecProductGroups OBJECT IDENTIFIER ::= { tekelecCorp 5 }
tekelecRequirements OBJECT IDENTIFIER ::= { tekelecCorp 6 }
tekelecExperimental OBJECT IDENTIFIER ::= { tekelecCorp 7 }
tekelecCallCenterGroup OBJECT IDENTIFIER ::= {tekelecProductGroups 1 }
tekelecDiagnosticsGroup OBJECT IDENTIFIER ::= {tekelecProductGroups 2 }
tekelecSwitchingGroup OBJECT IDENTIFIER ::= {tekelecProductGroups 3 }
experimental OBJECT IDENTIFIER ::= { tekelecSwitchingGroup 1}
generic OBJECT IDENTIFIER ::= { tekelecSwitchingGroup 2 }
tekelecEAGLE OBJECT IDENTIFIER ::= { tekelecSwitchingGroup 3}
tekelecLSMS OBJECT IDENTIFIER ::= { tekelecSwitchingGroup 4}
tekelecOAP OBJECT IDENTIFIER ::= { tekelecSwitchingGroup 5 }
tekelecIP7 OBJECT IDENTIFIER ::= { tekelecSwitchingGroup 6 }
tekelecINSIGHT7 OBJECT IDENTIFIER ::= { tekelecSwitchingGroup 7}
tekelecTALON OBJECT IDENTIFIER ::= { tekelecSwitchingGroup 8}
tekelecVOX OBJECT IDENTIFIER ::= { tekelecSwitchingGroup 9 }
tekelecSCP OBJECT IDENTIFIER ::= { tekelecSwitchingGroup 10}
tekelecIVR OBJECT IDENTIFIER ::= { tekelecSwitchingGroup 11}
tekelecNetworkSwitch OBJECT IDENTIFIER ::= {tekelecSwitchingGroup 12 }
tekelecSentinel OBJECT IDENTIFIER ::= { tekelecSwitchingGroup 13}
tekelecTekServer OBJECT IDENTIFIER ::= { tekelecSwitchingGroup 14 }
tekelecIP7EDGE OBJECT IDENTIFIER ::= { tekelecSwitchingGroup 15}
tekelecTekCore OBJECT IDENTIFIER ::= { tekelecSwitchingGroup 16}
tekelecSMAC OBJECT IDENTIFIER ::= { tekelecSwitchingGroup 17}
tekelecTPD OBJECT IDENTIFIER ::= { tekelecSwitchingGroup 18}
tekelecExtensions OBJECT IDENTIFIER ::= { tekelecSwitchingGroup 19 }
tekelecEPAP OBJECT IDENTIFIER ::= { tekelecSwitchingGroup 20}
tekelecELAP OBJECT IDENTIFIER ::= { tekelecSwitchingGroup 21}
tekelec EAGLEXGServiceBroker OBJECT IDENTIFIER ::= { tekelecSwitchingGroup 22}
tekelecECAP OBJECT IDENTIFIER ::= { tekelecSwitchingGroup 23}
tekelecEAGLEEMS OBJECT IDENTIFIER ::= { tekelecSwitchingGroup 24}
tekelecEAGLEXGHlrRouter OBJECT IDENTIFIER ::= {tekelecSwitchingGroup 25 }
tekelecEAGLEXGNPQueryRouter OBJECT IDENTIFIER ::= {tekelecSwitchingGroup 26 }
tekelecIAS OBJECT IDENTIFIER ::= { tekelecSwitchingGroup 27}
tekelecEAGLEXGDSR OBJECT IDENTIFIER ::= { tekelecSwitchingGroup 28 }
tekelecPCRF OBJECT IDENTIFIER ::= { tekelecSwitchingGroup 29}
tekelecSDS OBJECT IDENTIFIER ::= { tekelecSwitchingGroup 30}
tekelecTVOE OBJECT IDENTIFIER ::= { tekelecSwitchingGroup 31}
tekelecUDR OBJECT IDENTIFIER ::= { tekelecSwitchingGroup 32}

END

```

## TEKELEC-EAGLE-COMMONOBJECTS

```

--
*****
--
-- Copyright 2010 Tekelec Corporation
--
-- The assignments of Tekelec enterprise MIB OIDs is officially
tracked by -- Technical Reference document TR003056. Each time this MIB is
updated a -- corresponding change must be made to this document to avoid
conflicts.
--
--*****

TEKELEC-EAGLE-COMMONOBJECTS DEFINITIONS ::= BEGIN
IMPORTS
enterprises,
OBJECT-TYPE,
MODULE-IDENTITY,
Unsigned32 FROM SNMPv2-SMI

```

```

DateAndTime,
DisplayString,
TEXTUAL-CONVENTION FROM SNMPv2-TC
tekelecEAGLE FROM TEKELEC-TOPLEVEL-REG;
tekelecEagleCommonObjects MODULE-IDENTITY
LAST-UPDATED "201206160000Z" -- June 16, 2012
ORGANIZATION "Tekelec"
CONTACT-INFO "
Postal: Tekelec
5200 Paramount Parkway
Morrisville, NC 27560
USA Tel: 919-460-5500"
DESCRIPTION "This MIB defines the Tekelec Eagle Common Objects"
-----
--
-- Revision History --
-----
REVISION "201206160000Z" -- June 16, 2012
DESCRIPTION
"Initial Version"
::= { tekelecEAGLE 1 }
-----
--
-- TEXTUAL CONVENTIONS
--
-----
EagleSeverity ::= TEXTUAL-CONVENTION
STATUS current
DESCRIPTION "The severity of Alarms in the Eagle"
SYNTAX INTEGER { informational (2),
clear (3),
minor (4),
major (5),
critical (6)
}
-----
--
-- ALARM OBJECTS DEFINITION --
-----
eagleAlarmObjects OBJECT IDENTIFIER
::= {tekelecEagleCommonObjects 1 }
eagleMRNTime OBJECT-TYPE
SYNTAX DateAndTime
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"Timestamp when MRN was produced by the Eagle."
::= { eagleAlarmObjects 1 }
eagleMRNResourceName OBJECT-TYPE
SYNTAX DisplayString
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"Unique name or identifier to identify the Eagle on the domain."
::= { eagleAlarmObjects 2 }
eagleMRNSubResourceName OBJECT-TYPE
SYNTAX DisplayString
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"Unique name or identifier to identify an alarmable object within the Eagle."
::= { eagleAlarmObjects 3 }
eagleMRNSeverity OBJECT-TYPE
SYNTAX EagleSeverity

```

```

MAX-ACCESS read-only
STATUS current
DESCRIPTION
"The severity of MRN CLEAR|MINOR|MAJOR|CRITICAL|NONE) ."
::= { eagleAlarmObjects 4 }
eagleMRNTextMessage OBJECT-TYPE
SYNTAX DisplayString
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"Original information describing the MRN."
::= { eagleAlarmObjects 5 }
eagleMRNNumber OBJECT-TYPE
SYNTAX Unsigned32
MAX-ACCESS read-only
STA number identifying a MRN."
::= { eagleAlarmObjects 6 }
eagleMRNSequence OBJECT-TYPE
SYNTAX Unsigned32
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"Unique sequence number identifying an SNMP Alarm Trap instance."
::= { eagleAlarmObjects 7 }
TUS current
DESCRIPTION
"Unique number identifying a MRN."
::= { eagleAlarmObjects 6 }
eagleMRNSequence OBJECT-TYPE
SYNTAX Unsigned32
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"Unique sequence number identifying an SNMP Alarm Trap
instance."
::= { eagleAlarmObjects 7 }

END

```

### TEKELEC-EAGLE-MIB

```

--*****
--
-- Copyright 2010 Tekelec Corporation
--
-- The assignments of Tekelec enterprise MIB OIDs is officially
-- tracked by
-- Technical Reference document TR003056. Each time this MIB is
-- updated a
-- corresponding change must be made to this document to avoid
-- conflicts.
--
--*****

TEKELEC-EAGLE-MIB DEFINITIONS ::= BEGIN
IMPORTS
MODULE-IDENTITY,
OBJECT-TYPE,
NOTIFICATION-TYPE FROM SNMPv2-SMI
DisplayString FROM SNMPv2-TC
eagleMRNSeverity,

```

```

eagleMRNTime,
eagleMRNResourceName,
eagleMRNSubResourceName,
eagleMRNTextMessage,
eagleMRNNumber,
eagleMRNSequence FROM TEKELEC-EAGLE-COMMONOBJECTS
tekelecEAGLE FROM TEKELEC-TOPLEVEL-REG;
tekelecEagleOam MODULE-IDENTITY
LAST-UPDATED "201206160000Z" -- June 16, 2012
ORGANIZATION "Tekelec"
CONTACT-INFO
" Postal: Tekelec
5200 Paramount Parkway
Morrisville, NC 27560
USA
Tel: 919-460-5500"
DESCRIPTION
"This MIB defines the Tekelec Eagle OAM Objects"
-----
--
-- Revision History
--
-----
REVISION "201206160000Z" -- June 16, 2012
DESCRIPTION "Initial Version"
::= { tekelecEAGLE 2 }
-----
--
-- EAGLE NBI OBJECTS DEFINITION
--
-----
tekelecEagleOamObjects OBJECT IDENTIFIER ::= { tekelecEagleOam 1 }
resyncVar OBJECT-TYPE
SYNTAX INTEGER(0..1)
MAX-ACCESS read-write
STATUS current
DESCRIPTION "The object is available to be set by the NMS to
indicate a request for alarm resynchronization. Object value=0 indicates a request
to stop an ongoing
resnchronization and Object value=1 indicates a resynchronization request."
::= { tekelecEagleOamObjects 1 }
-----
--
-- EAGLE TRAPS DEFINITION
--
-----
tekelecEagleOamTraps OBJECT IDENTIFIER ::= { tekelecEagleOam 2 }
alarmTrap NOTIFICATION-TYPE
OBJECTS { eagleMRNTime,
eagleMRNResourceName,
eagleMRNSubResourceName,
eagleMRNSeverity,
eagleMRNTextMessage,
eagleMRNNumber,
eagleMRNSequence }
STATUS current
DESCRIPTION "The trap is sent by the EAGLE to NMS when an alarm
occurs."
::= { tekelecEagleOamTraps 1 } resyncAlarmTrap NOTIFICATION-TYPE
OBJECTS { eagleMRNTime,
eagleMRNResourceName,
eagleMRNSubResourceName,
eagleMRNSeverity,
eagleMRNTextMessage,

```



```
eagleMRNNumber,  
eagleMRNSequence }  
STATUS current  
DESCRIPTION "The trap is sent by the EAGLE to NMS when an alarm  
occurs."  
::= { tekelecEagleOamTraps 2 } resyncStartTrap NOTIFICATION-TYPE  
OBJECTS { eagleMRNResourceName,  
eagleMRNSeverity,  
eagleMRNTextMessage}  
STATUS current  
DESCRIPTION "The trap is sent by the EAGLE to NMS when the Eagle  
is about to start resynchronization."  
::= { tekelecEagleOamTraps 3 } resyncStopTrap NOTIFICATION-TYPE  
OBJECTS { eagleMRNResourceName,  
eagleMRNSeverity,  
eagleMRNNumber,  
eagleMRNTextMessage}  
STATUS current  
DESCRIPTION "The trap is sent by the EAGLE to NMS when  
resynchronization is complete."  
::= { tekelecEagleOamTraps 4 } resyncRejectTrap NOTIFICATION-TYPE  
OBJECTS { eagleMRNResourceName,  
eagleMRNSeverity,  
eagleMRNTextMessage}  
STATUS current  
DESCRIPTION "The trap is sent by the EAGLE to NMS when a  
resynchronization request is rejected by EAGLE"  
::= { tekelecEagleOamTraps 5 } resyncRequiredTrap NOTIFICATION-TYPE  
OBJECTS { eagleMRNResourceName,  
eagleMRNSeverity,  
eagleMRNTextMessage}  
STATUS current  
DESCRIPTION "The trap is sent by the EAGLE to NMS when a  
resynchronization is required by EAGLE"  
::= { tekelecEagleOamTraps 6 } heartbeatTrap NOTIFICATION-TYPE  
OBJECTS { eagleMRNResourceName,  
eagleMRNSeverity,  
eagleMRNTextMessage}  
STATUS current  
DESCRIPTION "The trap is periodically sent by the EAGLE to NMS to indicate that  
the Eagle is up"  
::= { tekelecEagleOamTraps 7 }  
  
END
```

# Chapter 4

## STPLAN Configuration

---

### Topics:

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Chapter 5, STPLAN Configuration, describes the STPLAN feature and the procedures necessary to configure the EAGLE to support this feature.

## STPLAN Feature Overview

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

The feature requires an STPLAN card, either the DCM, SSED-CM-A, or E5-SLAN card running the `stp1an` application, which provides an ethernet interface at the backplane, as well as the processing power required to support TCP/IP message encapsulation.

The STPLAN card receives SS7 MSUs from the Interprocessor Message Transport (IMT) bus and copies the MSUs into memory resident on the STPLAN card. The EAGLE 5 ISS encapsulates the copied MSU into TCP/IP packets and sends the encapsulated message over the ethernet to the host computer or to a TCP/IP router. The host computer is responsible for assembling and processing the packets it receives. The TCP/IP router routes the messages to a host computer on another network.

Each STPLAN card uses one ethernet port. The Transmission Control Protocol (TCP) and User Datagram Protocol (UDP) are supported at the transport layer. Internet Protocol (IP), Internet Control Message Protocol (ICMP) and Address Resolution Protocol (ARP) are supported at the network layer.

If the DCM card or SSED-CM-A card is used as the STPLAN card, either 10baseT ethernet or 100baseT ethernet is supported by the EAGLE 5 ISS. The ethernet connection is made directly to the EAGLE 5 ISS backplane and no external media access unit (MAU) is used. The MAU is incorporated in the DCM card. The DCM card capacity is 1200 TPS when configured to run on a 10baseT network, and 2500 TPS when configured for a 100baseT network.

If the E5-SLAN card is used as the STPLAN card, 10/100Mbps port data transfer rate is supported by the EAGLE 5 ISS. The ethernet interface supports 10/100 Mbps data rates, full/half duplex, fixed/auto-negotiate, DIX/802.3 MAC header modes. The capacity of the E5-SLAN card is 1200 TPS when configured to run on a 10baseT network, or on a 100baseT network at half duplex, and 12000 TPS when configured for a 100baseT network at full duplex.

This implementation does not support standard TCP/IP protocols such as TELNET and FTP. However, it supports EAGLE 5 ISS applications that are built on TCP/IP using the Socket Application Programming Interface (API). The protocol stack is not biased toward any particular application.

### Message Sequencing

The STPLAN card adds a time stamp to the message before sending it to the LAN. The time stamp maintains a one second granularity and is synchronized with the host computer. This synchronization requires the host computer to be capable of responding to the time and date queries on the UDP port 37. The receiver can use the time stamp to provide sequencing within an application. The STPLAN application does not use sequence numbers for messages.

### Message Format

Because TCP/IP is a stream-oriented protocol, the host computer can receive multiple messages in a single packet, or the message can be divided among different packets. [Figure 9: STPLAN Messages Embedded in TCP/IP Packets](#) shows an example of both. There are multiple MSUs in the first packet with one of the MSUs divided between the first packet and the second packet.

This list describes the fields used in these packets:

- STP/LAN Protocol Version (a 1-byte value) – The type of EAGLE 5 ISS message being carried from the LIMs to the STPLAN card. The only valid value for this field is 1.
- Time Stamp Type (a 1-byte value) – The type of timestamp that is being used in the message. The only valid value for this field is 1, indicating that the supported timestamp type is the UNIX style timestamp (a 32-bit number containing the time elapsed since 00:00:00 hour, January 1, 1970).
- MSU Count (a 1-byte value) – How many MSUs are actually contained in the packet.
- Total Length (a 2-byte value) – The total length, in bytes, of the data plus the MSU headers embedded inside the packet. This length should not be greater than 485 bytes.
- Port ID (a 2-byte value) – The ID of the port on the LIM which copied the data to the STPLAN card. The valid range for this field is 0–511.
- Timestamp (a 4-byte value) – The actual timestamp at which the message is sent out to the host.
- MSU Length (a 2-byte value) – The length of the actual MSU in bytes. The sum of the MSU lengths of all the MSUs in the packet plus the sum of the sizes of the single MSU headers should be equal to the number contained in the Total Length field.
- MSU – The MSU that is contained in the packet.

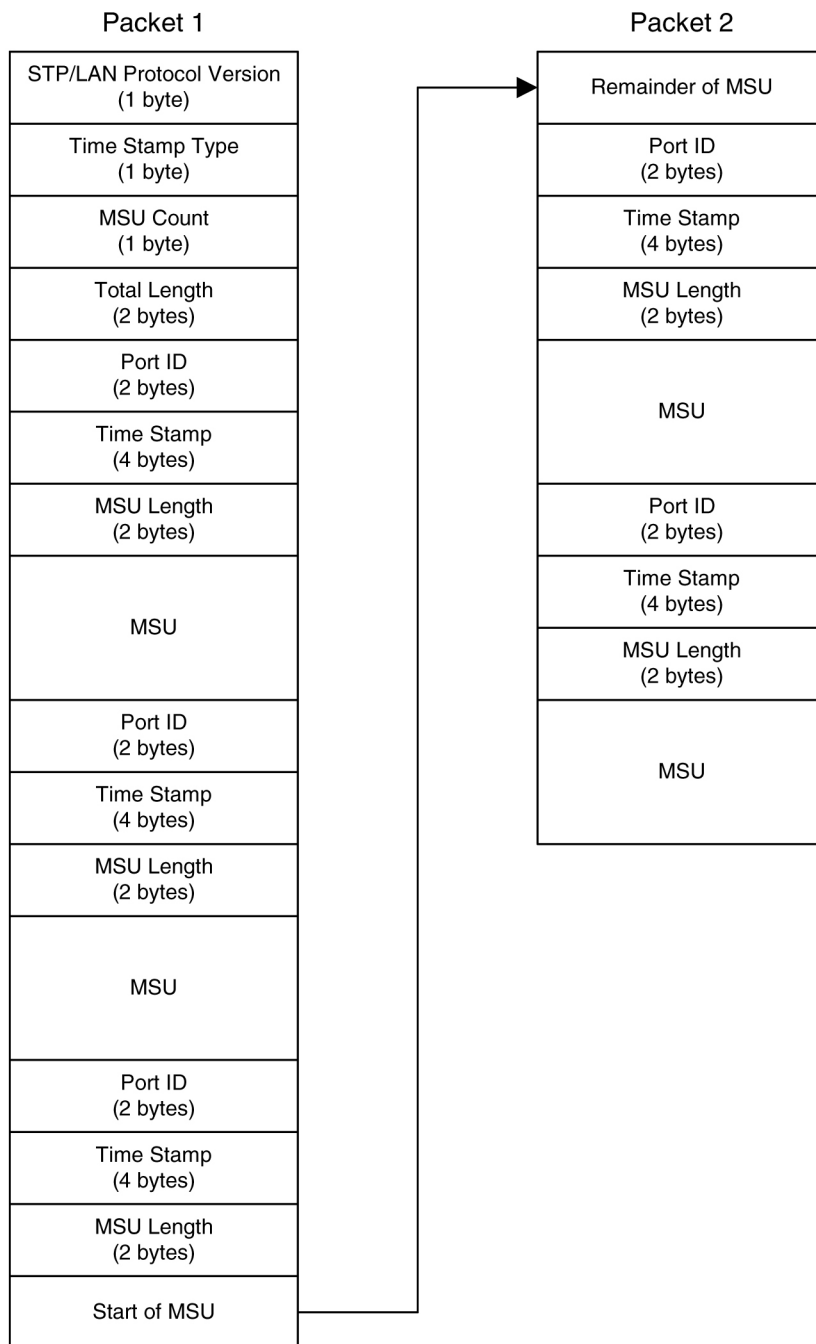
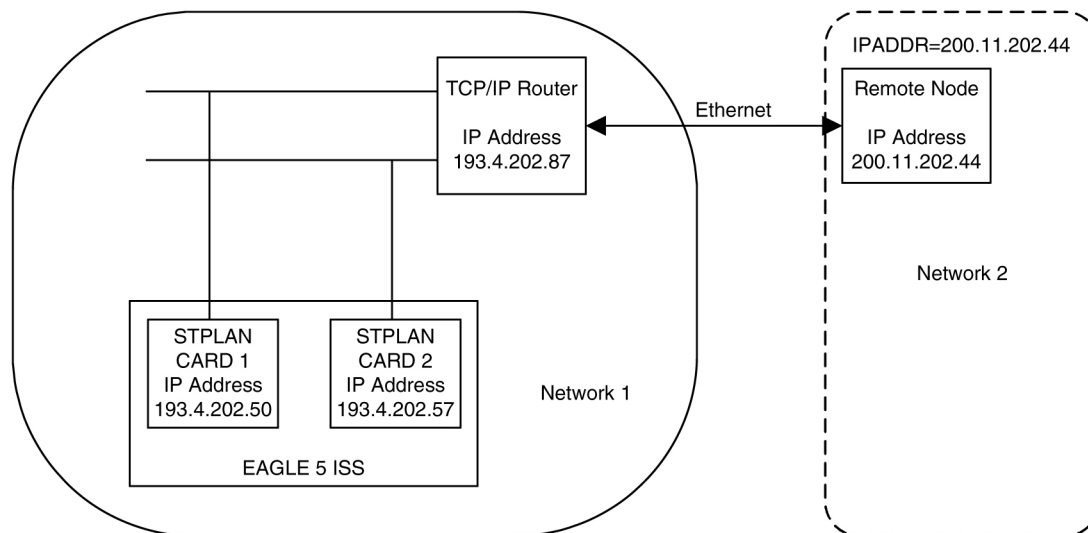


Figure 9: STPLAN Messages Embedded in TCP/IP Packets

## TCP/IP Router

A TCP/IP router is used to route STPLAN messages from the EAGLE 5 ISS to a remote host in another network or subnetwork. *Figure 10: STPLAN Network with a TCP/IP Router* shows an example of the STPLAN feature using a TCP/IP router.

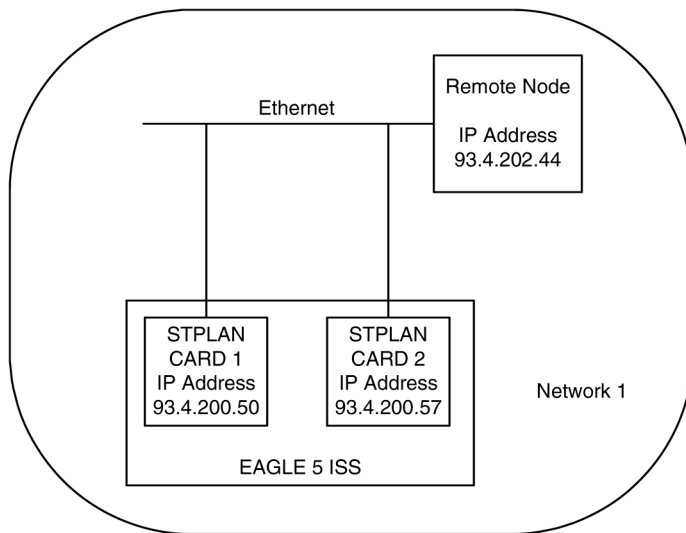


**Figure 10: STPLAN Network with a TCP/IP Router**

**Note:** The term “STPLANCard” used in *Figure 10: STPLAN Network with a TCP/IP Router* refers to either a DCM, SSED-CM-A, or E5-SLAN card running the `stplan` application.

In this example, STPLAN cards 1 and 2, with IP addresses 193.4.202.50 and 193.4.202.57, need to route their traffic to the remote host at IP address 200.11.202.44. The STPLAN cards and the remote host are in two different networks; the network ID of the STPLAN cards is 193.4.202.67 and the network ID of the remote host is 200.11.202.44. The EAGLE 5 ISS can connect only to TCP/IP nodes that are in the same network as the EAGLE 5 ISS. To permit communication between the STPLAN cards and an external network, a TCP/IP router is placed in between the EAGLE 5 ISS and the remote host. The TCP/IP router is located in the same network as the EAGLE 5 ISS, with the IP address of 193.4.202.87. The messages can now be sent to the remote host through the TCP/IP router.

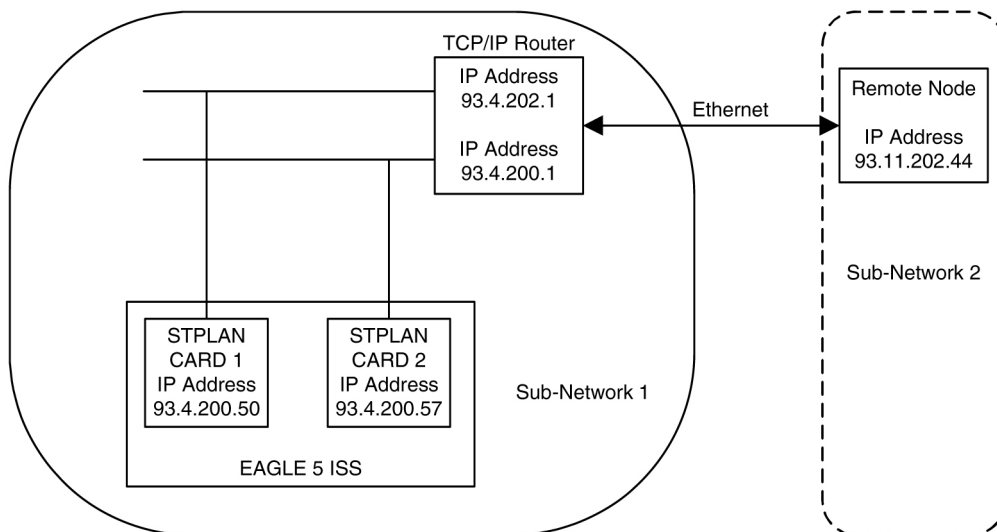
A TCP/IP default router must be entered into the database when the class and network ID of the data link’s IP address and host’s IP address do not match or when subnet routing is used. The TCP/IP router is entered into the database with the `ent-ip-node` command. The EAGLE 5 ISS cannot distinguish between a large network and the use of subnet routing, and cannot detect the omission of a TCP/IP router. In a large network, no TCP/IP routers are required because all the nodes are directly connected to a single ethernet. See *Figure 11: STPLAN in a Large Network*.



**Figure 11: STPLAN in a Large Network**

**Note:** The term “STPLAN Card” used in *Figure 11: STPLAN in a Large Network* refers to either a DCM, SSEDCCM-A, or E5-SLAN card running the `stplan` application.

If a user is using subnet routing and as a result, multiple ethernets, TCP/IP routers are required and must be configured in the EAGLE 5 ISS. See *Figure 12: STPLAN Network with Subnet Routing*.



**Figure 12: STPLAN Network with Subnet Routing**

**Note:** The term “STPLAN Card” used in *Figure 12: STPLAN Network with Subnet Routing* refers to either a DCM, SSEDCCM-A, or E5-SLAN card running the `stplan` application.

For the examples shown in *Figure 11: STPLAN in a Large Network* and *Figure 12: STPLAN Network with Subnet Routing*, the IP addresses of the TCP/IP data links and the remote node are the same. In *Figure 11: STPLAN in a Large Network*, the remote node is in the same network as the TCP/IP data links, so no TCP/IP router is needed. In *Figure 12: STPLAN Network with Subnet Routing*, the user is using subnet routing. The remote node is in one subnetwork, and the TCP/IP data links are in another subnetwork.

Even though the network portion of the IP addresses of the TCP/IP data links and the remote node are the same (93, a class A IP address), a TCP/IP router is required because the user is using subnet routing.

If, when configuring STPLAN according to the network in [Figure 12: STPLAN Network with Subnet Routing](#), the TCP/IP router is not configured with the `ent-ip-node` command, the EAGLE 5 ISS does not detect that the TCP/IP router has been omitted, and no warnings are given in this case. The EAGLE 5 ISS sees the remote node as a TCP/IP node in the same network as the TCP/IP data links, because of the class of the IP addresses, and does not require the user to specify the `iprte` parameter of the `ent-ip-node` command.

## Hardware Requirements

The hardware requirements and configuration include these items:

- The EAGLE 5 supports up to 32 DCM, SSEDPCM-A , or E5-SLAN cards.
- Multiple DCM, SSEDPCM-A, or E5-SLAN cards can connect to each host on different ports. The assignment of the LIMs is done automatically by the EAGLE 5 ISS.
- Multiple LIM cards can also be used.
- For the DCM or SSEDPCM-A card, one of two cables can be used to connect the card to the node, a straight-thru cable or a transmit/receive cross-over cable. The cable from the node terminates directly to the backplane and does not use any adapters. The cable connects to port A (the top port) on the card.
- For the E5-SLAN card, one of the two cables can be used to connect the E5-SLAN card to the node, an existing cable used by SSEDPCM-A cards or a standard CAT-5 ethernet cable. The cable used by SSEDPCM-A cards requires a backplane cable adaptor (P/N 830-1103-02) to connect to the E5-SLAN card to the node. The CAT-5 ethernet cable requires a backplane cable adaptor (P/N 830-1102-02) to connect the E5-SLAN card to the node. The cable connects to port A0 on the PMC A ethernet card within the E5-SLAN card.

Refer to *Hardware* for more information about the DCM or E5-SLAN card.

## Node Requirements

In order for a node to communicate with the DCM, SSEDPCM-A , or E5-SLAN card, you must configure the node system to perform or include these items:

- The node system must include an ethernet driver, TCP/IP protocol interface, and application software to process the incoming messages.
- The node TCP/IP protocol must be able to accept connections and supply an accurate time/date stamp over UDP port 37. (See RFC 868.)
- If multiple nodes are receiving data, the node application must be able to correlate related messages that are received on different nodes. Because of the load-balancing feature, the EAGLE 5 cannot guarantee a constant LIM-to-node path.



## Gateway Screening

Gateway screening tables can be configured to screen messages for certain attributes. The screening process results in a message being accepted or rejected into the network. The criteria for message screening depends on the type of message received by the EAGLE 5 ISS, and the contents of the gateway screening tables.

You can send a copy of the message that has passed all of the screening criteria to a node. To stop the screening process and, at the same time, send a copy of the message to the STPLAN application, the next screening function identifier (*NSFI*) of the screen where the gateway screening process stops must be set to *stop*, and a gateway screening stop action set containing the *copy* gateway screening stop action must be assigned to that screen. The linkset containing the SS7 messages copied to the STPLAN application must have a gateway screening screenset assigned to it and the *gwsa* or *gwsn* parameter must be set to *on*.



### Caution:

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

Gateway screening functions are defined using screening tables or screensets which contain a set of rules. Each screenset is uniquely identified by a screenset name. A screenset is a collection of screening references or rules, each assigned a unique screening reference name. Each screening reference belongs to a specific category, which indicates the criteria that is used to either accept or reject an incoming MSU. For example, the category “*blkopc*” rejects all MSUs with the OPCs specified in the screening reference.

The screening parameters (point codes, routing indicator, subsystem number, and so forth) are used to match information in the SS7 message.

Each group of screening references is referred to as a screen set and is identified by a particular screen set name (*SCRN*). The screen set can then be applied to a particular linkset. This allows, for example, for specific OPCs with particular SIOs and DPCs to be allowed into the network.

There are two basic functions, allow and block. In an allowed screen (for example, allowed DPC), if a match is found and the next screening function identifier (*nsfi*) is equal to anything but *stop*, the next screening reference (*nsr*) is identified and the screening process continues. If the next screening function identifier is *stop*, the message is processed and no further screening takes place. If no match is found, the message is rejected. If the next screening function identifier is *stop* and a gateway screening stop action set that contains the *copy* gateway screening stop action is assigned to the screen, the EAGLE 5 ISS sends a copy of the message to the STPLAN application.

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

**Table 12: Gateway Screening Action**

If...	then...
a match is found and the next screening function identifier is <i>fail</i> ,	the message is rejected and no further screening takes place.

If...	then...
no match is found and the next screening function identifier is equal to anything but <code>stop</code> ,	the next screening reference is identified and the screening process continues.
the next screening function identifier is equal to <code>stop</code> ,	the message is processed and no further screening takes place.
the next screening function identifier is equal to <code>stop</code> and a gateway screening stop action containing the copy gateway screening stop action is assigned to the screen	the message is processed and the EAGLE 5 ISS sends a copy of the message to the STPLAN application.

The allowed OPC and DPC screens are useful in the gateway screening process when specifying particular sets of point codes that are allowed to send or receive messages to or from another network. The blocked OPC and DPC screens are useful in the gateway screening process to specify particular sets of point codes that are not allowed to send or receive messages to or from another network.

### Congestion Management

If a message reaches the outbound “stop and copy” phase of the gateway screening process, and the LIM that is designated to transmit a copy of the message to the node is congested, the copy of the message is not transmitted to the node. The STP disables the application only on the particular LIM that is experiencing congestion.

Conversely, a message may arrive on an inbound LIM that is in danger of congestion while the outbound LIM is not in danger of congestion. As the message was not screened on the inbound LIM, it is not marked to be copied to the STPLAN card.

Go to the *Database Administration Manual - Gateway Screening* for information on configuring gateway screening entities.

## STPLAN Provisioning

The STPLAN application allows the user to selectively copy outbound messages to a remote node for further processing. The messages that are copied to the remote node are actually selected for copying on the inbound linkset by the Gateway Screening feature. The messages that pass the screening criteria set for that linkset are processed by the EAGLE 5 ISS, and are copied prior to being transmitted on the outbound link.

The external connection to the remote node consists of several E5-SLAN cards or DCM cards (STPLAN cards) equipped with Ethernet interfaces using the TCP/IP protocol to communicate to an external processing device running software that receives and processes the messages. Each STPLAN card supports a single remote destination node. Each STPLAN card may also support a single default router.

On the EAGLE 5 ISS, the LAN interface is implemented through a pool of STPLAN cards. For reliability, STPLAN cards are provisioned on an “N+1” redundancy basis so that in case of failure of one such card, performance can be maintained during the time required to replace it. Performance calculations assume that a typical LIM card carries 0.8 Erlang worth of traffic, which would be the case if cards normally carry 0.4 Erlang and a failover situation occurs.

STPLAN cards are provisioned per site based on the total number of cards in the EAGLE 5 ISS which require STPLAN service.

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

- LSL = the number of low-speed links in the system
- HSL = the number of high-speed LIMATMs links in the system
- SE-HSL = the number of high-speed SE-HSL links in the system
- ST-HSL-A = the number of high-speed ST-HSL-A links in the system
- KTPS = the number of thousands of packets per second that IPLIM/IPGWY cards will handle, e.g.: 2 for 2,000 TPS, 4 for 4,000 TPS, etc.
- The estimated average size of MSUs flowing through the system ( such as 80 octets per MSU).

Contact your Tekelec Sales Representative or Account Representative to determine the number of STPLAN cards that must be provisioned in your EAGLE 5 ISS, and to determine where in the EAGLE 5 ISS these STPLAN cards must be provisioned.

## Understanding Firewall and Router Filtering

Firewall protocol filtering for the interface between the EAGLE 5 DCM, SSED CM-A, or E5-SLAN card and the host computer is defined in [Table 13: STPLAN External Ports and Their Use](#).

**Table 13: STPLAN External Ports and Their Use**

Interface	TCP/IP Port	Use	Inbound	Outbound
10BASE-TX or 100BASE-TX	1024 to 5000 <sup>1</sup>	STPLAN Traffic	Yes	Yes
	7	UDP Echo (ping)	Yes	Yes
	37	Time/Date	Yes	Yes
	N/A	ARP (Address Resolution Protocol) <sup>2</sup>	Yes	Yes
<p>1. The TCP/IP port is the port number configured with the <code>ipport</code> parameter of the <code>ent-ip-node</code> command. The value of the <code>ipport</code> parameter is shown in the <code>IPPORT</code> field of the <code>rttrv-ip-node</code> command output. The values for this parameter are in the range 1024–5000.</p> <p>2. ARP is used to provide TCP communication. The customer network will provide this information as appropriate.</p>				

The STPLAN application requires a data pipe of 10 or 100 Mb. The actual percentage of SLAN transactions that is used (the maximum) is defined by the `cap` parameter of the `ent-ip-node` command.

There can be more than one connection from the EAGLE 5 to the node defined by the `ipaddr` (the node's IP address) parameter of the `ent-ip-node` command.

## IP Addresses

An IP address contains 32 bits grouped into four segments or octets. Each octet contains eight bits. The range of values for an octet is from 0 (all bits in the octet are 0) to 255 (all bits in the octet are 1). The four octets of an IP address are grouped into three different identifiers: the class ID, the network number and the host number. The value in the class ID determines how the rest of the bits in the IP address are categorized, mainly into the network number and the host number. The value of the class ID are in the first octet. If the first bit in the first octet is 0, the IP address is a class A IP address. If the first two bits in the first octet are 1 and 0, the IP address is a class B IP address. If the first three bits in the first octet are 1, 1, and 0, the IP address is a class C IP address. There are class D and E IP addresses, but these classes of IP addresses are not supported by the EAGLE 5. The loopback IP addresses (127.\*.\*) are supported by DCM, SSED-CM-A, and E5-SLAN cards.

The network number of the IP address is the part of an IP address that identify the network that the host belongs to. The octets that make up the network number depend on the class of the IP address. For class A IP addresses, the network number is the bits in the first octet minus the class ID bits (the first bit of the first octet). For class B IP addresses, the network number is the bits in the first octet minus the class ID bits (the first two bits of the first octet) plus the bits in the second octet. For class C IP addresses, the network number is the bits in the first octet minus the class ID bits (the first three bits in the first octet) plus the bits in the second and third octets.

The host number of an IP address is the part of an IP address that identify a specific host on a network. The host number contains all the bits that do not belong to the class ID or the network number. For class A IP addresses, the host number contains all the bits in the second, third and fourth octets. For class B IP addresses, the host number contains all the bits in the third and fourth octets. For class C IP addresses, the host number contains all the bits in the fourth octet.

*Table 14: Values of IP Addresses* summarizes the IP address values for the classes of IP addresses. *Figure 13: IP Address Bit Categorization* illustrates the different parts of the IP addresses in each class of IP addresses.

**Table 14: Values of IP Addresses**

IP Address Class	IP Address Format	Class ID Bits	Range of IP Address Values
A	N.H.H.H	0	1.0.0.1 to 126.255.255.254
B	N.N.H.H	1, 0	128.1.0.1 to 191.254.255.254
C	N.N.N.H	1, 1, 0	192.0.1.1 to 223.255.254.254
N = Network Number, H = Host Number			

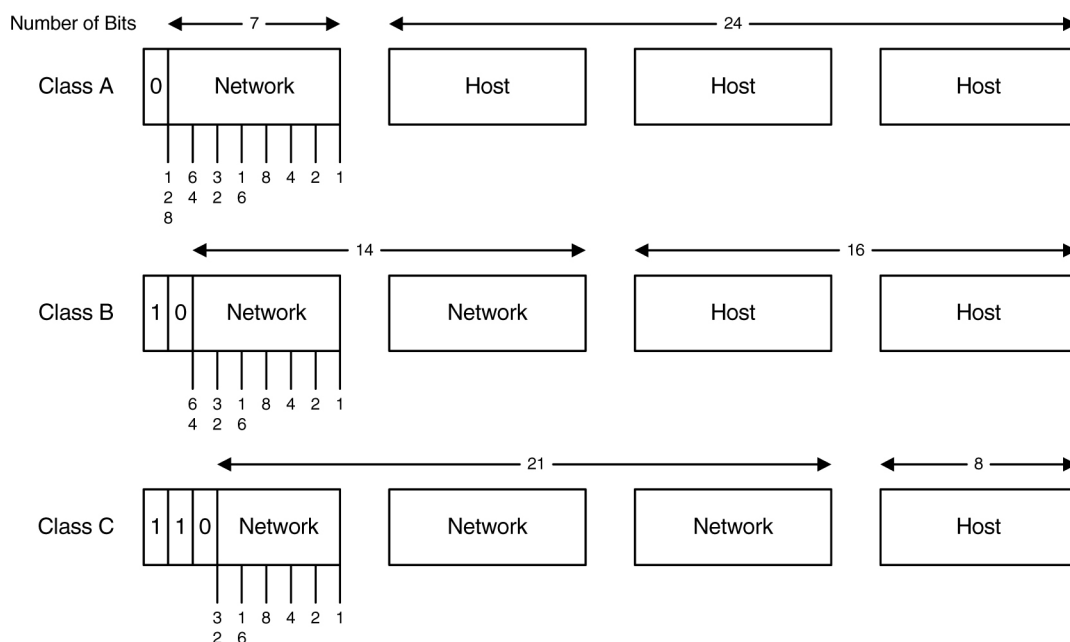


Figure 13: IP Address Bit Categorization

The EAGLE 5 does not allow IP addresses to be entered that contain an invalid class ID, network number or host number. Valid class ID values are shown in [Table 14: Values of IP Addresses](#). Valid network numbers and host numbers cannot contain all 0 bits or all 1 bits. For example, the class A IP address 10.0.0.0 is invalid because it contains a host number of '0.0.0'. A class B IP address of 128.0.10.5 is also invalid because the network number is '0.0' (remember the network number for a class B address is the bits in the first octet minus the class ID bits). The class C IP address of 192.0.1.255 is also invalid because it contains a host number of '255' (all ones). One of the error codes shown in [Table 15: Invalid IP Address Error Codes](#) will be generated when an invalid IP address is entered.

Table 15: Invalid IP Address Error Codes

Error Code	Error Message
E2028	Octet 1 is out of range, 1..223
E2071	Network Number Invalid
E2072	Host Number Invalid
E2070	IP Address invalid for Address Class

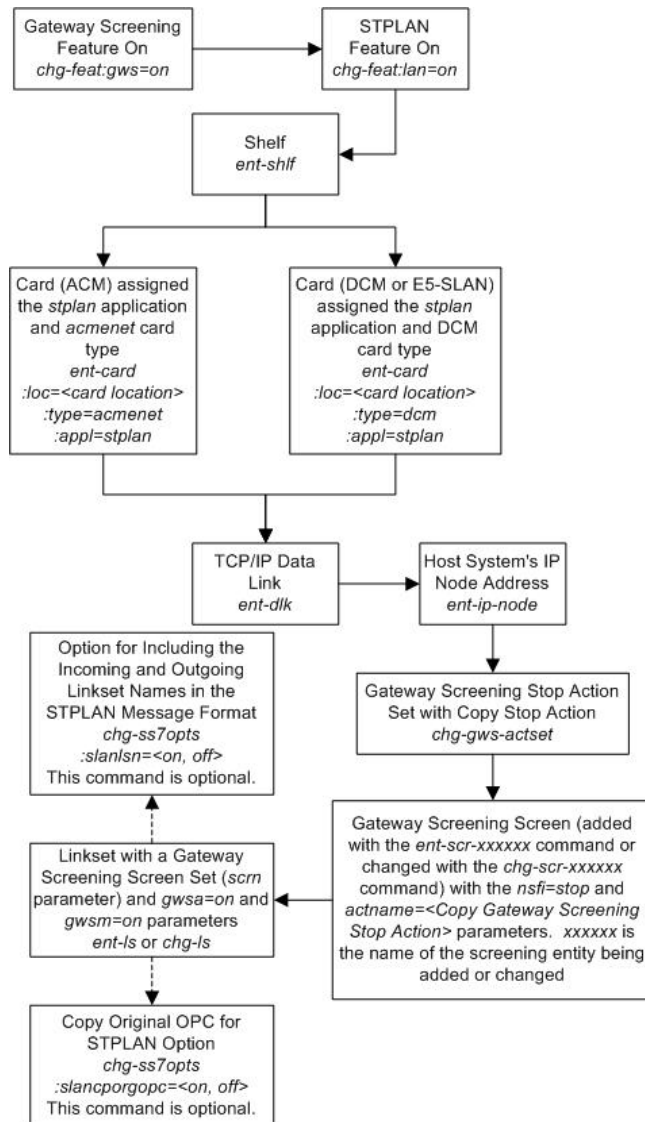
## Network Configuration Procedures

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

- E5-SLAN card

- TCP/IP Data Link
- IP Node

When the EAGLE is booted, each module gets the configuration information from the database. [Figure 14: STPLAN Database Relationships](#) shows the database elements that must be configured, and the order in which they should be configured.



**Figure 14: STPLAN Database Relationships**

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

This list describes the database entities (shown in [Figure 14: STPLAN Database Relationships](#)) that must be configured for the STPLAN feature.

1. The STPLAN and gateway screening features must be turned on. Verify that these features are turned on with the `rtvr-feat` command. If either of these the features are not on, shown with the entries `GWS = off` (if the gateway screening feature is off), and `LAN = off` (if the STPLAN

feature is off), in the `rtrv-feat` command output, enter the `chg-feat:gws=on` command to turn on the gateway screening feature, and the `chg-feat:lan=on` command to turn on the STPLAN feature.

**Note:** Once the gateway screening and STPLAN features are turned on with the `chg-feat` command, they cannot be turned off.

2. Make sure that the required shelf is in the database with the `rtrv-shlf` command. If it is not in the database, add it with the `ent-shlf` command.
3. Make sure the cards that the TCP/IP data links will be assigned to are in the database with the `rtrv-card` command. These cards can be E5-SLAN cards (card type `dcm`). The E5-SLAN card must have the `stplan` application assigned to it. If these cards are not in the database, add them with the `ent-card` command, an E5-SLAN card with the `type=dcm` and `appl=stplan` parameters.
4. The TCP/IP data links needed by the STPLAN feature must be in the database. Verify this by entering the `rtrv-dlk` command. If the necessary TCP/IP data links are not in the database, add them with the `ent-dlk` command. Make sure that the card location specified in the `ent-dlk` command is an E5-SLAN card shown in step 3. You must also select the speed of 10 (default) or 100.
5. The TCP/IP nodes used by the STPLAN feature must be in the database. Verify this by entering the `rtrv-ip-node` command. If the necessary TCP/IP nodes are not in the database, add them with the `ent-ip-node` command with a card location assigned to a TCP/IP data link shown in step 4.
6. The GLS card must be provisioned and installed to be able to load card's screen-set
7. The STPLAN feature uses gateway screening to select the messages that are copied and sent to the STPLAN application on an E5-SLAN card. A gateway screening stop action set containing the `COPY` gateway screening stop action must be assigned to the gateway screening entity where the gateway screening process stops (the NSFI of the screen is `STOP`). Enter the `rtrv-gws-actset` command to display the gateway screening stop action sets in the database. The database contains at least two gateway screening stop actions sets that contain the `COPY` gateway screening stop action as shown in bold in the example output. These gateway screening stop actions are always in the database and cannot be changed or removed.

```
rlghncxa03w 06-10-20 21:16:37 GMT EAGLE5 36.0.0
ACT  ACT    ACT  ACT  ACT  ACT  ACT  ACT  ACT  ACT  ACT  ACT
ID   NAME    1    2    3    4    5    6    7    8    9    10
--   -
1    copy    copy
2    rdct    rdct
3    cr      copy rdct
GWS action set table is (3 of 16) 19% full
```

8. Verify that the necessary gateway screening entities have been configured with the required gateway screening stop action set, by entering the appropriate gateway screening retrieve command specifying the `actname` parameter with the gateway screening stop action name shown in the `rtrv-gws-actset` command output.

```
rtrv-scrset:actname=copy
rtrv-scr-opc:actname=copy
rtrv-scr-blkopc:actname=copy
rtrv-scr-sio:actname=copy
rtrv-scr-dpc:actname=copy
```

```

rtrv-scr-blkdpcc:actname=copy
rtrv-scr-destfld:actname=copy
rtrv-scr-cgpa:actname=copy
rtrv-scr-tt:actname=copy
rtrv-scr-cdpa:actname=copy
rtrv-scr-aftpc:actname=copy
rtrv-scr-isup:actname=copy

```

If a gateway screening entity is configured to copy messages to an STPLAN application, the entry STOP appears in the NSFI field and the NSR/ACT field contains the name of the gateway screening stop action set specified in the gateway screening retrieve command (see the following example).

```

rlghncxa03w 06-10-20 21:17:37 GMT EAGLE5 36.0.0
SCREEN = ALLOWED OPC
SR  NI      NC      NCM      NSFI      NSR/ACT
opc1 010      010      010      STOP      COPY
opc1 010      010      012      STOP      COPY

```

If the desired gateway screening entity is not configured to copy messages to the STPLAN application, configure these entities to copy messages to the STPLAN application. Go to the *Database Administration - GWSUser's Guide* for information on configuring gateway screening entities.

- The linkset containing the messages copied for the STPLAN application must have a gateway screening assigned to it. Either the `gwsa` or `gwsn` parameters of the linkset must be set to `on`. Verify this with the `rtrv-ls` command. If the desired linkset does not have a gateway screening assigned to it, shown in the `SCRN` field of the `rtrv-ls` output, or the `GWSA` or `GWSM` field is set to `off`, refer to the Changing an SS7 Linkset procedure in the *Database Administration - SS7 User's Guide* and change the `scrn`, `gwsa`, and `gwsn` parameters of the desired linkset.



**CAUTION**

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

- The copy original OPC for STPLAN option can be configured for the STPLAN feature. Enter the `rtrv-ss7opts` command to verify the status of this option. This option is configured by performing the procedure [Configuring the Copy Original OPC for STPLAN Option](#). Configuring this option is not required for the STPLAN feature.
- The option for including the incoming and outgoing linkset names in the STPLAN message format can be configured for the STPLAN feature. Enter the `rtrv-ss7opts` command to verify the status of this option. This option is configured by performing the procedure [Configuring the Option for Including the Incoming and Outgoing Linkset Names in the STPLAN Message Format](#). Configuring this option is not required for the STPLAN feature.

The STPLAN configuration procedures in this chapter use the sample network information shown in [Table 16: STPLAN Configuration Example Database](#). [Figure 15: STPLAN Configuration Example](#) shows a diagram of this sample network.



Table 16: STPLAN Configuration Example Database

Card Location	Interface Address	TCP/IP Router Address	STPLAN Node Address	STPLAN Port ID
1103	193.4.201.34	—	193.4.201.70	1024
1104	193.4.201.35	—	193.4.201.71	1024
1201	193.4.201.30	—	193.4.201.50	1024
1203	193.4.201.31	—	193.4.201.51	1024
1204	193.4.202.39	193.4.202.30	200.50.100.47	2000
1205	193.4.202.32	—	193.4.201.50	3000
1206	197.4.217.39	197.4.217.47	203.14.212.30	4000
1207	194.5.198.74	—	194.5.198.34	4000

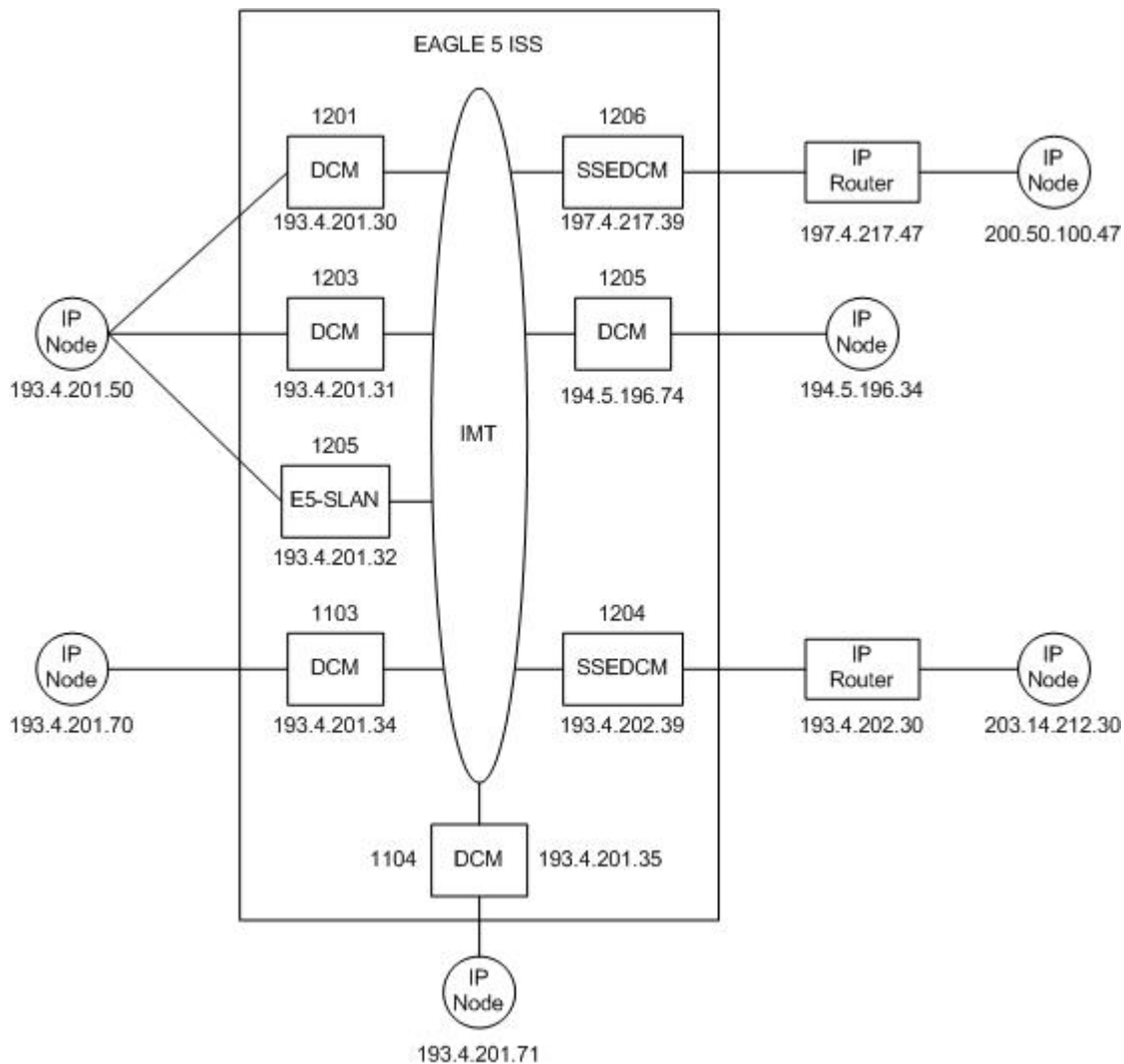


Figure 15: STPLAN Configuration Example

## Adding an STPLAN Card

This procedure is used to add a card supporting the STPLAN feature, an E5-SLAN card running the `stplan` to the database using the `ent-card` command. The `ent-card` command uses these parameters:

- `:loc` – The location of the card being added to the database.
- `:type` – The type of card being added to the database. For this procedure, the value of this parameter is `dcm`.
- `:app1` – The application software that is assigned to the card. For this procedure, the value of this parameter is `stplan`.

The STPLAN card part numbers are shown in [Table 17: STPLAN Card Part Numbers](#).

Table 17: STPLAN Card Part Numbers

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

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

Before the card can be configured in the database for the STPLAN feature, the STPLAN and Gateway Screening features must be turned on with the `chg-feat` command. The Gateway Screening feature must be on before the STPLAN feature can be turned on. The `rtrv-feat` command can verify that the STPLAN and Gateway Screening features are on.

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

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

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

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

### STPLAN Card Provisioning

Follow these rules to provision STPLAN cards:

- A minimum of two STPLAN cards must be provisioned in an EAGLE.
- A maximum of 32 STPLAN cards can be provisioned in an EAGLE.
- For shelves containing HIPR2 cards, the STPLAN cards should be provisioned in the same shelves that contain HIPR2 cards. The shelf can contain more than three STPLAN cards.
- The E5-SLAN card requires that HIPR2 cards are installed in the card locations 9 and 10 in the shelf that will contain the E5-SLAN card. If HIPR2 cards are not installed in the shelf that the E5-SLAN card will occupy, the E5-SLAN card will be auto-inhibited when the E5-SLAN card is inserted into the shelf. Enter the `rept-stat-gp1:gp1=hipr2` command to verify whether or not HIPR2 cards are installed in the same shelf as the E5-SLAN card being provisioned in this procedure. The shelf can contain more than three E5-SLAN cards.
- If the E5-SLAN card is an E5-ENET-B card, the FAN feature must be turned on and fans must be installed on the shelf that contains the E5-ENET-B card. Enter the `rtrv-feat` command to verify whether or not the FAN feature is turned on. Perform the procedures in *Installation Guide* to install fans on the shelf that contains the E5-ENET-B card if fans must be installed. The MFC (message flow control) option must be on. Enter the `rtrv-stpopts` command to verify whether or not the MFC option is on. Perform the [Configuring the MFC Option](#) procedure to turn on the MFC option, if required.

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

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

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

```
rlghncxa03w 09-14-25 09:58:31 GMT EAGLE5 46.0.0
CARD   TYPE      APPL      LSET NAME      LINK SLC LSET NAME      LINK SLC
1102   TSM        GLS
1103   E5-ENET   STPLAN
1104   E5-ENET   STPLAN
1113   E5-MCAP   OAMHC
1114   E5-TDM-A
1115   E5-MCAP   OAMHC
1116   E5-TDM-B
1117   E5-MDAL
1203   E5-ENET   STPLAN
1205   E5-ENET   STPLAN
1206   E5-ENET   STPLAN
1211   LIMDS0    SS7ANSI   lsn1           A      0      lsn2           B      1
1216   LIMDS0    SS7ANSI   sp2            A      0      sp1            B      0
1303   LIMDS0    SS7ANSI   sp3            A      0
1304   LIMDS0    SS7ANSI   sp3            A      1
1306   LIMDS0    SS7ANSI   nsp3           A      1      nsp4           B      1
```

If the APPL field of the `rtrv-card` command output shows cards assigned to the STPLAN application, continue the procedure with [Step 5](#).

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

If the STPLAN feature is on, the LAN field should be set to on. If the Gateway Screening feature is on, the GWS field should be set to on. For this example, the STPLAN and Gateway Screening features are off.

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

If the gateway screening and STPLAN features are on, continue the procedure with [Step 5](#). If the Gateway Screening feature is not on, continue the procedure with [Step 3](#). If the Gateway Screening feature is on, but the STPLAN feature is off, continue the procedure with [Step 4](#).

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

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

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

4. Turn the STPLAN feature on by entering this command.

```
chg-feat:lan=on
```

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

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

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



**CAUTION**

**Caution:** If the versions of the flash GPLs on the STPLAN card does not match the flash GPL versions in the database when the STPLAN is inserted into the card slot, UAM 0002 is generated indicating that these GPL versions do not match. If UAM 0002 has been generated, perform the alarm clearing procedure for UAM 0002 in *Unsolicited Alarm and Information Messages Reference* before proceeding with this procedure.

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

```
rept-stat-gpl:gpl=hipr2
```

This is an example of the possible output.

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

If HIPR or HIPR2 cards are not installed at the card locations 9 and 10 on the shelf where the E5-SLAN card is to be installed, refer to *Installation Guide* to install the HIPR or HIPR2 cards.

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

- If the card that is being added is an E5-ENET card, continue the procedure with [Step 11](#).
- If the card that is being added is an E5-ENET-B card, continue the procedure with [Step 7](#).

- Enter the `rtrv-stpopts` command to verify whether or not the MFC option is on.

This is an example of the possible output.

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

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

If the MFC option is off, perform the [Configuring the MFC Option](#) procedure to turn on the MFC option.

If the MFC option is on or the [Configuring the MFC Option](#) procedure was performed in this step, continue the procedure with [Step 8](#).

8. The Fan feature must be turned on. If the `rtrv-feat` command in [Step 2](#) was not performed, enter the `rtrv-feat` command to verify that the Fan feature is on.

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

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

If the Fan feature is on, continue the procedure with [Step 10](#).

If the Fan feature is off, continue the procedure with [Step 9](#).

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

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

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

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

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

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

If the fans are installed, continue the procedure with [Step 11](#).

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

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

For this example, enter this command:

```
ent-card:loc=1201:type=dcm:appl=stplan
```

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

For this example, enter these commands.

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

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

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

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

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

## Removing an STPLAN Card

This procedure is used to remove a card supporting the STPLAN feature, either an E5-ENET or E5-ENET-B, or E5-SLAN card running the `stplan` application, from the database using the `dlt-card` command.

The card cannot be removed if it does not exist in the database.

No TCP/IP data links can be assigned to the card you wish to remove from the database.



### CAUTION

**Caution:** If the card being removed from the database is the last in-service card supporting the STPLAN feature (either E5-ENET or E5-ENET-B or E5-SLAN card), removing this card from the database will disable the STPLAN feature.

The examples in this procedure are used to remove the E5-ENET-B card in card location 1201 from the database.

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

This is an example of the possible output.

```
rlghncxa03w 09-14-25 09:58:31 GMT EAGLE5 46.0.0
CARD  TYPE      APPL      LSET NAME      LINK SLC LSET NAME      LINK SLC
1101  E5-SM4G      SCCPHC
1102  TSM          GLS
1103  E5-ENET-B    STPLAN
1104  E5-ENET-B    STPLAN
1113  E5-MCAP      OAMHC
1114  E5-TDM-A
1115  E5-MCAP      OAMHC
1116  E5-TDM-B
1117  E5-MDAL
1201  E5-ENET-B    STPLAN
1203  E5-ENET-B    STPLAN
1204  E5-ENET-B    STPLAN
1205  E5-ENET-B    STPLAN
1206  E5-ENET-B    STPLAN
1207  E5-ENET-B    STPLAN
1211  LIMDS0       SS7ANSI      lsn1          A      0      lsn2          B      1
1216  LIMDS0       SS7ANSI      sp2           A      0      sp1           B      0
1303  LIMDS0       SS7ANSI      sp3           A      0
1304  LIMDS0       SS7ANSI      sp3           A      1
1306  LIMDS0       SS7ANSI      nsp3         A      1      nsp4          B      1
```

If no STPLAN cards are shown in the `rtrv-card` output, this procedure cannot be performed. STPLAN cards are shown by the entry STPLAN in the APPL field.

2. Display the status of the TCP/IP data link assigned to the card you wish to remove by entering the `rept-stat-dlk` command with the card location of the STPLAN card being removed. For this example, enter this command.

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

This is an example of the possible output.

```
rlghncxa03w 10-07-20 21:20:37 GMT EAGLE5 42.0.0
DLK          PST          SST          AST
1201         IS-NR        Active       ----
  Alarm Status = No Alarms.
Command Completed.
```

3. If the TCP/IP data link is not in an OOS-MT-DSBLD state, deactivate the TCP/IP data link assigned to the card using the `canc-dlk` command with the card location specified in [Step 2](#).

For this example, enter this command.

```
canc-dlk:loc=1201
```

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

```
rlghncxa03w 06-10-20 21:18:37 GMT EAGLE5 36.0.0
Deactivate Link message sent to card.
```

4. Verify that the state of the TCP/IP data link is OOS-MT-DSBLD by entering the `rept-stat-dlk` command with the card location specified in [Step 3](#). For this example, enter this command.

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

This is an example of the possible output.

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

5. Inhibit the card using the `rmv-card` command, specifying the card location specified in [Step 3](#). For this example, enter this command.

```
rmv-card:loc=1201
```

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

```
rlghncxa03w 06-10-20 21:19:37 GMT EAGLE5 36.0.0
Card has been inhibited.
```

6. Display the TCP/IP nodes in the database by entering the `rtrv-ip-node` command with the card location specified in [Step 5](#). For this example, enter this command.

```
rtrv-ip-node=loc=1201
```



This is an example of the possible output.

```
rlghncxa03w 06-10-20 21:20:37 GMT EAGLE5 36.0.0
IPADDR      IPPORT  IPAPPL  LOC    CAP    IPRTE
193.4.201.50  1024   stplan  1201  10%   --
```

- Remove the TCP/IP node assigned to the card location containing the TCP/IP data link to be removed from the database using the `dlt-ip-node` command with the card location specified in [Step 6](#).

For this example, enter this command.

```
dlt-ip-node:ipaddr=193.4.201.50:loc=1201
```

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

```
rlghncxa03w 06-10-20 21:21:37 GMT EAGLE5 36.0.0
DLT-IP-NODE: MASP A - COMPLTD
```

- Remove the data link from the specified card by using the `dlt-dlk` command with the card location specified in [Step 7](#).

For this example, enter this command.

```
dlt-dlk:loc=1201
```

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

```
rlghncxa03w 06-10-20 21:22:37 GMT EAGLE5 36.0.0
DLT-DLK: MASP A - COMPLTD
```

- Remove the card using the `dlt-card` command with the card location of the card to be removed.

The `dlt-card` command has only one parameter, `loc`, which is the location of the card. For this example, enter this command.

```
dlt-card:loc=1201
```

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

```
rlghncxa03w 06-10-20 21:23:37 GMT EAGLE5 36.0.0
DLT-CARD: MASP A - COMPLTD
```

- Verify the changes using the `rtrv-card` command specifying the card that was removed in [Step 9](#).

For this example, enter this command.

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

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

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

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

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

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

## Adding a TCP/IP Data Link

This procedure is used to add a TCP/IP data link to the database using the `ent-dlk` command.

The `ent-dlk` command uses these parameters:

`:loc` – The card location of the DCM, SSED-CM-A, or E5-SLAN card that the TCP/IP data link will be assigned to.

`:ipaddr` – The TCP/IP data link's IP address

`:duplex` – The mode of operation of the interface. The value for this parameter is `half` or `full`. The default value is `half`. The value `half` indicates that the mode of operation of the interface is half duplex. The value `full` indicates that the mode of operation of the interface is full duplex.

`:speed` – The transmission rate of the TCP/IP data link, either 10 Mb/s (`speed=10`) or 100 Mb/s (`speed=100`). The default value for this optional parameter is 10. The `speed=100` parameter can be specified only if the application running on the STPLAN card is STPLAN. The application running on the card is shown in the `APPL` field of the `rtrv-card` command output.

`:auto` – This parameter specifies whether the hardware automatically determines duplex and speed. The value for this parameter is `yes` or `no`. The value `yes` indicates that the parameters `duplex` and `speed` are automatically determined. Dashes are displayed in the `LINK SPEED` and `DUPLEX` columns in the `rtrv-dlk` output if the `auto` parameter value is `yes`. The value `no` indicates that the parameters `duplex` and `speed` are not determined automatically.

The default value for the `auto` parameter is `yes`, if the `speed` and `duplex` parameters are not specified.

The `speed` and `duplex` parameters can be specified with the `auto` parameter only if the `auto` parameter value is `no`.

If the `speed` and `duplex` parameters are specified and the `auto` parameter is not specified, the default value for the `auto` parameter is `no`.

If either the `duplex` or `speed` parameters are specified, then both the `duplex` and `speed` parameters must be specified.

The examples used in this procedure are based on the example network shown in [Figure 15: STPLAN Configuration Example](#) and [Table 16: STPLAN Configuration Example Database](#).

The STPLAN and Gateway Screening features must be turned on. Verify this by entering the `rtrv-feat` command. If either the STPLAN feature or Gateway Screening feature is off, they can be turned on by entering the `chg-feat:lan=on` command for the STPLAN feature and the `chg-feat:gws=on` command for the Gateway Screening feature.

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

The card that the TCP/IP data link is assigned to must be a DCM, SSED-CM-A, or E5-SLAN card running the `stplan` application. This can be verified in step 2 with the `rtrv-card` command. The DCM SSED-CM-A, or E5-SLAN card is shown by the entries DCM in the `TYPE` field and `STPLAN` in the `APPL` field of the `rtrv-card` command output. If the STPLAN card is not shown in the `rtrv-card` command output, go to [Adding an STPLAN Card](#) and add the required card to the database.

The specified card cannot have a TCP/IP data link assigned to it, nor can the TCP/IP data link be in the database. This can be verified in step 1.

The IP address to be assigned to the TCP/IP data link cannot be assigned to a TCP/IP node or to a TCP/IP router. Enter the `rtrv-ip-node` command to display the IP addresses of the TCP/IP nodes and the TCP/IP routers. This can be verified in step 2.

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

1. Display the data links in the database by entering the `rtrv-dlk` command.

This is an example of the possible output.

```
rlghncxa03w 07-02-20 21:16:37 GMT EAGLE5 37.0.0
LOC      IPADDR          LINK SPEED  DUPLEX  AUTO
1103    193.4.201.70    10Mbit    HALF    NO
1104    193.4.201.71    10Mbit    HALF    NO
```

2. Display the TCP/IP nodes and TCP/IP routers by entering the `rtrv-ip-node` command.

This is an example of the possible output.

```
rlghncxa03w 06-10-20 21:16:37 GMT EAGLE5 36.0.0
IPADDR      IPPORT  IPAPPL  LOC   CAP  IPRTE
193.4.201.70  1024    stplan  1103  10%  --
193.4.201.71  1024    stplan  1104  10%  --
```

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

This is an example of the possible output.

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

1211	LIMDS0	SS7ANSI	lsn1	A	0	lsn2	B	1
1216	LIMDS0	SS7ANSI	sp2	A	0	sp1	B	0
1303	LIMDS0	SS7ANSI	sp3	A	0			
1304	LIMDS0	SS7ANSI	sp3	A	1			
1306	LIMDS0	SS7ANSI	nsp3	A	1	nsp4	B	1

The STPLAN card that will be specified in step 4 must be shown in the `rtrv-card` output in this step, but cannot be shown in the `loc` column of the `rtrv-dlk` output in step 1.

If the required STPLAN card is not shown in the `rtrv-card` output, perform [Adding an STPLAN Card](#) and add the STPLAN card to the database.

If the STPLAN card is shown in the `rtrv-dlk` output, either select an STPLAN card that is shown in the `rtrv-card` output, but not shown in the `rtrv-dlk` output, or perform [Adding an STPLAN Card](#) and add the STPLAN card to the database.

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

4. Add the data link to the database by entering the `ent-dlk` command.

For this example, enter these commands.

```
ent-dlk:loc=1201:ipaddr=193.4.201.50:speed=100:auto=no
```

```
ent-dlk:loc=1203:ipaddr=193.4.201.51
```

```
ent-dlk:loc=1204:ipaddr=200.50.100.47
```

```
ent-dlk:loc=1205:ipaddr=193.4.201.50
```

```
ent-dlk:loc=1206:ipaddr=203.14.212.30
```

```
ent-dlk:loc=1207:ipaddr=203.14.212.39
```

The `ent-dlk` command assigns the IP address (`ipaddr`) to the STPLAN card. If the network is a private network (not on the Internet), you can assign any unique address. If the STPLAN card is on the Internet, you must obtain an IP address from the Internet Network Information Center (NIC). Refer to [IP Addresses](#) for information on the IP address values used in the `ent-dlk` command.

The default value for the `auto` parameter is `yes`, if the `speed` and `duplex` parameters are not specified.

The `speed` and `duplex` parameters can be specified with the `auto` parameter only if the `auto` parameter value is `no`.

If the `speed` and `duplex` parameters are specified and the `auto` parameter is not specified, the default value for the `auto` parameter is `no`.

If either the `duplex` or `speed` parameters are specified, then both the `duplex` and `speed` parameters must be specified.

5. Verify the changes using the `rtrv-dlk` command with the card location specified in step 4.

For this example, enter these commands.

```
rtrv-dlk:loc=1201
```

This is an example of the possible output.

```
rlghncxa03w 07-02-20 21:16:37 GMT EAGLE5 37.0.0
```

```
LOC      IPADDR      LINK SPEED  DUPLEX  AUTO
1201    193.4.201.50  100Mbit    HALF    NO
```

```
rtrv-dlk:loc=1203
```

This is an example of the possible output.

```
rlghncxa03w 07-02-20 21:16:37 GMT EAGLE5 37.0.0
LOC      IPADDR      LINK SPEED  DUPLEX  AUTO
1203    193.4.201.51  -----    ----    YES
```

```
rtrv-dlk:loc=1204
```

This is an example of the possible output.

```
rlghncxa03w 07-02-20 21:16:37 GMT EAGLE5 37.0.0
LOC      IPADDR      LINK SPEED  DUPLEX  AUTO
1204    200.50.100.47  10Mbit     HALF    NO
```

```
rtrv-dlk:loc=1205
```

This is an example of the possible output.

```
rlghncxa03w 07-02-20 21:16:37 GMT EAGLE5 37.0.0
LOC      IPADDR      LINK SPEED  DUPLEX  AUTO
1205    193.4.201.50  -----    ----    YES
```

```
rtrv-dlk:loc=1206
```

This is an example of the possible output.

```
rlghncxa03w 07-02-20 21:16:37 GMT EAGLE5 37.0.0
LOC      IPADDR      LINK SPEED  DUPLEX  AUTO
1206    203.14.212.30  -----    ----    YES
```

```
rtrv-dlk:loc=1207
```

This is an example of the possible output.

```
rlghncxa03w 07-02-20 21:16:37 GMT EAGLE5 37.0.0
LOC      IPADDR      LINK SPEED  DUPLEX  AUTO
1207    202.14.212.39  -----    ----    YES
```

- Place the cards into service by entering the `rst-card` command with the card location specified in step 4.

For this example, enter these commands.

```
rst-card:loc=1201
```

```
rst-card:loc=1203
```

```
rst-card:loc=1204
```

```
rst-card:loc=1205
rst-card:loc=1206
rst-card:loc=1207
```

This message should appear when each command has successfully completed.

```
rlghncxa03w 06-10-20 21:21:37 GMT EAGLE5 36.0.0
Card has been allowed.
```

- Place the data links into service by entering the `act-dlk` command with the card location specified in step 4.

For this example, enter these commands.

```
act-dlk:loc=1201
act-dlk:loc=1203
act-dlk:loc=1204
act-dlk:loc=1205
act-dlk:loc=1206
act-dlk:loc=1207
```

This message should appear when each command has successfully completed.

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

- 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.
```

## Removing a TCP/IP Data Link

This procedure is used to remove a TCP/IP data link from the database using the `dlt-dlk` command.

The examples used in this procedure are used to remove the TCP/IP data link on card 1204 from the database.

The card that the TCP/IP data link is assigned to must be a DCM, SSED-CM-A, or E5-SLAN card running the `stplan` application. This can be verified with the `rtrv-card` command. The DCM, SSED-CM-A, or E5-SLAN card is shown by the entries DCM in the `TYPE` field and `STPLAN` in the `APPL` field of the `rtrv-card` command output.

The specified card must have a TCP/IP data link assigned to it and the TCP/IP data link must be in the database. This can be verified in step 1.

1. Display the data links in the database by entering the `rtrv-dlk` command.

```
rlghncxa03w 07-02-20 21:16:37 GMT EAGLE5 37.0.0
LOC  IPADDR          LINK SPEED  DUPLEX  AUTO
1103 193.4.201.70      10Mbit    HALF    NO
1104 193.4.201.71      10Mbit    HALF    NO
1201 193.4.201.50      100Mbit   HALF    NO
1203 193.4.201.51      -----   ----    YES
1204 200.50.100.47     10Mbit    HALF    NO
1205 193.4.201.50      -----   ----    YES
1206 203.14.212.30     -----   ----    YES
1207 202.14.212.39     -----   ----    YES
```

2. Place the TCP/IP data link to be removed out of service using the `canc-dlk` command, using the output from step 1 to obtain the card location of the TCP/IP data link to be removed.

For this example, the TCP/IP data link to be removed is assigned to card 1204. Enter this command.

```
canc-dlk:loc=1204
```

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

```
rlghncxa03w 06-10-20 21:17:37 GMT EAGLE5 36.0.0
Deactivate Link message sent to card.
```

3. Verify that the TCP/IP data link is out of service - maintenance disabled (OOS-MT-DSBLD) using the `rept-stat-dlk` command.

For this example, enter this command.

```
rept-stat-dlk:loc=1204
```

```
rlghncxa03w 06-10-20 21:18:37 GMT EAGLE5 36.0.0
DLK  PST          SST          AST
1204 OOS-MT-DSBLD Unavail     ---
ALARM STATUS =
Command Completed.
```

4. Place the card specified in step 3 out of service by using the `rmv-card` command.

For this example, enter this command.

```
rmv-card:loc=1204
```

This message should appear.

```
rlghncxa03w 06-10-20 21:19:37 GMT EAGLE5 36.0.0
Card has been inhibited.
```

5. Display the TCP/IP nodes in the database by entering the `rtrv-ip-node` command with the card location specified in step 4. For this example enter this command

```
rtrv-ip-node:loc=1204
```

```
rlghncxa03w 07-02-20 21:20:37 GMT EAGLE5 37.0.0
IPADDR      IPPORT  IPAPPL  LOC    CAP    IPRTE
200.50.100.47  1024   stplan  1204  10%   --
```

- Remove the TCP/IP node assigned to the card location containing the TCP/IP data link to be removed from the database using the `dlt-ip-node` command with the card location specified in step 5.

For this example, enter this command.

```
dlt-ip-node:ipaddr=200.50.100.47:loc=1204
```

- Remove the data link from the database using the `dlt-dlk` command. The `dlt-dlk` command has only one parameter, `loc`, which is the location of the STPLAN card containing the TCP/IP data link. For this example, enter this command.

```
dlt-dlk:loc=1204
```

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

```
rtrv-dlk:loc=1204
```

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

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

- 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.
```



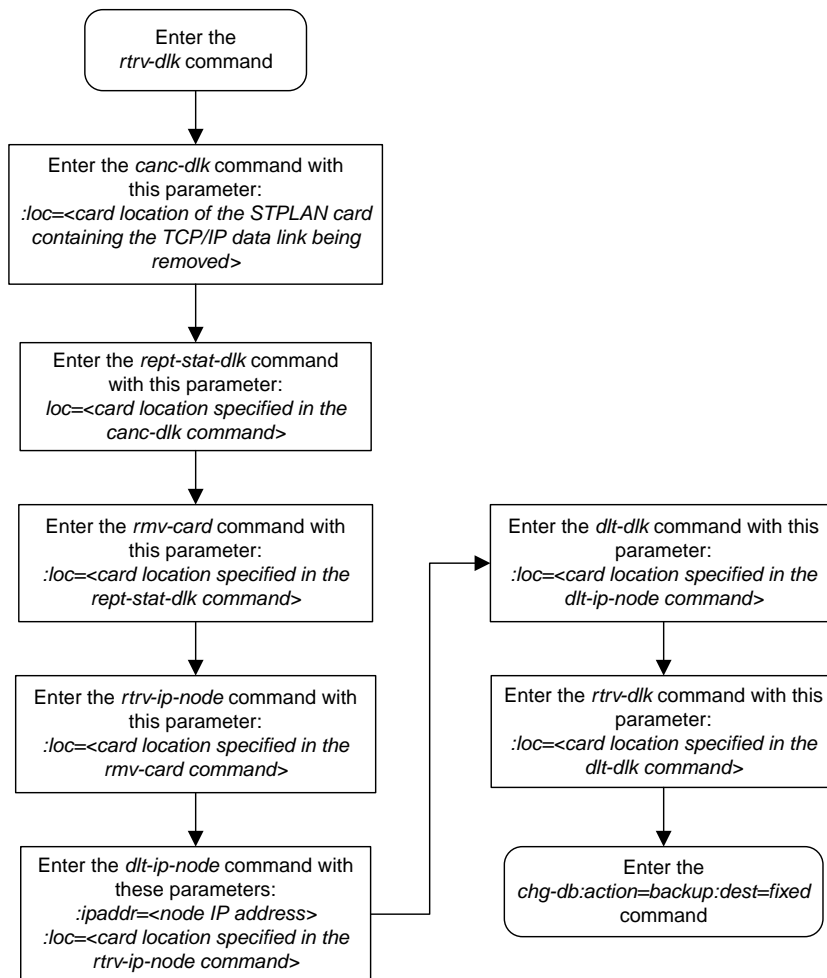


Figure 16: Removing a TCP/IP Data Link

## Adding a TCP/IP Node

This procedure is used to add a TCP/IP node to the database using the `ent-ip-node` command.

The `ent-ip-node` command uses these parameters:

`:ipaddr` – The node's IP address.

`:ipappl` – The IP application supported by the node.

`:ipport` – The logical IP port to address the application on the node.

`:loc` – The card location of the STPLAN card that contains the TCP/IP link that will be directly connected to the node.

`:cap` – The maximum percentage (1 to 100) of ethernet capacity for this node connection. This capacity is added to other connections to this node for the total capacity of the node. The total capacity of the node cannot exceed 100%. The value of the `cap` parameter can be used to calculate the throughput for DCMs or E5-ENET cards (the single-slot EDCM-A or E5-SLAN card types shown in [Table 17: STPLAN Card Part Numbers](#)) and to control the amount of traffic that is being sent to the ECAP. Refer to these sections of the `ent-ip-node` command description in the *Commands Manual* for more information.

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

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

This examples used in this procedure are based on the example network shown in [Figure 15: STPLAN Configuration Example](#) and [Table 16: STPLAN Configuration Example Database](#).

The TCP/IP node cannot already be in the database. This can be verified in step 1.

The specified card must have a TCP/IP data link assigned to it. This can be verified in step 2.

The IP address assigned to the TCP/IP node cannot be assigned to any other TCP/IP nodes, TCP/IP routers, or TCP/IP data links.

The class of the IP address (`ipaddr`) must match the class of the assigned TCP/IP data link's IP address only if the `iprte` parameter is not specified with the `ent-ip-node` command. The EAGLE 5 ISS supports three classes of IP addresses, class A, class B, and class C. Class A IP addresses can contain only the values 1 to 126 in the first field of the IP address. Class B IP addresses can contain only the values 128 to 191 in the first field of the IP address. Class C IP addresses can contain only the values 192 to 223 in the first field of the IP address. No IP address can contain the value 127 in the first field of the IP address. These IP addresses are reserved for loopback.

The network portion of the IP address (`ipaddr`) must match the network portion of the IP address assigned to the TCP/IP data link only if the `iprte` parameter is not specified with the `ent-ip-node` command. The network portion of the IP address is based on the class of the IP address. If the IP address is a class A IP address, the first field is the network portion of the IP address. If the IP address is a class B IP address, the first two fields are the network portion of the IP address. If the IP address is a class C IP address, the first three fields are the network portion of the IP address. For example, if the IP address of the TCP/IP data link is 193.5.207.150, a class C IP address, the network portion of the IP address for the TCP/IP node must be 193.5.207.

Refer to the [TCP/IP Router](#) section for more information of the TCP/IP router.

If the `iprte` parameter is specified with the `ent-ip-node` command, the class and network portion of the TCP/IP router's IP address must match the class and network portion of the TCP/IP data link and cannot match the IP address of the TCP/IP node being added to the database. If subnet routing is being used, the `iprte` parameter must be specified with the `ent-ip-node` command. Refer to the [TCP/IP Router](#) section on for more information of the TCP/IP router.

The capacity of all connections to the IP address cannot be greater than 100%. This is shown in the `CAP` field of the `rtrv-ip-node` command output.

1. Display the TCP/IP nodes in the database by entering the `rtrv-ip-node` command.

This is an example of the possible output.

```
rlghncxa03w 06-10-20 21:16:37 GMT EAGLE5 36.0.0
IPADDR      IPPORT  IPAPPL  LOC    CAP  IPRTE
193.4.201.70  1024   stplan  1103  10%  --
193.4.201.71  1024   stplan  1104  10%  --
```

2. Display the TCP/IP data links in the database by entering the `rtrv-dlk` command.

This is an example of the possible output.

```
rlghncxa03w 07-02-20 21:16:37 GMT EAGLE5 37.0.0
LOC  IPADDR      LINK SPEED  DUPLEX  AUTO
1103 193.4.201.70  10Mbit  HALF    NO
1104 193.4.201.71  10Mbit  HALF    NO
1201 193.4.201.50  100Mbit HALF    NO
1203 193.4.201.51  ----- ----    YES
1204 200.50.100.47  10Mbit  HALF    NO
1205 193.4.201.50  ----- ----    YES
1206 203.14.212.30 ----- ----    YES
1207 202.14.212.39 ----- ----    YES
```

If the required TCP/IP data link is not shown in the `rtrv-dlk` output, perform the "Adding a TCP/IP Data Link" procedure on page 3-33 and add the required TCP/IP data link to the database.

3. Add the TCP/IP nodes to the database by entering the `ent-ip-node` command.

For this example, enter these commands.

```
ent-ip-node:loc=1201:ipaddr=193.4.201.65:ipappl=stplan:ippport=1024 :cap=10
ent-ip-node:loc=1203:ipaddr=193.4.201.78:ipappl=stplan:ippport=1024 :cap=10
ent-ip-node:loc=1204:ipaddr=200.50.115.101:ipappl=stplan:ippport=2000
:cap=40:iprte=193.4.202.30
ent-ip-node:loc=1205:ipaddr=193.4.201.56:ipappl=stplan:ippport=3000 :cap=40
ent-ip-node:loc=1206:ipaddr=203.24.212.30:ipappl=stplan:ippport=4000
:cap=40:iprte=197.4.217.47
ent-ip-node:loc=1207:ipaddr=205.37.12.63:ipappl=stplan:ippport=3963
:cap=40:iprte=198.10.186.53
```

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

```
rlghncxa03w 06-10-20 21:18:37 GMT EAGLE5 36.0.0
ENT-IP-NODE: MASP A - COMPLTD
```

- Verify the changes using the `rtrv-ip-node` command with the IP address specified in step 3. For this example, enter these commands.

```
rtrv-ip-node:ipaddr=193.4.201.65
```

This is an example of the possible output.

```
rlghncxa03w 07-02-20 21:19:37 GMT EAGLE5 37.0.0
IPADDR      IPPORT  IPAPPL  LOC    CAP  IPRTE
193.4.201.65 1024   stplan  1201  10%  --
193.4.201.65 3000   stplan  1205  40%  --
```

```
rtrv-ip-node:ipaddr=193.4.201.78
```

This is an example of the possible output.

```
rlghncxa03w 07-02-20 21:19:37 GMT EAGLE5 37.0.0
IPADDR      IPPORT  IPAPPL  LOC    CAP  IPRTE
193.4.201.78 1024   stplan  1203  10%  --
```

```
rtrv-ip-node:ipaddr=200.50.115.101
```

This is an example of the possible output.

```
rlghncxa03w 07-02-20 21:19:37 GMT EAGLE5 37.0.0
IPADDR      IPPORT  IPAPPL  LOC    CAP  IPRTE
200.50.115.101 2000   stplan  1204  40%  193.4.202.30
```

```
rtrv-ip-node:ipaddr=203.24.212.30
```

This is an example of the possible output.

```
rlghncxa03w 07-02-20 21:19:37 GMT EAGLE5 37.0.0
IPADDR      IPPORT  IPAPPL  LOC    CAP  IPRTE
203.24.212.30 1024   stplan  1206  40%  197.4.217.47
```

```
rtrv-ip-node:ipaddr=205.37.12.63
```

This is an example of the possible output.

```
rlghncxa03w 07-02-20 21:19:37 GMT EAGLE5 37.0.0
IPADDR      IPPORT  IPAPPL  LOC    CAP  IPRTE
205.37.12.63 3963   stplan  1207  40%  198.10.186.53
```

- Place the data links into service by entering the `act-dlk` command with the card location shown in step 4.

For this example, enter these commands.

```
act-dlk:loc=1201
```

```
act-dlk:loc=1203
```

```
act-dlk:loc=1204
```

```
act-dlk:loc=1205
```

```
act-dlk:loc=1206
```

```
act-dlk:loc=1207
```

This message should appear when each command has successfully completed.

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

6. Check the status of the data links using the `rept-stat-dlk` command, specifying the card locations of the data links entered in step 5.

The link should be in service-normal (IS-NR) after the link has been activated. This is an example of the possible output.

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

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

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

## Removing a TCP/IP Node

This procedure is used to remove a TCP/IP node from the database using the `dlt-ip-node` command.

The `dlt-ip-node` command uses these parameters:

`:ipaddr` – The node's IP address.

`:ipappl` – The IP application supported by the node.

`:ipport` – The logical IP port that addresses the application on the node.

`:loc` – The card location of the STPLAN card that contains the TCP/IP link that is directly connected to the node.

`:force` – Whether or not to remove all applications associated with the node, thus removing the entire node from the database.

The examples used in this procedure are used to remove the TCP/IP node with the IP address 193.4.201.71 from the database.

The TCP/IP node must be in the database. This can be verified in step 1.

The specified card must have a TCP/IP data link assigned to it. This can be verified in step 2.

The card that the TCP/IP data link is assigned to must be a DCM, SSED-CM-A, or E5-SLAN card running the `stplan` application. This can be verified with the `rtrv-card` command. The DCM, SSED-CM-A, or E5-SLAN card is shown by the entries DCM in the TYPE field and STPLAN in the APPL field of the `rtrv-card` command output.

If only the `ipaddr` parameter is specified with the `dlt-ip-node` command, all the connections to a TCP/IP node will be removed from the database. To remove all the connections to a TCP/IP node, the `force=yes` parameter must be specified with the `ipaddr` parameter.

The `ipappl` or `ipport` parameters can be specified with the `dlt-ip-node` command, but both parameters cannot be specified with the `dlt-ip-node` command at the same time.

1. Display the TCP/IP nodes in the database by entering the `rtrv-ip-node` command.

This is an example of the possible output.

```
rlghncxa03w 06-10-20 21:16:37 GMT EAGLE5 36.0.0
IPADDR      IPPORT  IPAPPL  LOC    CAP  IPRTE
193.4.201.15 1024    stplan  1103  10%  --
193.4.201.23 1024    stplan  1104  10%  --
193.4.201.65 1024    stplan  1201  10%  --
193.4.201.65 3000    stplan  1205  40%  --
193.4.201.78 1024    stplan  1203  10%  --
200.50.115.101 2000    stplan  1204  40%  193.4.202.30
203.24.212.30 4000    stplan  1206  40%  197.4.217.47
205.37.12.63 3963    stplan  1207  40%  198.10.186.53
```

2. Display the TCP/IP data links in the database by entering the `rtrv-dlk` command.

This is an example of the possible output.

```
rlghncxa03w 07-02-20 21:16:37 GMT EAGLE5 37.0.0
LOC      IPADDR      LINK SPEED  DUPLEX  AUTO
1103     193.4.201.70 10Mbit  HALF    NO
1104     193.4.201.71 10Mbit  HALF    NO
1201     193.4.201.50 100Mbit HALF    NO
1203     193.4.201.51 -----  ----   YES
1204     200.50.100.47 10Mbit  HALF    NO
1205     193.4.201.50 -----  ----   YES
1206     203.14.212.30 -----  ----   YES
1207     202.14.212.39 -----  ----   YES
```

3. Verify the current state of the TCP/IP data link assigned to the TCP/IP node to be removed from the database using the `rept-stat-dlk` command. For this example, the TCP/IP data link to be placed out of service is assigned to card 1104. For this example, enter this command.

```
rept-stat-dlk:loc=1104
```

This is an example of the possible output.

```
rlghncxa03w 10-07-20 21:21:37 GMT EAGLE5 42.0.0
DLK      PST      SST      AST
1104     IS-NR    Active   ----
```

```
Alarm Status      = No Alarms.
Command Completed.
```

**Note:** Skip step 4 and step 5 and go to step 6 if the status of the TCP/IP data link shown in the output of step 3 is OOS-MT-DSBLD.

- Place the TCP/IP data link using the `canc-dlk` command, using the outputs from steps 1 and 2 to obtain the card location (shown in the `LOC` field of both outputs) of the TCP/IP data link to be placed out of service.

For this example, the TCP/IP data link to be placed out of service is assigned to card 1104. Enter this command.

```
canc-dlk:loc=1104
```

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

```
rlghncxa03w 06-10-20 21:18:37 GMT EAGLE5 36.0.0
Deactivate Link message sent to card.
```

- Verify that the TCP/IP data link is out of service - maintenance disabled (OOS-MT-DSBLD) using the `rept-stat-dlk` command.

For this example, enter this command.

```
rept-stat-dlk:loc=1104
```

This is an example of the possible output.

```
rlghncxa03w 10-07-20 21:19:37 GMT EAGLE5 42.0.0
DLK          PST          SST          AST
1104         OOS-MT-DSBLD Unavail    ----
  ALARM STATUS      = * 0155 STPLAN connection unavailable
Command Completed.
```

- Verify the current state of the card assigned to the TCP/IP data link to be removed using the `rept-stat-card` command. For this example, enter this command.

```
rept-stat-card:loc=1104
```

This is an example of the possible output.

```
rlghncxa03w 07-02-20 21:19:37 GMT EAGLE5 37.0.0
CARD  VERSION      TYPE      GPL      PST      SST      AST
1104  126-003-002  DCM      STPLAN  IS-NR    Active   -----
  ALARM STATUS      = No Alarms.
  BPDCM GPL version = 126-002-000
  IMT BUS A         = Conn
  IMT BUS B         = Conn
  DLK A  PST        = OOS-MT-DSBLD    SST = Unavail  AST = -----
  SLAN % EAGLE CAPACITY = 0%
  SLAN % HOST CAPACITY  = 0%
Command Completed.
```

**Note:** Skip steps 7 and 8 and go to step 9 if the status of the card shown in the output of step 6 is OOS-MT-DSBLD.

- Place the card assigned to the TCP/IP node to be removed out of service by using the `rmv-card` command, specifying the card location used in step 3.

For this example, enter this command.

```
rmv-card:loc=1104
```

This message should appear.

```
rlghncxa03w 06-10-20 21:20:37 GMT EAGLE5 36.0.0
Card has been inhibited.
```

- Verify that the card is out-of service - maintenance disabled (OOS-MT-DSBLD) using the `rept-stat-card` command. For this example, enter this command.

```
rept-stat-card:loc=1104
```

This is an example of the possible output.

```
rlghncxa03w 07-02-20 21:19:37 GMT EAGLE5 37.0.0
CARD  VERSION      TYPE      GPL      PST      SST      AST
1104  126-003-002  DCM      STPLAN  OOS-MT-DSBLD  Manual  -----
ALARM STATUS      = ** 0013 Card is isolated from the system
BPDCM GPL version = 126-002-000
IMT BUS A         = Conn
IMT BUS B         = Conn
DLK A  PST        = OOS-MT-DSBLD      SST = Unavail  AST = -----
SLAN % EAGLE CAPACITY = 0%
SLAN % HOST CAPACITY  = 0%
```

Command Completed.

- Remove the TCP/IP node to the database using the `dlt-ip-node` command. For this example, enter this command.

```
dlt-ip-node:ipaddr=193.4.201.71:ipport=1024 :loc=1104
```

This message should appear.

```
rlghncxa03w 06-10-20 21:21:37 GMT EAGLE5 36.0.0
DLT-IP-NODE: MASP A - COMPLTD
```

If you wish to remove all the connections to a TCP/IP node, for example, all the connections to the node at IP address 193.4.201.65, enter the `dlt-ip-node` command with the IP address of the node and the `force=yes` parameter, or enter the `dlt-ip-node` command with the IP address of the node and the `ipappl=stplan` parameter. For this example, enter one of these commands.

```
dlt-ip-node:ipaddr=193.4.201.65:force=yes
```

```
dlt-ip-node:ipaddr=193.4.201.65:ipappl=stplan
```

- Verify the changes using the `rtrv-ip-node` command.



If a single connection to a TCP/IP node was removed in step 9, enter the `rtrv-ip-node` command with the card location specified in step 9. For this example, enter this command.

```
rtrv-ip-node:loc=1104
```

The following message is displayed.

```
rlghncxa03w 07-02-20 21:22:37 GMT EAGLE5 37.0.0
E2622 Cmd Rej: IPADDR not assigned to specified LOC
```

If all the connections to a TCP/IP node were removed in step 9, enter the `rtrv-ip-node` command with the IP address specified in step 9. For this example, enter this command

```
rtrv-ip-node:ipaddr=193.4.201.65
```

The following message is displayed.

```
rlghncxa03w 07-02-20 21:22:37 GMT EAGLE5 37.0.0
IPADDR          IPPORT  IPAPPL  LOC    CAP    IPRTE
IPADDR not connected to any TCP/IP Link.
```

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

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

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

## Configuring the Copy Original OPC for STPLAN Option

This procedure is used to configure the copy original OPC for STPLAN option using the `chg-ss7opts` command with the `slanpcorgopc` parameter. The `slanpcorgopc` parameter has two values:

- `on` – After the MSU has been processed by other applications, but before the MSU is copied for the STPLAN application, the OPC of the MSU is replaced by the point code that was the OPC of the MSU when the MSU entered the EAGLE 5 ISS.
  - `off` – The OPC of the MSU is not replaced by the point code that was the OPC of the MSU when the MSU entered the EAGLE 5 ISS.
1. Display the existing value for the `slanpcorgopc` parameter by entering the `rtrv-ss7opts` command. This is an example of the possible output.

```
rlghncxa03w 08-10-17 16:02:05 GMT EAGLE5 39.2.0

SS7 OPTIONS
-----
SLANPCORGOPC          off
```

**Note:** The `rtrv-ss7opts` command output contains other fields that are not used by this procedure. If you wish to see all the fields displayed by the `rtrv-ss7opts` command, see the `rtrv-ss7opts` command description in the *Commands Manual*.

If the current `SLANCPORGOPC` value is on, continue the procedure with [Step 3](#).

If the current `SLANCPORGOPC` value is off, continue the procedure with [Step 2](#).

2. Verify that the STPLAN feature is on by entering the `rtrv-feat` command.

If the STPLAN feature is on, the `LAN` field should be set to on.

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

If the STPLAN feature is on, continue the procedure with [Step 3](#).

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

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

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

```
chg-ss7opts:slanccporgopc=on
```

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

```
chg-ss7opts:slanccporgopc=off
```

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

```
rlghncxa03w 08-10-07 00:22:57 GMT EAGLE5 39.2.0
CHG-SS7OPTS: MASP A - COMPLTD
```

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

```
rlghncxa03w 08-10-17 16:02:05 GMT EAGLE5 39.2.0

SS7 OPTIONS
-----
SLANCPORGOPC          on
```

**Note:** The `rtrv-ss7opts` command output contains other fields that are not used by this procedure. If you wish to see all the fields displayed by the `rtrv-ss7opts` command, see the `rtrv-ss7opts` command description in the *Commands Manual*.

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

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

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

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

- `on` – The incoming and outgoing linkset names are copied into the STPLAN message format.
  - `off` – The incoming and outgoing linkset names are not copied into the STPLAN message format.
1. Display the existing value for the `slanlsn` parameter by entering the `rtrv-ss7opts` command. This is an example of the possible output.

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

SS7 OPTIONS
-----
SLANSLS                off
```

**Note:** The `rtrv-ss7opts` command output contains other fields that are not used by this procedure. If you wish to see all the fields displayed by the `rtrv-ss7opts` command, see the `rtrv-ss7opts` command description in the *Commands Manual*.

If the current `SLANSLS` value is `on`, continue the procedure with [Step 3](#).

If the current `SLANSLS` value is `off`, continue the procedure with [Step 2](#).

2. Verify that the STPLAN feature is on by entering the `rtrv-feat` command.

If the STPLAN feature is on, the `LAN` field should be set to `on`.

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

If the STPLAN feature is on, continue the procedure with [Step 3](#).

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

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

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

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

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

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

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

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

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

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

SS7 OPTIONS
-----
SLANSLS                on
```

**Note:** The `rtrv-ss7opts` command output contains other fields that are not used by this procedure. If you wish to see all the fields displayed by the `rtrv-ss7opts` command, see the `rtrv-ss7opts` command description in the *Commands Manual*.

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

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

# Chapter 5

## Database Transport Access (DTA) Configuration

---

### Topics:

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- *Functional Description.....104*
- *Summary of the Gateway Screening Redirect Table Commands .....107*
- *SCCP Subsystem Management.....108*
- *EAGLE 5 ISS Requirements .....109*
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- *Changing the Gateway Screening Redirect Parameters.....118*
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Chapter 6, 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, MSUs containing SCCP and proprietary data must be sent through the network to customer-specific databases. However, these MSUs may need additional processing before being routed to their final destination.

The DTA feature provides a mechanism for the redirection of specific MSUs to a customized database. The EAGLE 5 ISS uses gateway screening to qualify incoming MSUs for redirection.

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

*Figure 17: Example of Configuration for the DTA Feature* shows a typical configuration for the DTA feature.

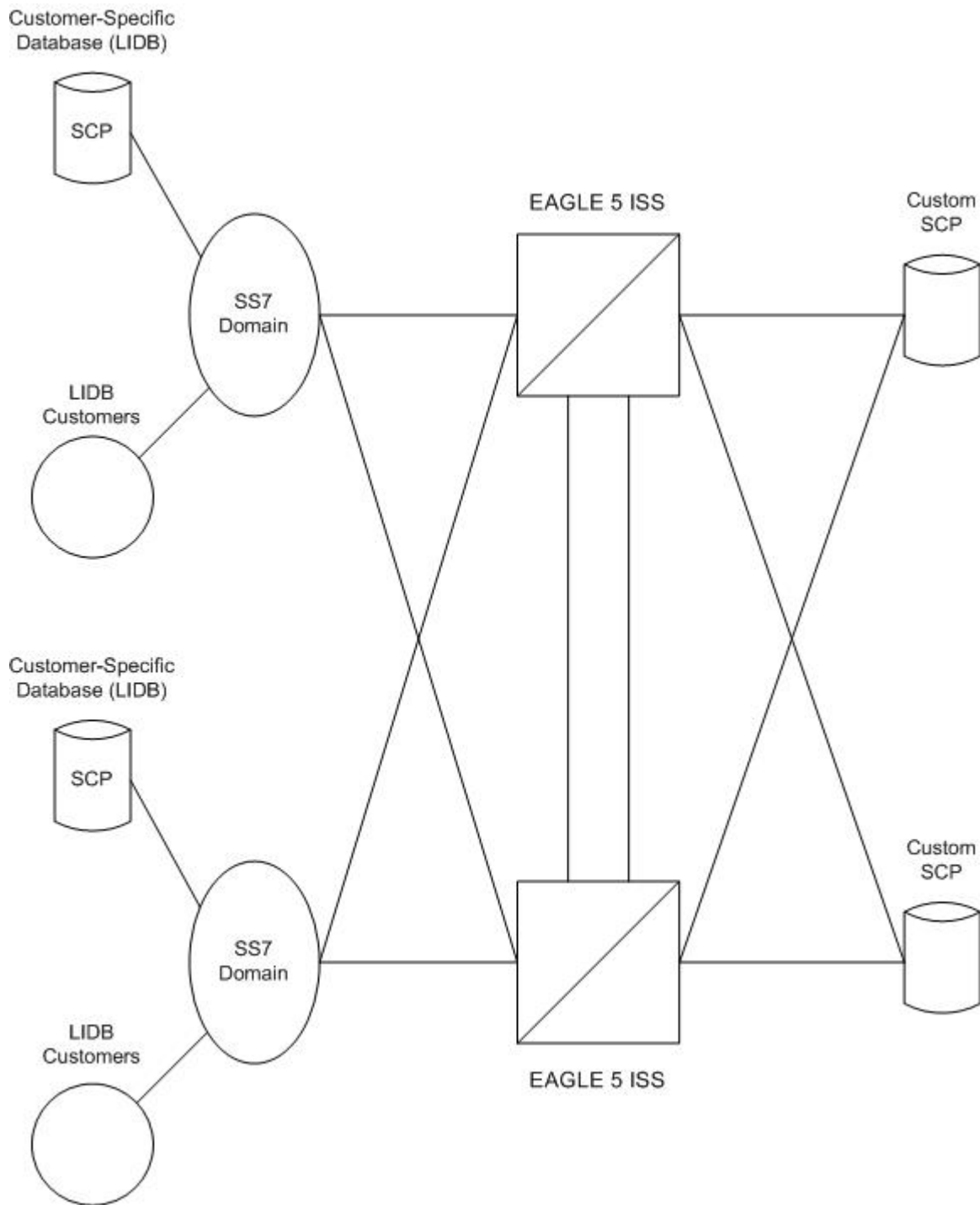


Figure 17: Example of Configuration for the DTA Feature

The new routing is specified by a redirection table that specifies the destination point code (DPC) and a new called party address. The routing indicator and the subsystem number are defined within the called party address.

The MSU is then passed to the SCP on the specified linkset where the application data is processed for a customized application.

Once the SCP has processed the user data, the SCP sends the MSU back to the EAGLE 5 ISS. At the EAGLE 5 ISS, the MSU is routed to its final destination in the SS7 network. The SCP determines the routing for the MSU, providing it in the routing label of the MTP portion of the MSU and in the SCCP called party address.

The SCP also provides new calling party address information to support billing applications. The SCP is considered as the originator (OPC) and the calling party.

As an optional feature, MSUs that are redirected to an SCP can also be copied using the STPLAN feature. This provides a copy of the redirected MSU to be routed over a TCP/IP interface to an adjunct processor. The copied MSU can then be processed for a variety of applications such as usage measurements.

The EAGLE 5 ISS does not provide any conversion of the copied MSU; it merely provides a copy of the redirected MSU after encapsulation of the original MSU. The copy is conducted by the LIM transmitting the redirected MSU.

If this feature is used, the DCM, SSEDCCM-A, or E5-SLAN card running the STPLAN application, is required. These cards provide an ethernet interface supporting TCP/IP applications. For more information regarding the STPLAN feature, see [STPLAN Configuration](#).

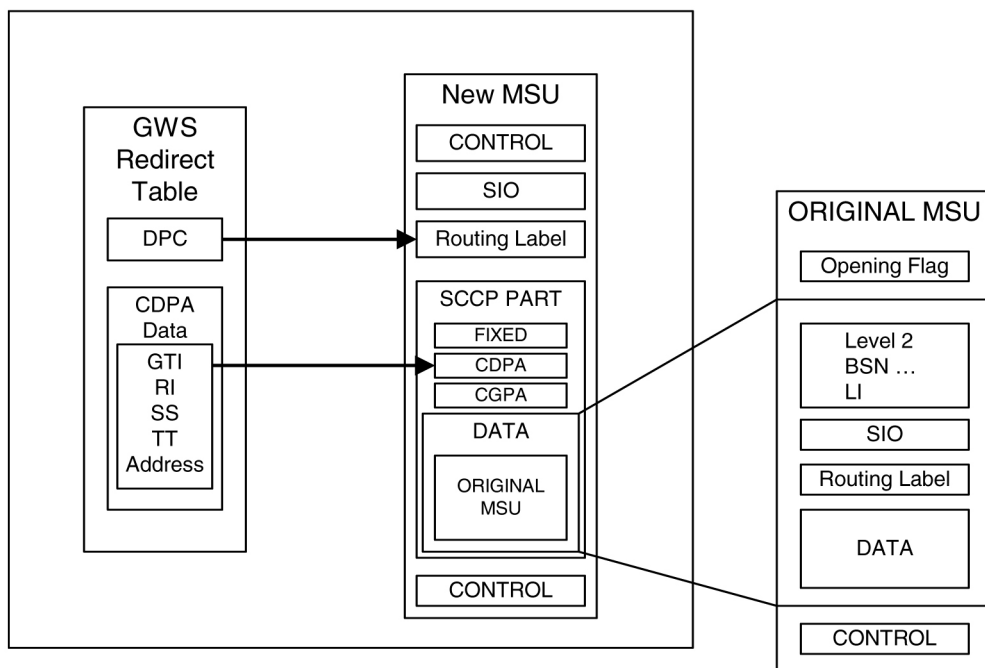
## Functional Description

The principal function within the EAGLE 5 ISS for this feature is gateway screening. This feature allows the EAGLE 5 ISS to examine all incoming MSUs and determine whether or not they should be allowed into the network. Gateway screening looks at the routing label of the incoming MSU and matches this information with the EAGLE 5 ISS's gateway screening tables.

To support the DTA feature, a gateway screening stop action set containing the `rdct` (redirect) gateway screening stop action is assigned to the last screen in the screening process. The redirect gateway screening stop action selects the MSU that is redirected for the DTA feature. The screening table for the DTA feature examines the routing label (OPC, DPC) and the SIO fields of the MSU.

Once the MSU has been qualified for redirection by the gateway screening function, the original MSU is encapsulated into the data portion of SCCP within a new SS7 MSU, including all level two and level three headers. A redirect routing table identifies the DPC to be inserted into the routing label of the redirected MSU. In addition, the called party address in the SCCP portion of the MSU is modified according to the parameters set in the redirect routing table. [Figure 18: DTA Encapsulation](#) illustrates the encapsulation process.





**Figure 18: DTA Encapsulation**

The global title function is used to determine which of the SCPs the MSU is routed to. In the event of subsystem failures, SCCP subsystem management determines which of the SCPs is available. The global title function provides the routing information and routes the MSU to the available SCP.

The global title function require service modules which contains the global title translation tables.

Once the MSU has received its routing information, the MSU can be sent to the appropriate SCP (specified by the EAGLE 5 ISS's redirection table and global title). The SCP then processes the user data contained within the encapsulated MSU. Once processing has been completed, the MSU is sent back to the EAGLE 5 ISS for final routing.

The DTA feature will redirect MSUs to either ANSI or ITU nodes, depending on the value of the DPC in the redirect routing table, but the redirect routing table can contain only one DPC value. If the incoming message type is not the same as the DPC in the redirect routing table, the message is tunneled to the redirect DPC.

The subsystem number in the called party address determines whether the MSU is processed as an ANSI MSU or an ITU MSU. If the subsystem number is 0, the MSU is an ANSI MSU. If the subsystem number is 250, the MSU is an ITU MSU (an MSU containing either a ITU-I point code, 14-bit ITU-N point code, ITU-I Spare point code, or 14-bit ITU-N Spare point code). If the subsystem number is 251, the MSU is an ITU-N24 MSU (an MSU containing a 24-bit ITU-N point code).

Tunneling uses an MTP2/MTP3/SCCP header based on the network type of the DTA DPC to allow any incoming message to be routed to the DTA DPC. A wrapper is placed around the message (an ANSI wrapper around an ITU message, or an ITU wrapper around an ANSI message), and sends the message to the DTA DPC. The destination removes the wrapper and processes the original information.

**Discarding MSUs**

MSUs can be discarded for these reasons:

- Gateway screening is not available or the MSU does not pass gateway screening.
- The gateway screening redirect function is disabled.
- The MSU is too large to be encapsulated
- The DPC for the gateway screening redirect function is prohibited or congested.
- The EAGLE 5 ISS's SCCP subsystem is prohibited.

The discarding of MSUs is controlled by `gwsd` linkset parameter. If the `gwsd=on` parameter is specified for the linkset, and one or more of the conditions in the previous list are encountered, MSUs on the linkset are discarded. If the `gwsd=off` parameter is specified for the linkset, and one or more of the conditions in the previous list are encountered, MSUs on the linkset are routed to its original destination. Each of the MSU discard conditions are discussed in the following paragraphs.

If gateway screening is not available or the MSU does not pass gateway screening, the MSU is discarded. An unsolicited alarm message (UAM) is not generated. This condition is not dependent on the linkset `gwsd` parameter value. The `MSGWSDSLIM` measurement is pegged.

If the redirect mode is set to 'off' in the redirect function, either with the `chg-gws-redirect:enabled=off` or `dlt-gws-redirect` commands, and the linkset `gwsd=on` parameter is specified for the linkset, the MSU is discarded, UIM 1084 is generated, and the `DTAMSULOST` measurement is pegged. If the linkset `gwsd=off` parameter is specified for the linkset, the MSU is routed to its original destination, UIM 1084 is not generated, and the `DTAMSULOST` measurement is not pegged.

If an MSU is too large to be encapsulated, the MSU may be discarded, depending on the linkset's `gwsd` parameter value. The maximum length of the MSU is dependent on the number of digits contained in the global title address and on the network type of the DPC in the MSU, as shown in [Table 18: Maximum Encapsulation Length per DTA DPC Type](#).

**Table 18: Maximum Encapsulation Length per DTA DPC Type**

MSU DPC Type	GTA Length - 1 Digit	GTA Length - 21 Digits
ANSI	250 bytes	240 bytes
ITU-I	253 bytes	243 bytes
ITU-I Spare	253 bytes	243 bytes
ITU-N	253 bytes	243 bytes
ITU-N Spare	253 bytes	243 bytes
ITU-N24	250 bytes	240 bytes

MSUs that are too long are discarded based on the linkset `gwsd` parameter value. If the linkset `gwsd=on` parameter is specified for the linkset, the MSU is discarded, UIM 1084 is generated, and the `DTAMSULOST` measurement is pegged. If the linkset `gwsd=off` parameter is specified for the linkset, the MSU is routed to its original destination, UIM 1085 is generated, but the `DTAMSULOST` measurement is not pegged.

If the DPC of the gateway screening redirect function is the DPC of an external node, and if the route to this DPC is prohibited, or if this DPC is available, but the congestion level is above the priority of the MSU (for DTA, this priority is always 0), the MSU will not be encapsulated and will be discarded

or routed according to the linkset's `gwsd` parameter value. If the linkset's `gwsd` value is `on`, the MSU is discarded, UIM 1084 is generated, and the DTAMSULOST measurement is pegged. If the linkset's `gwsd` value is `off`, the MSU is routed to its original destination, UIM 1084 is not generated, and the DTAMSULOST measurement is not pegged.

If the DPC for the gateway screening redirect function is the EAGLE 5 ISS's point code, the MSU is sent to the EAGLE 5 ISS's SCCP subsystem for GTT processing. If the EAGLE 5 ISS's SCCP subsystem is prohibited, the MSU will not be encapsulated and will be discarded or routed according to the linkset's `gwsd` parameter value. If the linkset's `gwsd` value is `on`, the MSU is discarded, UIM 1084 is generated, and the DTAMSULOST measurement is pegged. If the linkset's `gwsd` value is `off`, the MSU is routed to its original destination, UIM 1084 is not generated, and the DTAMSULOST measurement is not pegged.

UIMs 1084 and 1085 are discussed in greater detail in the *Unsolicited Alarm and Information Messages Manual*.

### Measurements

Two measurements are provided to indicate the number of MSUs discarded: DTAMSULOST and MSGWSDSLIM.

The DTAMSULOST measurement counts the number of MSUs discarded because gateway screening is not available. This can be caused by a number of events, including congestion in the EAGLE 5 ISS.

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

DTAMSULOST and MSGWSDSLIM are explained in greater detail in the *Measurements Manual*.

## Summary of the Gateway Screening Redirect Table Commands

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

**Table 19: Commands for the Gateway Screening Redirect Table**

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

## SCCP Subsystem Management

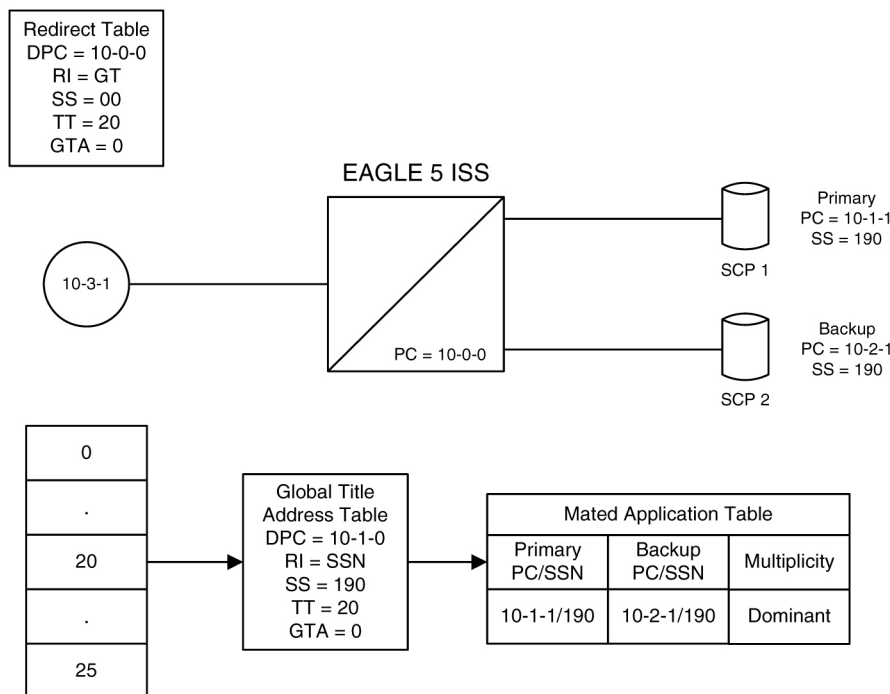
The EAGLE 5 ISS provides SCCP subsystem management for all transactions sent to an SCP. In the case of the DTA feature, subsystem management is provided for the customized SCP. The customized SCP is deployed in a quad configuration adjacent to the EAGLE 5 ISS. The links connecting the EAGLE 5 ISS and the SCP must be configured in such a way to support SCCP subsystem management. The application supported by the dual SCPs is duplicated in both entities. The applications can be configured in one of the following two modes: dominant or load-shared.

When configured as dominant, one SCP is configured to receive all queries. This assignment is made in EAGLE 5 ISS routing tables. In the event the dominant SCP fails, traffic is diverted by SCCP subsystem management to the mate application.

If load sharing is configured, both SCPs will receive queries. SCCP ensures that all associated transactions are sent to the same SCP. Load sharing allows traffic to be distributed to both SCPs evenly, preventing congestion at one SCP.

If there is a failure in a load sharing configuration, all traffic is diverted by SCCP subsystem management to the mate SCP. When the failed SCP is restored, the EAGLE 5 ISS resumes load sharing.

*Figure 19: Configuration of GTT for Routing Management* shows an EAGLE 5 ISS configured with primary and backup SCPs.



**Figure 19: Configuration of GTT for Routing Management**

## EAGLE 5 ISS Requirements

There are no specific hardware requirements to support the DTA feature. However, if the following specific situations exist, the following cards are required.

**Table 20: Cards Required in Specific Situations**

If	Required Card
STPLAN feature is used	DCM, SSEDCCM-A, E5-SLAN
Subsystem management is used	DSM, E5-SM4G

## Configuring the EAGLE for the DTA Feature

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

The following features must be turned on:

- Gateway screening
- Global title translation

Verify that these features are turned on by entering the `rtrv-feat` command. If any of these features are turned off, they can be turned on by entering one of the following commands:

- `chg-feat:gws=on` – if the Gateway Screening feature is off (GWS = off in the `rtrv-feat` command output)
- `chg-feat:gtt=on` – if the Global Title Translation feature is off (GTT = off in the `rtrv-feat` command output)

**Note:** After the Gateway Screening and Global Title Translation features are turned on with the `chg-feat` command, they cannot be turned off.

The following items must be provisioned in the database before the EAGLE can be provisioned for the DTA feature:

- LIMs assigned to the `ss7ansi` application that are necessary to implement the DTA feature – "Adding an SS7 LIM" procedure in *Database Administration – System Management User's Guide*. The LIMs can be verified by entering the `rtrv-card` command.
- Service Module cards assigned to the `vsccp` applications that are necessary to implement the DTA feature - Adding a Service Module procedure in *Database Administration – GTT User's Guide*. The Service Module cards can be verified by entering the `rtrv-card` command.
- If you wish to redirect 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-N, ITU-I Spare, ITU-N Spare, or ITU-N24 point codes. The signaling links can be verified by entering the `rtrv-slk` command.
- Routes assigned to linksets containing SS7APCs that are necessary to implement the DTA feature - "Adding a Route Containing an SS7DPC" procedure in *Database Administration – SS7 User's Guide*. The DPCs of SS7 routes and APCs of SS7 linksets can be either ANSI, ITU-I, ITU-N, ITU-I Spare, ITU-N Spare, or ITU-N24 point codes. The routes can be verified by entering the `rtrv-rte` command.

### Gateway Screening Configuration

The DTA feature uses gateway screening to select the messages that are redirected. A gateway screening stop action set containing the `rdct` (redirect) gateway screening stop action must be assigned to one of these gateway screening entities where the gateway screening process stops (the NSFI of the screen is STOP).

- Allowed OPC
- Blocked OPC
- Allowed SIO
- Allowed DPC
- Blocked DPC
- Allowed Destination Field
- Allowed ISUP Message Type

Enter the `rtrv-gws-actset` command to display the gateway screening stop action sets in the database. The database contains one gateway screening stop action set that contain the `rdct` gateway screening stop action as shown in bold in the example output. This gateway screening stop action is always in the database and cannot be changed or removed.

```

rlghncxa03w 06-10-07 00:17:31 GMT EAGLE5 36.0.0
ACT  ACT  ACT  ACT  ACT  ACT  ACT  ACT  ACT  ACT  ACT  ACT
ID   NAME  1    2    3    4    5    6    7    8    9    10
--   ----  ---  ---  ---  ---  ---  ---  ---  ---  ---  ---
1    copy  copy

```

```

2   rdct   rdct
3   cr     copy rdct

GWS action set table is (3 of 16) 19% full

```

For more information on configuring gateway screening stop action sets, see the “Configuring Gateway Screening Stop Action Sets” procedure in *Database Administration - GWS User’s Guide*.



**CAUTION**

**Caution:** Redirecting SLTA/SLTM messages prevents SLTA/SLTM messages from being returned to the EAGLE. The signaling link carrying these messages will fail if these messages are not returned to the EAGLE. To prevent SLTA/SLTM messages from being redirected, gateway screening stop action sets containing the redirect stop action should not be assigned to the following screens:

- Allowed OPC screens containing the adjacent point code of a linkset
- Allowed SIO screens containing the service indicator values 1 (SI=1) or 2 (SI=2)
- Allowed DPC screens containing the EAGLE’s point code.

To verify that the screen set being used with the gateway screening redirect function, enter the `rtrv-scrset:scrn=<screen set name assigned to the linkset being used>` command. If the last screen in the screen set is OPC, BLKOPC, SIO, DPC, BLKDPC, DESTFLD, or ISUP, enter the gateway screening retrieve command corresponding to the last screen in the screen set, with the screening reference name shown in the `rtrv-scrset` output. For example, if the last screen in the screen set is ISUP, enter the `rtrv-scr-isup` command with the `sr` parameter. If the NSR/ACT value shown in the retrieve output is a gateway screening stop action set name that contains the `rdct` stop action, shown in the `rtrv-gws-actset` output, this screen set can be used for the gateway screening redirect function. If you wish to use this screen set, but the `rdct` gateway screening stop action is not assigned to the last screen in the screen set, go to *Database Administration - GWS User’s Guide* and perform one of these procedures, as appropriate, to assign the `rdct` gateway screening stop action to the last screen in the screen set.

- “Changing an Allowed ISUP Message Type Screen”
- “Changing an Allowed Affected Destination Field Screen”
- “Changing a Blocked DPC Screen”
- “Changing an Allowed DPC Screen”
- “Changing an Allowed SIO Screen”
- “Changing a Blocked OPC Screen”
- “Changing an Allowed OPC Screen”

If the last screen in the screen set is CGPA, TT, CDPA, or AFTPC, it is recommended that either this screen set is changed so that the last screen in the screen set is OPC, BLKOPC, SIO, DPC, BLKDPC, DESTFLD, or ISUP with the `rdct` gateway screening stop action, or that another screen set with OPC, BLKOPC, SIO, DPC, BLKDPC, DESTFLD, or ISUP as the last screen in the screen set with the `rdct` gateway screening stop action be used. To find another screen set, enter the `rtrv-scrset` command, then enter the `rtrv-scrset` command again with one of the screen set names shown in the first `rtrv-scrset` output. If the last screen in the screen set is OPC, BLKOPC, SIO, DPC, BLKDPC, DESTFLD, or ISUP, enter the gateway screening retrieve command corresponding to the last screen in the screen set, with the screening reference name shown in the `rtrv-scrset` output. Repeat this entering the `rtrv-scrset` commands until a desirable screen set is found. If a desirable screen set cannot be found, either add a new screen set, or change the existing screen set. To add a new screen set, go to *Database Administration - GWS User’s Guide* and perform one of these procedures, as appropriate, and assign the `rdct` gateway screening stop action to the last screen in the screen set.

- “Adding an Allowed ISUP Message Type Screen”
- “Adding an Allowed Affected Destination Field Screen”
- “Adding a Blocked DPC Screen”
- “Adding an Allowed DPC Screen”
- “Adding an Allowed SIO Screen”
- “Adding a Blocked OPC Screen”
- “Adding an Allowed OPC Screen”

If you wish to change the existing screen set, go to *Database Administration - GWS User's Guide* and perform one of these procedures, as appropriate. Make sure the last screen in the screen set has the rdct gateway screening stop action assigned.

- “Changing an Allowed ISUP Message Type Screen”
- “Changing an Allowed Affected Destination Field Screen”
- “Changing a Blocked DPC Screen”
- “Changing an Allowed DPC Screen”
- “Changing an Allowed SIO Screen”
- “Changing a Blocked OPC Screen”
- “Changing an Allowed OPC Screen”

Verify that the necessary gateway screening entities have been configured with the required gateway screening stop action set, by entering the appropriate gateway screening retrieve command specifying the actname parameter with the gateway screening stop action name shown in the rtrv-gws-actset command output.

- rtrv-scr-opc:actname=rdct – to display the allowed OPC screens
- rtrv-scr-blkopc:actname=rdct – to display the blocked OPC screens
- rtrv-scr-sio:actname=rdct – to display the allowed SIO screens
- rtrv-scr-dpc:actname=rdct – to display the allowed DPC screens
- rtrv-scr-blkdpc:actname=rdct – to display the blocked DPC screens
- rtrv-scr-destfld:actname=rdct – to display the allowed destination field screens
- rtrv-scr-isup:actname=rdct – to display the allowed ISUP message type screens

If a gateway screening entity is configured to redirect, the entry STOP appears in the NSFI field, the NSR/ACT field contains the name of the gateway screening stop action set specified in the gateway screening retrieve command (see the following example).

```
rlghncxa03w 06-10-07 00:17:31 GMT EAGLE5 36.0.0
SCREEN = ALLOWED OPC
SR   NI      NC      NCM      NSFI     NSR/ACT
opc1 010      010      010      STOP     RDCT
opc1 010      010      012      STOP     RDCT
```

If the necessary gateway screening entities are not in the database, add them to the database using one of these procedures in the *Database Administration - GWS User's Guide*.

- “Adding an Allowed ISUP Message Type Screen”
- “Adding an Allowed Affected Destination Field Screen”
- “Adding a Blocked DPC Screen”
- “Adding an Allowed DPC Screen”
- “Adding an Allowed SIO Screen”
- “Adding a Blocked OPC Screen”



- “Adding an Allowed OPC Screen”

If the necessary gateway screening entities are in the database, use one these procedures in the *Database Administration - GWS User's Guide* to assign the redirect gateway screening stop action to them.

- “Changing an Allowed ISUP Message Type Screen”
- “Changing an Allowed Affected Destination Field Screen”
- “Changing a Blocked DPC Screen”
- “Changing an Allowed DPC Screen”
- “Changing an Allowed SIO Screen”
- “Changing a Blocked OPC Screen”
- “Changing an Allowed OPC Screen”



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

A screen set is required to start the screening process. Enter the `rtrv-scrset` command to verify that the necessary screen set is in the database. If the necessary screen set is not in the database, use the “Adding a Screen Set” in the *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 *Database Administration - GWS User's Guide* to change the NSFI of the screen set.

#### Canceling the `RTRV-GTT` and `RTRV-GTA` Commands

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

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

For more information about the `canc-cmd` command, go to *Commands User's Guide*.

1. Verify that the gateway screening redirect function is disabled by entering the `rtrv-gws-redirect` command.

The following is an example of the possible output.

```
rlghncxa03w 09-05-07 00:17:31 GMT EAGLE5 41.0.0
ENABLED   DPCA           RI   SSN  TT   GT

Redirect function data is not provisioned.
```

If the gateway screening redirect function is enabled, the `ent-gws-redirect` command in [Step 2](#) cannot be executed.

2. Provision the gateway screening redirect function by entering the following command.

This example is using the destination point code (`dpc`) 009-002-001, the routing indicator (`ri`) GT, the subsystem number (`ssn`) 15, the global title translation type (`tt`) 225, the global title address (`gta`) 9105551212, and the `enabled` parameter is equal to `on`.

```
ent-gws-redirect:dpc=009-002-001:ri=gt:ssn=15:tt=225
:gta=9105551212:enabled=on
```

- `:dpc/dpca/dpci/dpcn/dpcn24` – The destination point code, either an ANSI, ITU-I, ITU-N, ITU-I Spare, ITU-N Spare, or ITU-N24 point code, that the message is being redirected to. The point code used for this parameter must be in the database as a destination point code of a route, shown in the `rtrv-rte` output, or must be the STP's site point code, shown in the `rtrv-sid` output.

`:dpc/dpca` – an ANSI point code

`:dpci` – an ITU-I or ITU-I Spare point code

`:dpcn` – a 14-bit ITU-N or 14-bit ITU-N Spare point code

`:dpcn24` – a 24-bit ITU-N point code

If you wish to use a destination point code as a value for this parameter, verify that the destination point code has a route assigned to it by entering the `rtrv-rte` command with the point code value being assigned to the gateway screening redirect function. The `dpc` parameter specified with the `rtrv-rte` command must correspond to the parameter value being specified as shown in the list preceding this paragraph.

For this example, enter the `rtrv-rte:dpc=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  -----
                                1s02          0           009-002-001
                                RTX:No      CLLI=dtaclli
```

If you wish to use the STP's point code for the `dpc` parameter, enter the `rtrv-sid` command to find the STP's point code. The following is an example of the possible output.

```
rlghncxa03w 06-10-07 00:20:31 GMT EAGLE5 36.0.0
PCA          PCI          PCN           CLLI          PCTYPE
144-201-001  0-123-1      11211        rlghncxa03w  ANSI
              s-0-123-1      s-11211

CPCA
002-002-002  002-002-003  002-002-004  002-002-005
002-002-006  002-002-007  002-002-008  002-002-009
004-002-001  004-003-003  144-212-003

CPCA (LNP)
005-005-002  005-005-004  005-005-005

CPCI
1-001-1      1-001-2      1-001-3      1-001-4
1-002-1      1-002-2      1-002-3      1-002-4
```

2-001-1	7-222-7		
CPCN			
02091	02092	02094	02097
02191	02192	11177	

The EAGLE 5 ISS's point code is shown in either the PCA, PCI, PCN, or PCN24 fields of the `rtrv-sid` command output. The `rtrv-sid` command will show either the PCN or PCN24 fields along with the PCA and PCI fields.

- `:ri` – The routing indicator for the redirected message.

If the routing indicator is `ssn`, the DPC and SSN shown in the output of the `rtrv-gws-redirect` command, is the final destination of the redirected message. If the routing indicator is `gt`, additional global title translation is required to determine the final destination of the redirected message.

- `:ssn` – The CDPA subsystem to which the redirected message is bound for
- `:tt` – The CDPA translation type of the global title translation
- `:gta` – The CDPA global title translation address. Hexadecimal digits cannot be specified for the `gta` parameter. Only decimal digits can be specified for the `gta` parameter,
- `:enabled` – Whether the messages that have passed GWS are to be redirected (on) or discarded based on the linkset's `gwsd` parameter value (off). If the `enabled` parameter is off and the linkset's `gwsd` value is on, the MSU is discarded, MRN 1084 is generated, and the DTAMSULOST measurement is pegged. If the `enabled` parameter is off and the linkset's `gwsd` value is off, the MSU is routed to its original destination, MRN 1084 is not generated, and the DTAMSULOST measurement is not pegged.

When the command has been completed successfully, the following message should appear.

```
rlghncxa03w 06-10-07 00:21:31 GMT EAGLE5 36.0.0
ENT-GWS-REDIRECT: MASP A - COMPLTD
```

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

The following is an example of the possible output.

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

4. Verify if the enhanced global title translation feature is on or off by entering the `rtrv-feat` command.

If the enhanced global title translation feature is on, the `EGTT` field should be set to on.

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

If the enhanced global title translation feature is on, the `rtrv-tt`, `ent-tt`, `rtrv-gtt`, and `ent-gtt` commands cannot be executed. Instead, the `rtrv-gttset`, `ent-gttset`, `rtrv-gttset`, and `ent-gttset` commands can be executed.

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

**Note:** If the enhanced global title translation is on, skip [Step 5](#), and [Step 6](#), and go to [Step 7](#).

5. Verify the global title translation data in the database for the translation type specified in the output of [Step 3](#) by entering the rtrv-gtt command with the type and gta parameters, specifying the values shown in [Step 3](#) in the TT and GTA fields of the rtrv-gws-redirect command output.

For this example, enter this command.

```
rtrv-gtt:type=225:gta=9105551212
```

The following is an example of the possible output.

```
rlghncxa03w 06-10-07 00:24:31 GMT EAGLE5 36.0.0
TYPEA  TTN      NDGT
225    DTA7     10
GTT TABLE IS 10% FULL.    (27000 of 269999)

START GTA          END GTA          XLAT  RI   PCA          SSN  NGT
9105551212        DPCSSN GT    009-002-001  15  ---
```

If the global title translation data is shown in the rtrv-gtt command output, no further action is necessary. Go to [Step 9](#).

6. Verify that the global title translation type shown in the output of [Step 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 21: Translation Type Parameters](#).

**Table 21: 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 [Step 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 [Step 3](#). This procedure is finished.

**Note:** If the enhanced global title translation is off, do not perform [Step 7](#), [Step 8](#), and [Step 9](#). This procedure is finished.

7. Verify that the global title translation type specified in the output of [Step 3](#), in the TT field, is in the database by entering the `rtrv-gttset` command with the `tt` parameter.

For this example, enter the `rtrv-gttset:tt=225` command. The following is an example of the possible output.

```
rlghncxa03w 06-10-07 00:27:31 GMT EAGLE5 36.0.0
GTIA TT NP NAI GTTSN
2 225 -- --- dta7
```

If the translation type is not in the database, this message is displayed in the scroll area of the terminal display.

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

If the translation type is shown in the `rtrv-gttset` command output, go to [Step 8](#) and verify that the global title address data is in the database.

If the translation type is not shown in the `rtrv-gttset` command output, perform the “Adding a GTT Set,” “Adding a GTT Selector,” and “Adding Global Title Address Information” procedures in *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.

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

Verify the global title translation data in the database for the translation type specified in the output of [Step 7](#) by entering the `rtrv-gta` command with the GTTSN value shown in the output of [Step 7](#), and with the GTA, SSN, and DPC values shown in the output of [Step 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 [Step 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 [Step 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.
```

## Changing the Gateway Screening Redirect Parameters

To change the configuration to support the DTA feature, one or more of the gateway screening redirect function's attributes can be changed using the `chg-gws-redirect` command. This procedure shows the steps necessary to change these attributes.

The gateway screening redirect function's data must be in the database and the gateway screening redirect function must be enabled, shown by the entry `on` in the `enabled` field of the `rtrv-gws-redirect` command output.

Any of the gateway screening redirect function's attributes can be changed. The new attributes, and any database entities required to support these attributes, must be in the database.

### Canceling the RTRV-GTT and RTRV-GTA Commands

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

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

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

The examples in this procedure are used to change the gateway screening redirect function's attributes to these values. The routing indicator is not being changed.

- :dpc - 009-003-001
- :ssn - 45
- :tt - 175
- :gta - 3365841342

1. Verify the gateway screening redirect function attributes by entering the `rtrv-gws-redirect` command.

```
rlghncxa03w 09-05-07 00:17:31 GMT EAGLE5 41.0.0
ENABLED      DPCA          RI    SSN  TT   GTA
on           003-175-010    GT    15   225  9105551212
```

If the DPC, shown in the DPC field, is not being changed, skip, [Step 2](#), and [Step 3](#), and go to [Step 4](#).

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

**Note:** If the DPC is being changed to the EAGLE 5 ISS's point code, skip step 2 and go to step 3.

Verify this by entering the `rtrv-rte` command with the new DPC, in this example, 009-003-001.

```
rlghncxa03w 06-10-07 00:19:31 GMT EAGLE5 36.0.0
DPCA          ALIASI      ALIASN/N24  LSN      RC      APCA
009-003-001  -----  -----  ls02      0      009-001-001
RTX:No      CLLI=dtac11i
```

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 the *Database Administration Manual - SS7* and add the route to the DPC to the database.

3. Display the EAGLE 5 ISS's point code by entering the `rtrv-sid` command.

**Note:** If the DPC is being changed to a point code in the routing table, shown in the output of step 2, skip step 3 and go to [Step 4](#).

```
rlghncxa03w 06-10-07 00:20:31 GMT EAGLE5 36.0.0
PCA          PCI          PCN          CLLI          PCTYPE
144-201-001  0-123-1          11211        rlghncxa03w  ANSI
s-0-123-1    s-11211

CPCA
002-002-002      002-002-003      002-002-004      002-002-005
002-002-006      002-002-007      002-002-008      002-002-009
004-002-001      004-003-003      144-212-003

CPCA (LNP)
005-005-002      005-005-004      005-005-005

CPCI
1-001-1          1-001-2          1-001-3          1-001-4
1-002-1          1-002-2          1-002-3          1-002-4
2-001-1          7-222-7
```

```
CPCN
02091          02092          02094          02097
02191          02192          11177
```

The EAGLE 5 ISS's point code is shown in either the PCA, PCI, PCN, or PCN24 fields of the `rtrv-sid` command output. The `rtrv-sid` command will show either the PCN or PCN24 fields along with the PCA and PCI fields.

4. Change the parameters for the gateway screening redirect function by entering the `chg-gws-redirect` command with any of these parameters:

For this example, enter this command. In this example, the `ri` parameter is not being changed.

```
chg-gws-redirect:dpc=009-003-001:ssn=45:tt=175:gta=3365841342
```

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

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

If only the DPC parameter was changed in [Step 4](#), skip [steps 6](#) through 10, go to [step 11](#).

6. Verify if the enhanced global title translation feature is on or off by entering the `rtrv-feat` command.

If the enhanced global title translation feature is on, the `EGTT` field should be set to on.

For this example, the enhanced global title translation feature is on.

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

If the enhanced global title translation feature is on, the `rtrv-tt`, `ent-tt`, `rtrv-gtt`, and `ent-gtt` commands cannot be executed. Instead, the `rtrv-gttset`, `ent-gttset`, `rtrv-gttset`, `ent-gttset`, `rtrv-gta`, and `ent-gta` are used to verify and configure the global title translation data.

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

**Note:** If the enhanced global title translation is on, skip [steps 7](#) and [8](#), and go to [step 9](#).

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

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

```
rlghncxa03w 06-10-07 00:24:31 GMT EAGLE5 36.0.0
TYPEA  TTN          NDGT
175    DTA7         10
GTT TABLE IS 10% FULL.    (27000 of 269999)

START GTA          END GTA          XLAT  RI    PCA          SSN  NGT
3365841342        -----        DPCSSN GT   009-003-001  45   ---
```



If the global title translation data is shown in the `rtrv-gtt` command output, no further action is necessary. Go to [step 11](#).

8. The new translation type must be in the database.

Verify that the global title translation type specified in the `rtrv-gws-redirect` output in [step 5](#) in the TT field, is in the database by entering the `rtrv-tt` command with the type parameter corresponding to the point code type shown in the `rtrv-gws-redirect` output in [step 5](#) and [Table 22: Translation Type Parameters](#).

**Table 22: Translation Type Parameters**

Point Code Type	DPC Parameter shown in the <code>rtrv-gws-redirect</code> output	Translation Type Parameter
ANSI	DPC/DPCA	typea
ITU-I or ITU-I Spare	DPCI	typei
ITU-N or ITU-N Spare	DPCN	typen
ITU-N24	DPCN24	typen24

In this example, the 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 Manual - Global Title Translation* and configure a global title translation entry that contains the values shown in the `rtrv-gws-redirect` output in [step 5](#). This procedure is finished. If the translation type is not shown in the `rtrv-tt` output, perform the “Adding a Translation Type” and “Adding a Global Title Translation” procedures in the *Database Administration Manual - Global Title Translation* and configure a global title translation entry that contains the values shown in the `rtrv-gws-redirect` output in [step 5](#). This procedure is finished.

9. Verify that the global title translation type specified in the output of [step 5](#), in the TT field, is in the database by entering the `rtrv-gttset` command with the `tt` parameter.

**Note:** If the enhanced global title translation is off, do not perform steps 9, 10, and 11. This procedure is finished.

For this example, enter the `rtrv-gttset:tt=175` command.

```
rlghncxa03w 06-10-07 00:27:31 GMT EAGLE5 36.0.0
GTIA TT NP NAI GTTSN
2 175 -- --- dta7
```

If the translation type is not in the database, this message is displayed in the scroll area of the terminal display.

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

If the translation type is shown in the `rtrv-gttset` command output, go to [step 10](#) and verify that the global title address data is in the database.

If the translation type is not shown in the `rtrv-gttset` command output, perform the “Adding a GTT Set,” “Adding a GTT Selector,” and “Adding Global Title Address Information” procedures in the *Database Administration Manual - Global Title Translation* and configure a global title address entry that contains the values shown in the `rtrv-gws-redirect` output in step 3. This procedure is finished.

**10.** The new global title address must be in the database.

Verify the global title translation data in the database for the translation type specified in the output of [step 5](#) by entering the `rtrv-gta` command with the GTTSN value shown in the output of [step 9](#) and with the GTA, SSN, and DPC values shown in the output of [step 5](#). For this example, enter this command.

```
rtrv-gta:gttsn=dta7:gta=3365841342:pca=009-003-001:ssn=45
```

```
rlghncxa03w 06-10-07 00:28:31 GMT EAGLE5 36.0.0
GTTSN NETDOM NDGT
t800 ansi 10
GTA TABLE IS 1 % FULL (17 of 269999)

START GTA END GTA XLAT RI PCA SSN CCGT NTT
```

If the required global title translation data is shown in the `rtrv-gta` command output, no further action is necessary. Go to [step 11](#).

If the required global title translation data is not shown in the `rtrv-gta` command output, perform the “Adding Global Title Address Information” procedure in the *Database Administration Manual - Global Title Translation* and configure a global title address entry that contains the values shown in the `rtrv-gws-redirect` output in [step 5](#). 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.
```

## Disabling the Gateway Screening Redirect Function

This procedure is used to turn off the gateway screening redirect function using either the `dlt-gws-redirect` or `chg-gws-redirect` commands. Turning off the gateway screening redirect function also turns off the DTA feature.

1. Verify that the gateway screening redirect function is enabled by entering the `rtrv-gws-redirect` command.

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

2. Disable the gateway screening redirect function by entering the `dlt-gws-redirect` command or the `chg-gws-redirect:enabled=off` command.
3. Display the gateway screening stop action sets in the database by entering the `rtrv-gws-actset` command.

The entry `rdct` is displayed in the `ACT1` through the `ACT10` fields in any gateway screening stop action sets that have the redirect gateway screening stop action assigned to them.

```
rlghncxa03w 06-10-07 00:20:31 GMT EAGLE5 36.0.0
ACT  ACT  ACT  ACT  ACT  ACT  ACT  ACT  ACT  ACT  ACT  ACT
ID  NAME  1    2    3    4    5    6    7    8    9    10
--  ---  ---  ---  ---  ---  ---  ---  ---  ---  ---  ---
1   copy  copy
2   rdct  rdct
3   cr    copy rdct
GWS action set table is (3 of 16) 19% full
```

4. All gateway screening entities that have been assigned the redirect function must have the redirect function turned off.

Check the gateway screening entities for any screening references that have the redirect gateway screening stop action assigned to them.

Enter each of the following commands with the `actname` parameter specifying the name of the gateway screening stop action set shown in step 3 that contains the redirect gateway screening stop action. If a redirect gateway screening stop action has been assigned to a gateway screening entity, the name of the gateway screening stop action appears after the `NSR/ACT` field.

If a redirect gateway screening stop action has not been assigned to a gateway screening entity, the command is rejected with this message.

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

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

```
rlghncxa03w 06-10-07 00:21:31 GMT EAGLE5 36.0.0
SCREEN = ALLOWED OPC
```

```
SR      NI      NC      NCM      NSF1      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      NSF1      NSR/ACT
DTA2   C        C        C        STOP      RDCT
```

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

```
rlghncxa03w 06-10-07 00:23:31 GMT EAGLE5 36.0.0
SCREEN = ALLOWED SIO
SR      NIC     PRI     SI     H0      H1      NSF1      NSR/ACT
DTA3   1      3      4      --      --      STOP      RDCT
```

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

```
rlghncxa03w 06-10-07 00:24:31 GMT EAGLE5 36.0.0
SCREEN = ALLOWED DPC
SR      NI      NC      NCM      NSF1      NSR/ACT
DTA4   243      015      001      STOP      RDCT
```

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

```
rlghncxa03w 06-10-07 00:25:31 GMT EAGLE5 36.0.0
SCREEN = BLOCKED DPC
SR      NI      NC      NCM      NSF1      NSR/ACT
DTA5   C        C        C        STOP      RDCT
```

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

5. If any of the necessary gateway screening entities displayed in step 4 have been assigned a gateway screening stop action containing the redirect gateway screening stop action, change the gateway screening stop action for these entities to a gateway screening stop action displayed in step 3 that does not have the redirect gateway screening stop action assigned to it, or to have no gateway screening stop action set assigned to the gateway screening entity with the actname=none parameter.

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

```
chg-scr-opc:sr=dta1:ni=240:nc=001:ncm=010:actname=none
```

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

```
rlghncxa03w 06-10-07 00:27:31 GMT EAGLE5 36.0.0
CHG-SCR-OPC: SCREEN SET AFFECTED - DTA1 55% FULL
CHG-SCR-OPC: MASP A - COMPLTD
```

```
chg-scr-blkdpc:sr=dta2:nc=c:ni=c:ncm=c:actname=none
```

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

```
rlghncxa03w 06-10-07 00:28:31 GMT EAGLE5 36.0.0
CHG-SCR-BLKOPC: SCREEN SET AFFECTED - DTA2 55% FULL
CHG-SCR-OPC: MASP A - COMPLTD
```

```
chg-scr-sio:sr=dta3:nic=1:pri=3:si=4:actname=none
```

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

```
rlghncxa03w 06-10-07 00:29:31 GMT EAGLE5 36.0.0
CHG-SCR-SIO: SCREEN SET AFFECTED - DTA3 55% FULL
CHG-SCR-SIO: MASP A - COMPLTD
```

```
chg-scr-dpc:sr=dta4:ni=243:nc=015:ncm=001:actname=none
```

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

```
rlghncxa03w 06-10-07 00:30:31 GMT EAGLE5 36.0.0
CHG-SCR-DPC: SCREEN SET AFFECTED - DTA4 55% FULL
CHG-SCR-DPC: MASP A - COMPLTD
```

```
chg-scr-blkdpc:sr=dta5:nc=c:ni=c:ncm=c:actname=none
```

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

```
rlghncxa03w 06-10-07 00:31:31 GMT EAGLE5 36.0.0
CHG-SCR-BLKDPC: SCREEN SET AFFECTED - DTA5 55% FULL
CHG-SCR-BLKDPC: MASP A - COMPLTD
```

```
chg-scr-destfld:sr=dta6:ni=240:nc=001:ncm=010:actname=none
```

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

```
rlghncxa03w 06-10-07 00:32:31 GMT EAGLE5 36.0.0
CHG-SCR-DESTFLD: SCREEN SET AFFECTED - DTA6 55% FULL
CHG-SCR-DESTFLD: MASP A - COMPLTD
```

- 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 of 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.
```

# Chapter 6

## GSM MAP Screening Configuration

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Chapter 6, GSM MAP Screening Configuration, describes the GSM MAP Screening feature and the procedures necessary to configure the EAGLE 5 to support this feature.

## Introduction

Traditionally, STP message screening has been limited to the MTP and SCCP levels; this has been sufficient to meet operators' needs. However, GSM mobile operators have an increasing need for screening at the Mobile Application Part (MAP) level. This need is driven by advanced network capabilities and proliferating roaming agreements.

New features that require this enhanced screening capability are Inter-operator Short Message Service (SMS) and Any Time Interrogation (ATI). The GSM MAP Screening feature focuses on solving the screening needs associated with ATI, which is defined in MAP version 3. An ATI message allows an external server to interrogate an HLR and obtain information about the location and/or state of a GSM subscriber. It may be desirable to control which external entities can request this information, and what information they can request before allowing the message to pass through to the HLR.

This feature allow the user to provision which MAP SSNs are affected, which MAP operations codes to screen, which origination points are allowed, and which error messages to use.

**Note:**

GSM MAP Screening can be used with linksets containing ITU international or ITU national adjacent point codes whether or not the Enhanced GSM MAP Screening feature is enabled and on. GSM MAP Screening can be used with linksets containing ANSI adjacent point codes only if the Enhanced GSM MAP screening feature is enabled and on.

## GSM MAP Screening Overview

An SCCP MSU arrives at the EAGLE 5 ISS on a linkset with the `gsmscrn` parameter value set to `on`. If the DPC of the MSU is the EAGLE 5 ISS's point code, the MSU is processed by Global Title Translation and Gateway Screening on the called party address (CDPA). Any applicable SCCP/MTP conversions are also performed on the MSU. The MSU is passed on to GSM MAP Screening. GSM MAP screening is then performed on the MSU before forwarding it to the destination. If the `gsmscrn` parameter of the linkset is set to `off`, GSM MAP Screening is not performed on the MSU.

If the DPC of the MSU is not the EAGLE 5 ISS's point code, the message is routed to its destination using MTP routing. GSM MAP Screening is not performed on the MSU.

If the MTP MAP Screening feature is enabled and turned on, and the DPC of the MSU is not the EAGLE 5 ISS's point code, the MSU (SCCP message types 9 - UDT, or 10 - UDTS only) is sent to GSM MAP Screening without being processed by Global Title Translation and Gateway Screening on the called party address. GSM MAP screening is then performed on the MSU before forwarding the MSU to its destination.

When GSM MAP Screening on the message has completed, the EAGLE 5 ISS performs one of the following actions:

- Route the message to destination
- Discard the message
- Forward the message to a new destination



- Duplicate the message. Send the original message to the original destination, and send the duplicate message to a new destination.
- Duplicate the message and send the duplicate message to a new destination. Discard the original message.
- Return an error message to the originator.

GSM MAP screening first checks to see whether the calling party SSN and called party SSN are present and targeted to be screened or not.

If both SSNs are targeted, it then checks for the MAP operations code of the message to know whether it is targeted to be screened or not. If the MAP operations code is not targeted to be screened, then the EAGLE 5 ISS either discards or routes the message, defined by the `GSMDFLT` parameter of the `chg-stpopts` command. If the MAP operations code is targeted to be screened, GSM MAP screening checks the calling party address of the message to know whether it is targeted for screening or not.

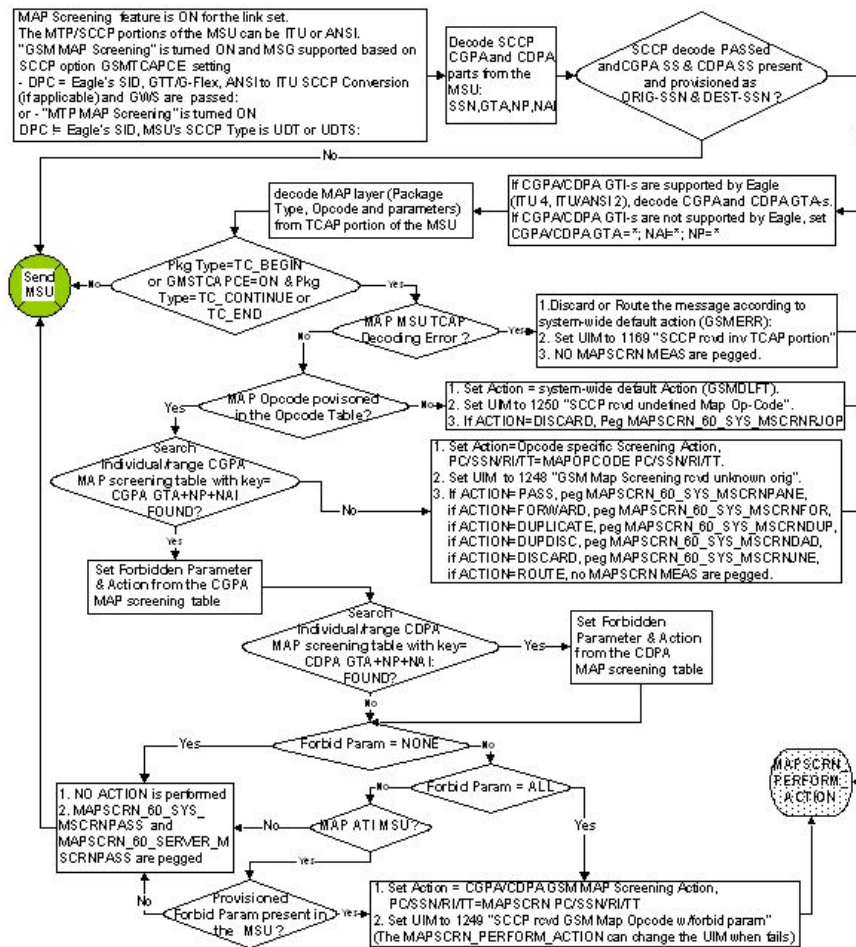
If the CGPA (calling party address) of the message is not targeted for GSM MAP Screening, then the screening action defined in the MAP operations code table by the `dfltact` parameter of the `ent-gsms-opcode` command is performed on the message.

If the CGPA of the message is targeted for screening and the Enhanced GSM MAP Screening feature is enabled and on, GSM MAP Screening checks the CDPA (called party address) of the message to know whether or not it is targeted for screening. If the CDPA of the message is targeted for screening, GSM MAP screening checks to see if the ATI request contains the forbidden parameter value provisioned for the CDPA. If there is no forbidden parameter in the ATI request, the message is not an ATI request, or the provisioned forbidden parameter value for the CDPA is `none`, the message is routed to the destination. If the message is an ATI request and contains the forbidden parameter value provisioned for the CDPA, or the provisioned forbidden parameter value is `all`, GSM MAP screening performs the screening action defined in the CDPA screening table by the `action` parameter of the `ent-gsmmap-scrn` command.

If the CDPA of the message is not targeted for screening, GSM MAP screening checks to see if the ATI request contains the forbidden parameter value provisioned for the CGPA. If there is no forbidden parameter in the ATI request, the message is not an ATI request, or the provisioned forbidden parameter value for the CGPA is `none`, the message is routed to the destination. If the message is an ATI request and contains the forbidden parameter value provisioned for the CGPA, or the provisioned forbidden parameter value is `all`, GSM MAP screening performs the screening action defined in the CGPA screening table by the `action` parameter of the `ent-gsmmap-scrn` command.

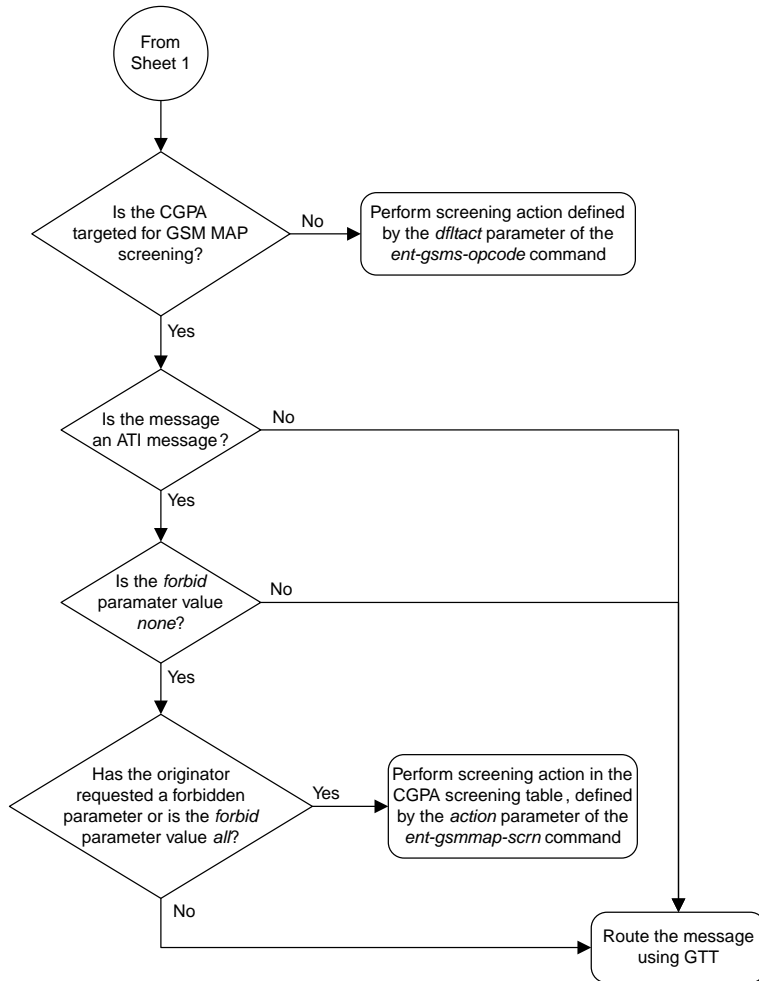
If the CGPA of the message is targeted for screening and the Enhanced GSM MAP Screening feature is not enabled and off, GSM MAP Screening checks the CGPA (calling party address) of the message to know whether or not it is targeted for screening. If the CGPA of the message is targeted for screening, GSM MAP screening checks to see if the ATI request contains the forbidden parameter value provisioned for the CGPA. If there is no forbidden parameter in the ATI request, the message is not an ATI request, or the provisioned forbidden parameter value for the CGPA is `none`, the message is routed to the destination. If the message is an ATI request and contains the forbidden parameter value provisioned for the CGPA, or the provisioned forbidden parameter value is `all`, GSM MAP screening performs the screening action defined in the CGPA screening table by the `action` parameter of the `ent-gsmmap-scrn` command.

*Figure 20: GSM MAP Screening Overview* shows overview of GSM MAP screening functionality.



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Figure 20: 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.

1. The following fields from SCCP message are decoded:
  - The SSN from the calling party address
  - The SSN from the called party address
  - The global title address from the calling party address
  - The global title address from the called party address (only if the Enhanced GSM MAP Screening feature is enabled and turned on).

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

2. GSMMAP Screening performs a lookup in the origination SSN table for an entry with the SSN of calling party address. If an entry is not found, GSMMAP screening is stopped and the message is routed to its destination using global title translation.
3. GSMMAP Screening performs a lookup in the destination SSN table for an entry with the SSN of called party address. If an entry is not found, GSMMAP screening is stopped and the message is routed to its destination using global title translation.
4. GSMMAP Screening checks to see if the CGPA and CDPAGTI values are supported in the EAGLE 5 ISS. The EAGLE 5 ISS supports only these GTI values: for an ANSI message - GTI value of 2; for an ITU message - GTI values of 2 or 4. If the CGPA and CDPAGTI values are supported, the GTA values are decoded. If the GTI values are not supported in the EAGLE 5 ISS, the GTA, NAI, and NP values for the CGPA or CDPA are set to asterisk (\*). The asterisk (\*) values for the GTA, NAI, and NP parameters allows the action of the provisioned wildcard entries for the CGPA/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

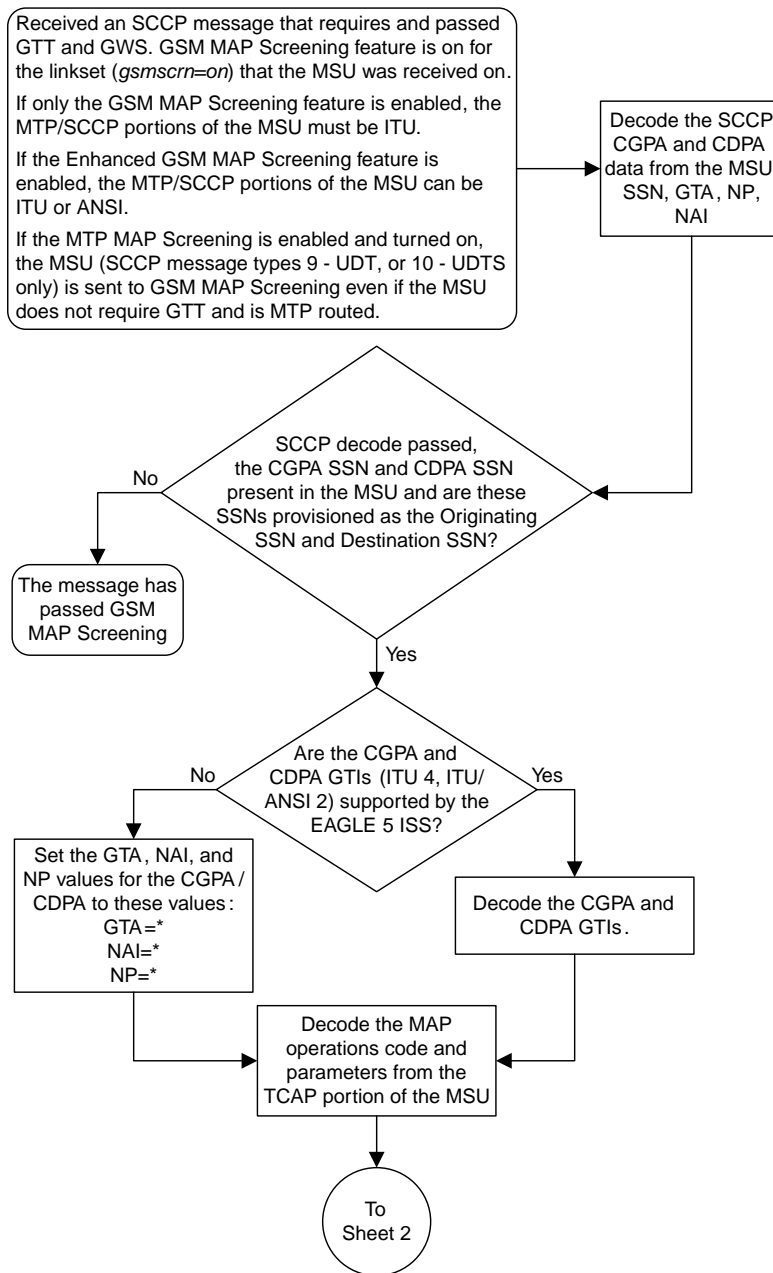
screening table, the screening action defined in the GSM MAP operations code table by the `df1tact` parameter of the `ent-gsms-opcode` command is performed.

8. If the Enhanced GSM MAP Screening feature is enabled and turned on, GSM MAP Screening performs a lookup for an entry for the called party address in the GSM MAP screening table.
9. If an entry is found in the MAP screening table, the forbidden parameter from the GSM MAP screening table is checked. If the forbidden parameter value is `none`, the message is routed to its destination. If the forbidden parameter value is `all`, the screening action defined in the GSM MAP screening table by the `action` parameter of the `ent-gsmmap-scrn` command is performed. For any other forbidden parameter, the parameter list of the message is examined. If the message is an ATI request and the forbidden parameter is found in the parameter list, then the screening action defined in the GSM MAP screening table by the `action` parameter of the `ent-gsmmap-scrn` command is performed.

The screening actions defined by the `df1tact` parameter of the `ent-gsms-opcode` command and the `action` parameter of the `ent-gsmmap-scrn` command are:

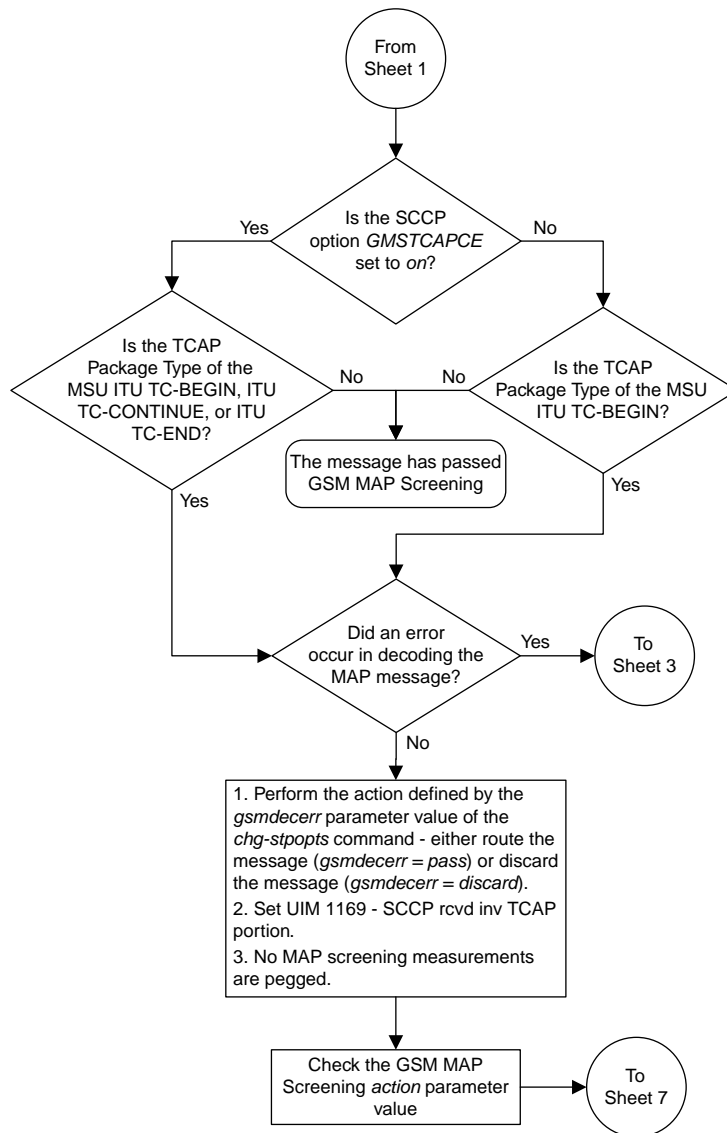
- **DISCARD** – do not route the MSU. The MSU is discarded (thrown away) and the appropriate UIM is issued. This is the default action value.
- **PASS** – route the message as normal to the destination and the appropriate UIM is issued.
- **ATIERR** – do not route the MSU and send a rejection message back to the originator.
- **ROUTE** – route the message as normal to the original destination node, defined by global title translation.
- **FORWARD** – route the original message to the forward node. The original message is not sent to the original node. If, however, the forwarded node is not available for routing then the MSU is routed to the original node, defined by global title translation.
- **DUPLICATE** – route the message as normal to the original destination, defined by global title translation, and route a copy of the original message to the duplicate node. If the MSU fails to route to the duplicate node, then a UIM is generated indicating the duplicate routing failure.
- **DUPLICATE AND DISCARD** – route the original message to the duplicate node. The original message is not sent to the original node. If, however, the duplicate node is not available for routing then the MSU is discarded.

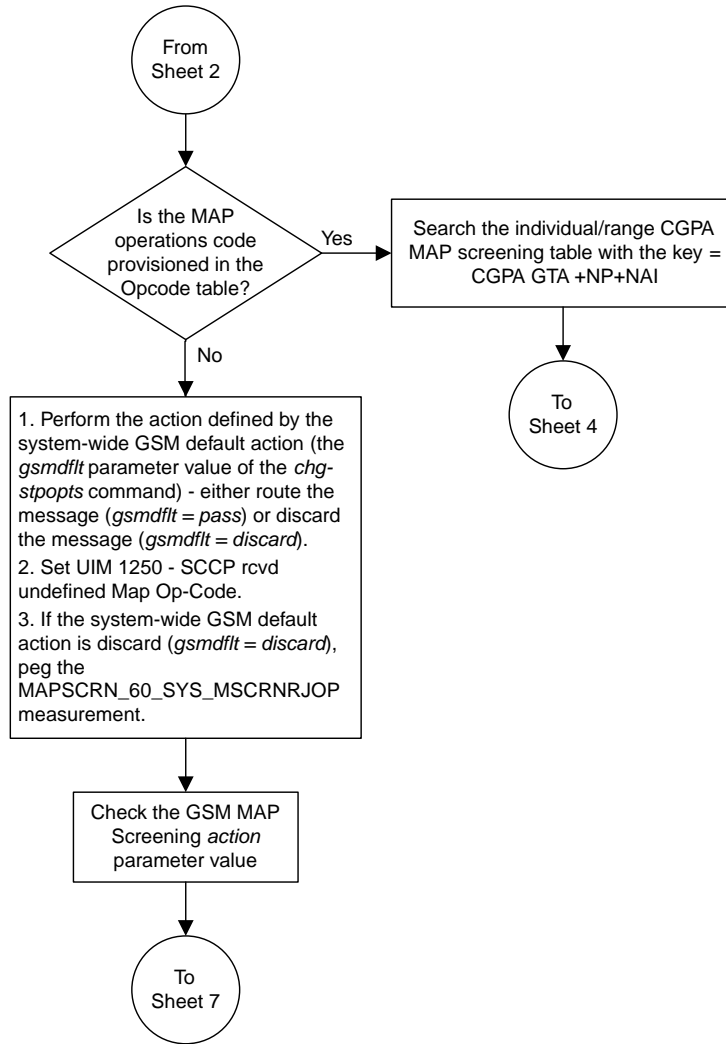
*Figure 21: GSM MAP Screening Details* shows how GSM MAP screening is performed.



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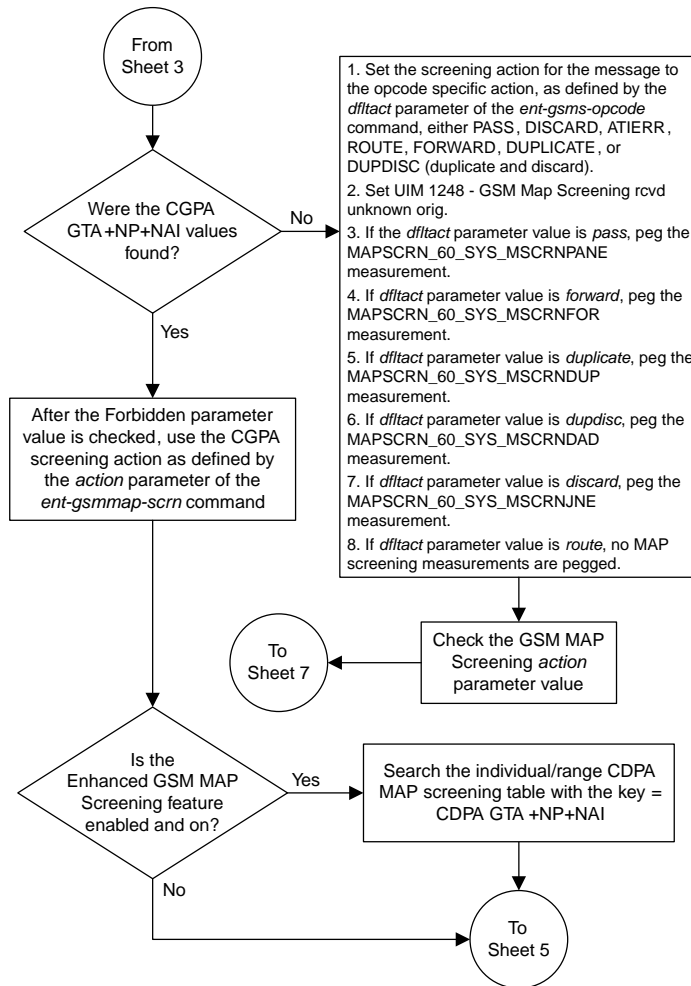
Figure 21: GSM MAP Screening Details



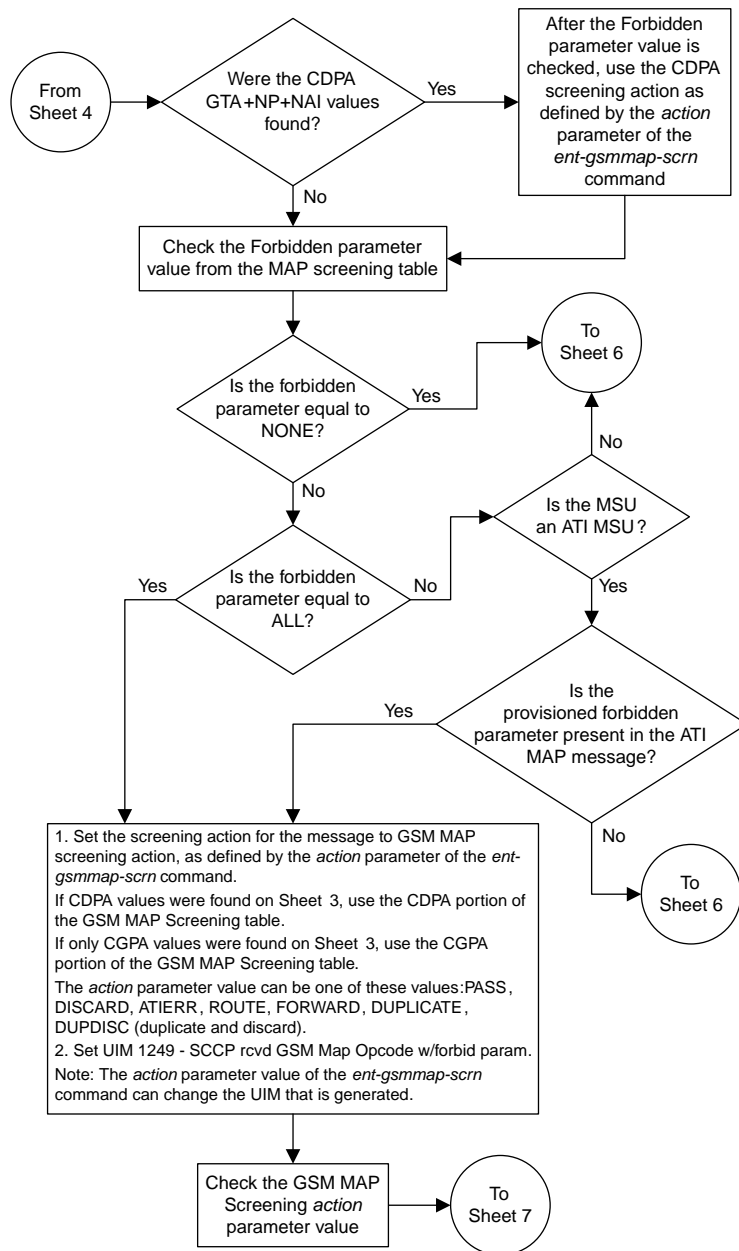


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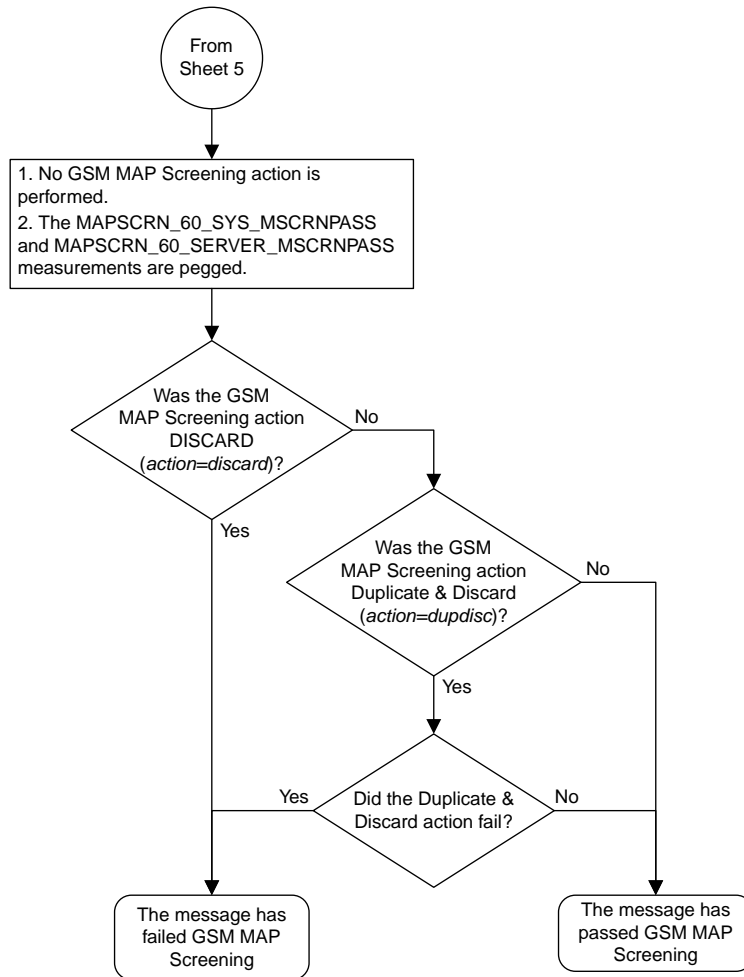




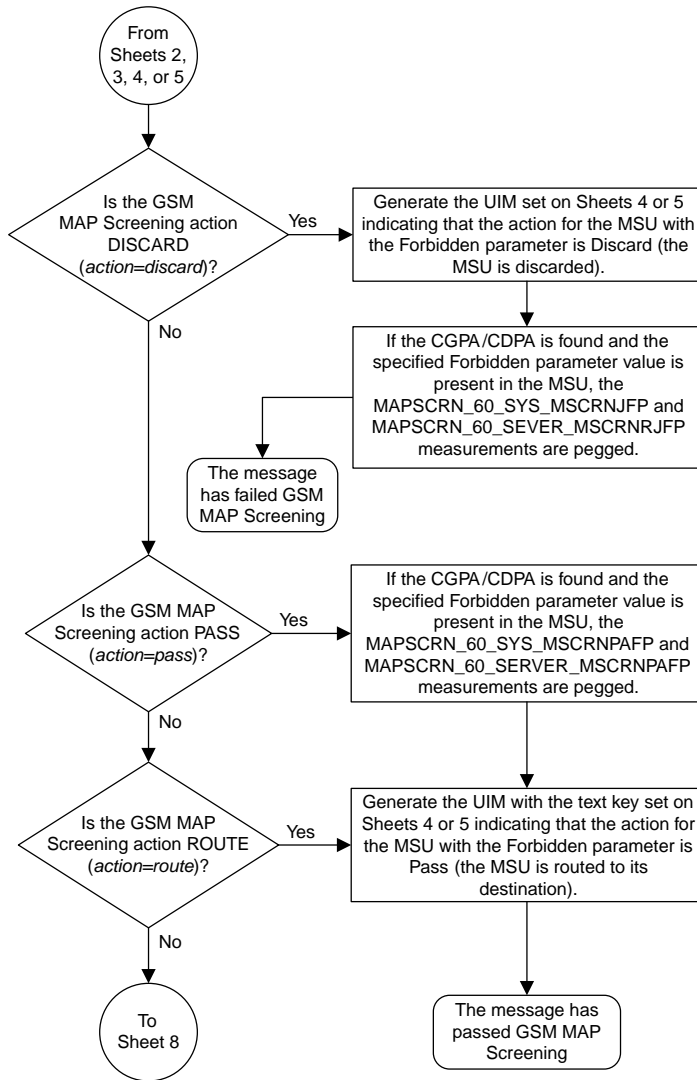
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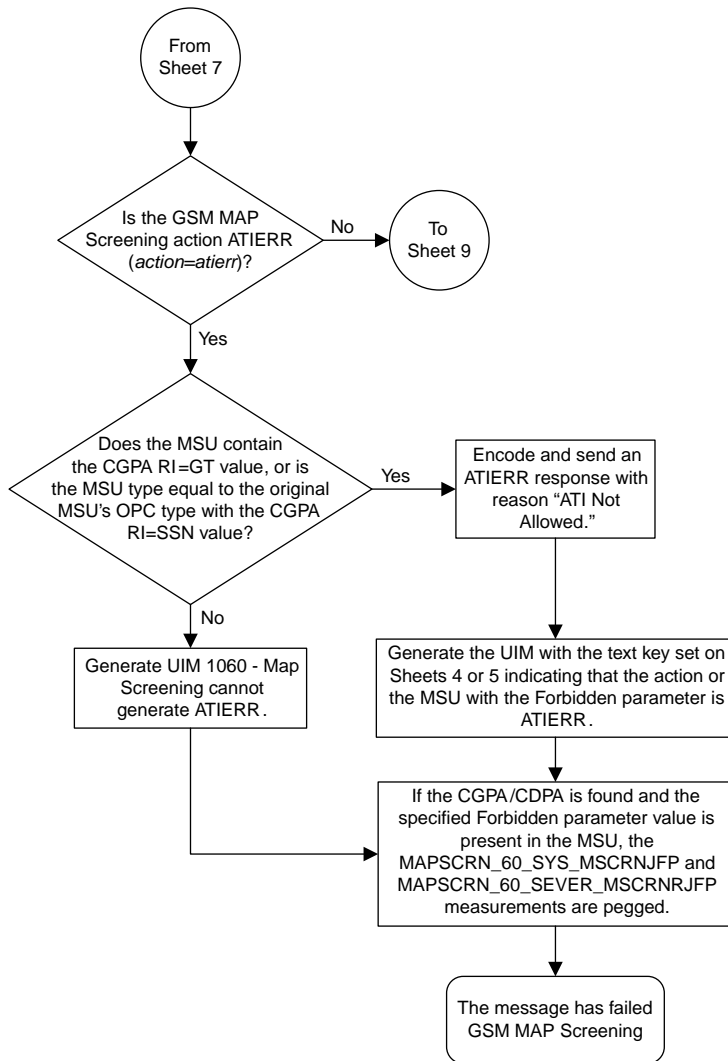
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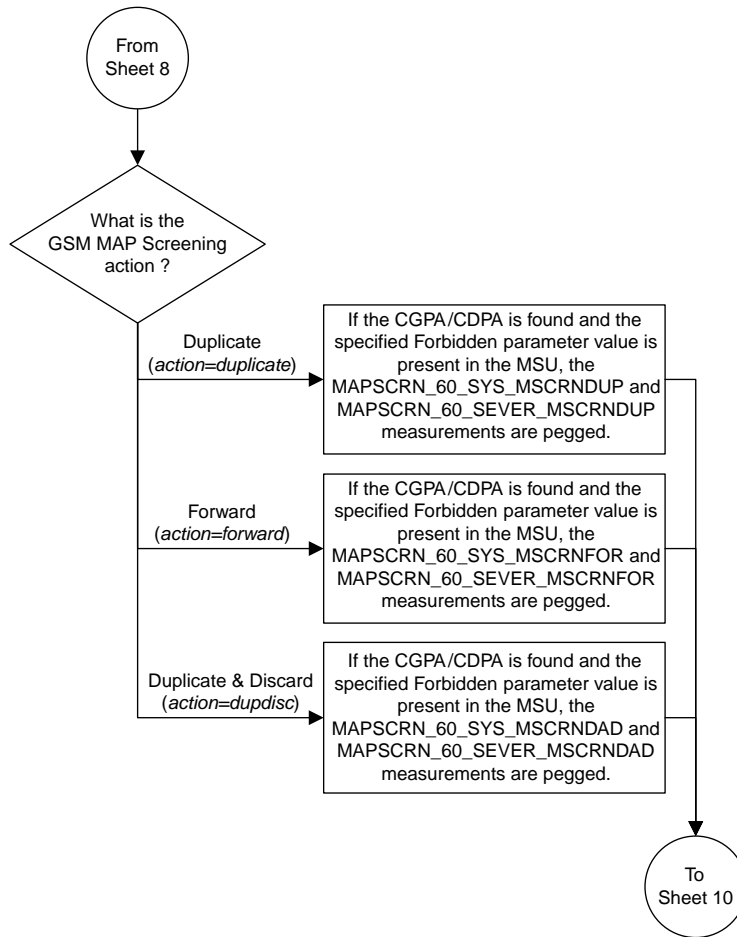
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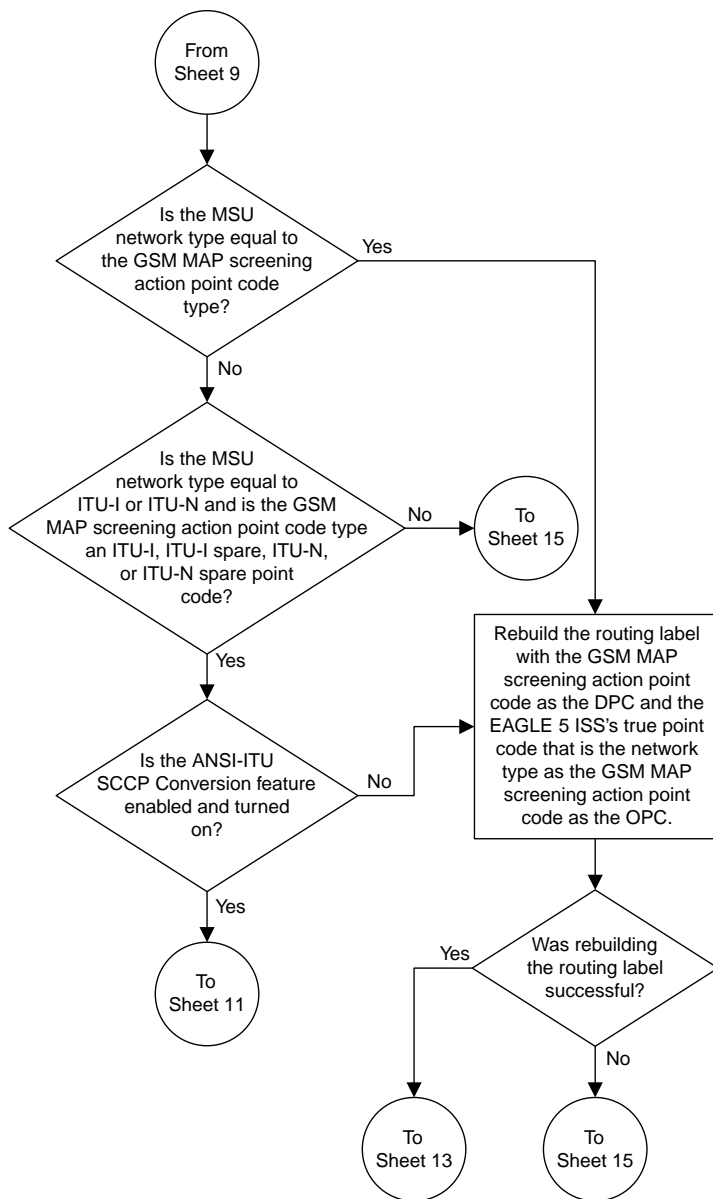
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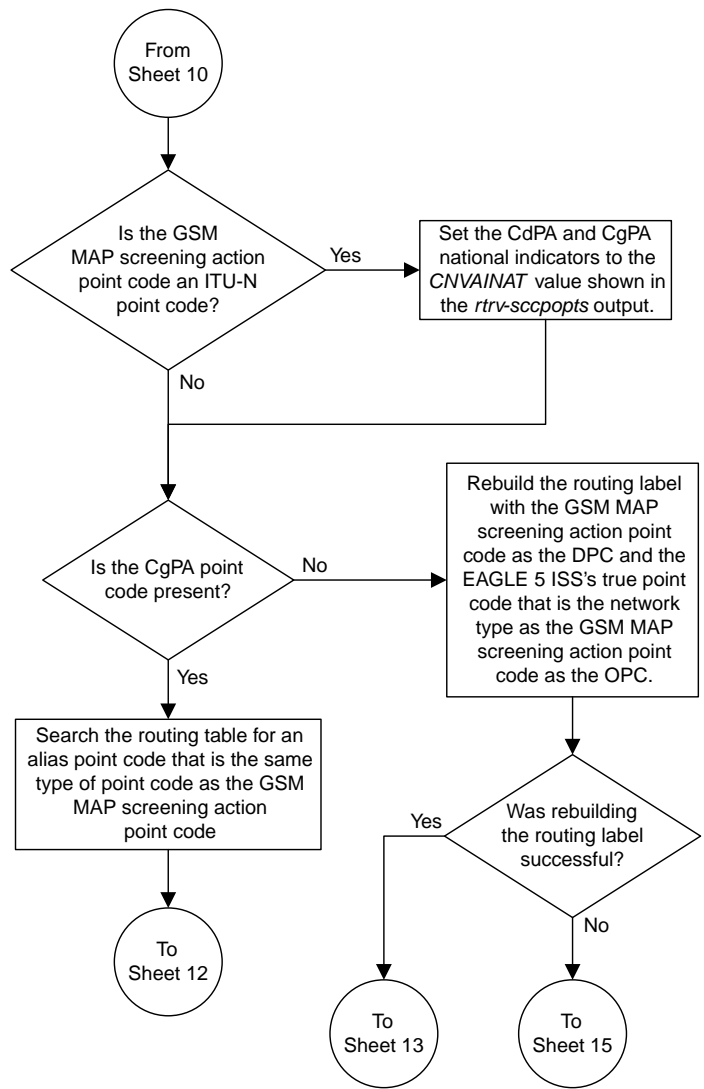
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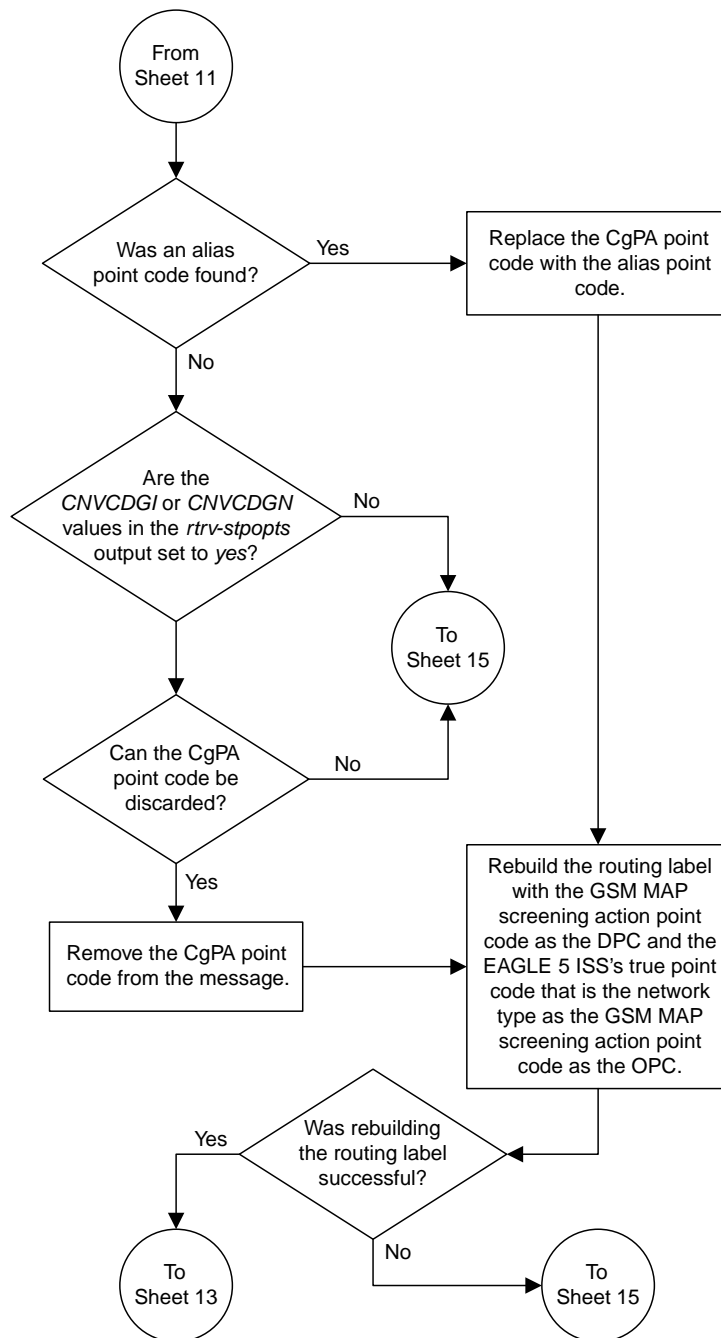
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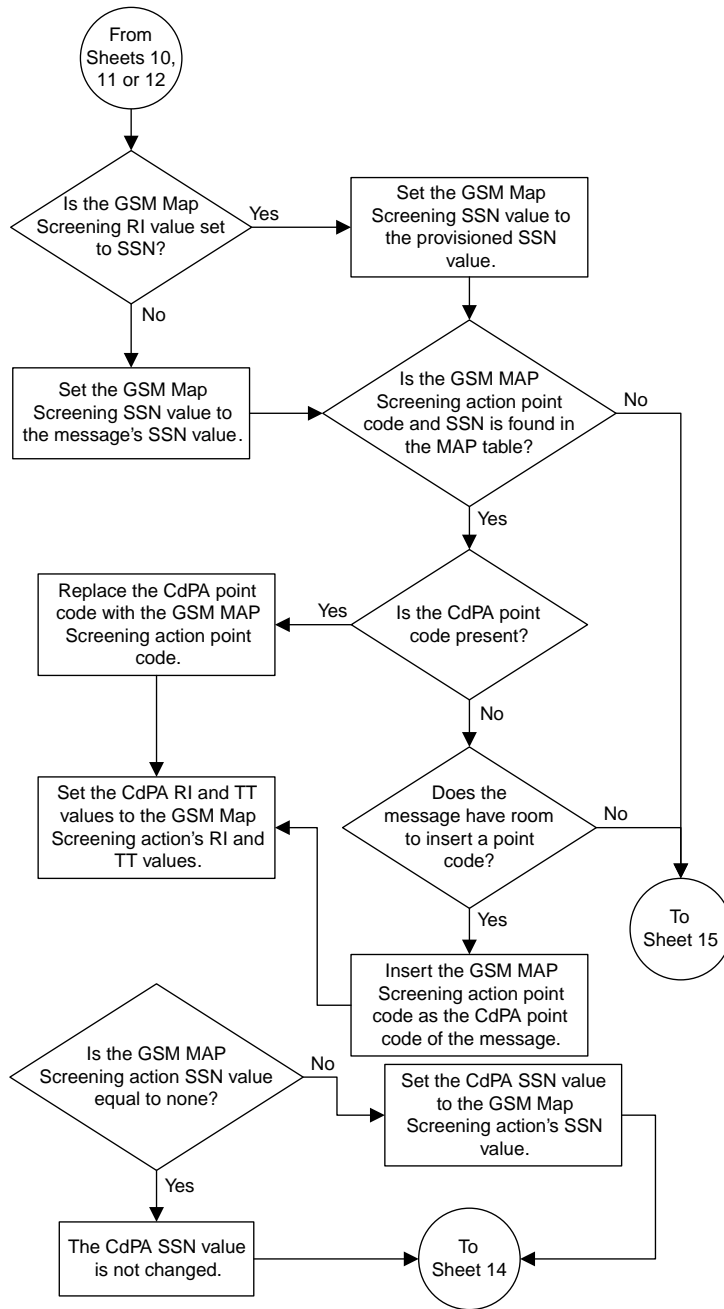


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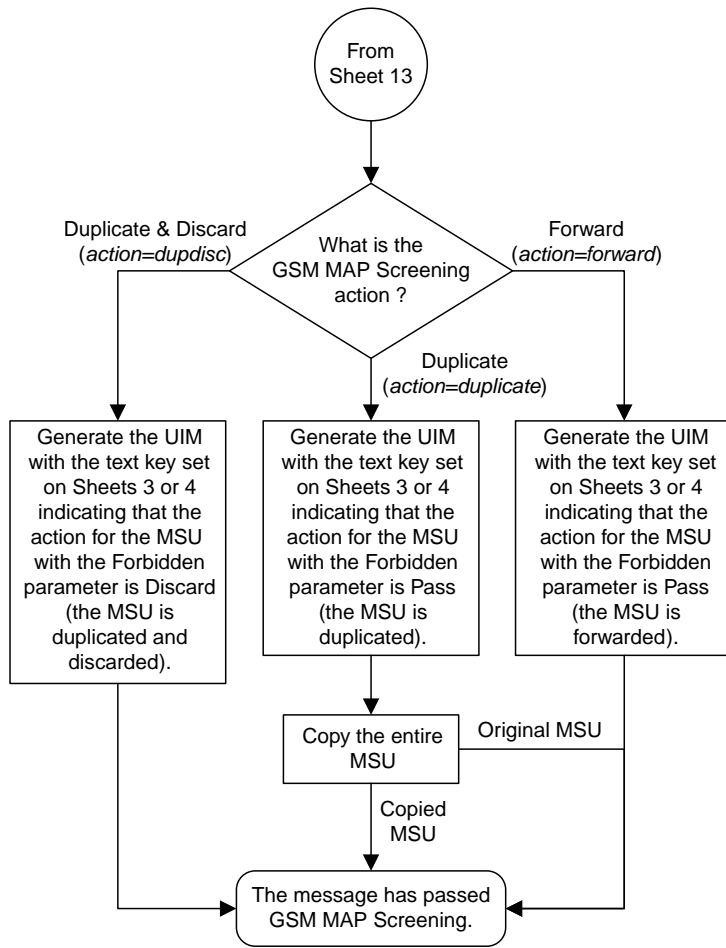




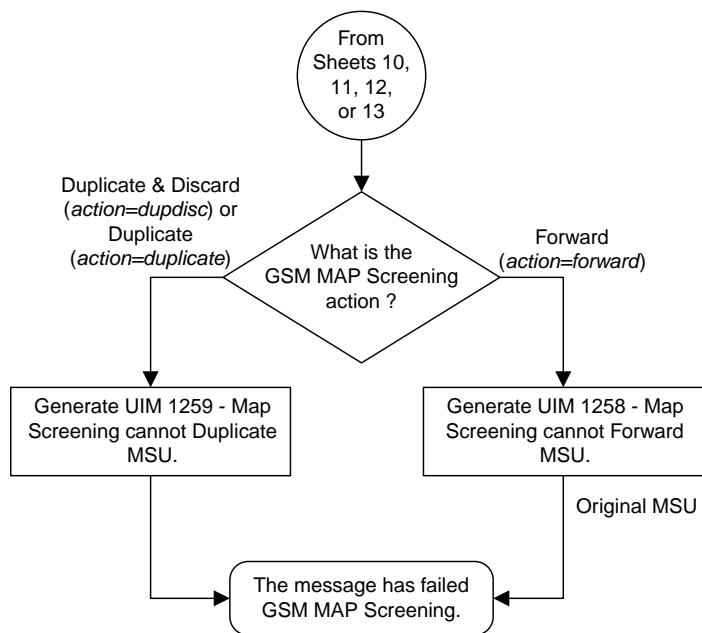




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## GSM MAP Screening Example

Table 23: Example GSM MAP Screening Table shows an example of the GSM MAP screening table.

Table 23: Example GSM MAP Screening Table

Authorized Origination Point (E.164 address)	Numbering Plan	Nature of Address Indicator	MAP Operations Code	Forbidden Parameters	Screening Action
6611273888	1	4	ATI_Request	All	Discard
6611273444	1	4	SRI_for_SM	All	Discard
6611273444	1	4	ATI_Request	Subscriber state	ATI-error
5431111888	1	4	FW_SM	None	----
5431111777	1	4	ATI_Request	All	Pass

In this example,

- Any ATI\_Request message from 6611273888 containing the numbering plan value of 1 and nature of address indicator value of 4 would be discarded.
- Any SRI\_for\_SM from 6611273444 containing the numbering plan value of 1 and nature of address indicator value of 4 would be discarded.
- An ATI\_Request message from 6611273444 containing the numbering plan value of 1 and nature of address indicator value of 4 requesting the Location only would be routed. An ATI\_Request message from 6611273444 requesting both the Location and Subscriber state would result in an ATI-error message being sent back to the originator. An ATI\_Request message from 6611273444 requesting the Subscriber state only would result in an ATI-error message being sent back to the originator.
- A FW\_SM message from 5431111888 containing the numbering plan value of 1 and nature of address indicator value of 4 would be routed successfully, because no parameters are forbidden.
- Any ATI\_Request from 5431111777 containing the numbering plan value of 1 and nature of address indicator value of 4 would be routed successfully because of the "Pass" screening action. This could be used for testing purposes prior to screening.

*Table 24: System-Wide Screening Table* 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 24: System-Wide Screening Table**

MAP Operations Code	Operations Code Specific Screening Action
ATI	ATI-error
SRI_for_SM	Discard

## GSM MAP Screening Procedures

The following procedures describe the steps needed to add, remove, or change GSM MAP Screening data in the database.

The items administered in this section are:

- Linkset with GSM MAP Screening enabled
- STP options for GSM MAP Screening
- GSM SSN
- GSM Opcodes
- GSM MAP Screening entries
- An option to enable or disable the processing of GSM MAP Screening TCAP Continue and TCAP End messages.

The procedures shown in this chapter use a variety of commands. For more information on these commands, refer to the *Commands Manual*.

*Figure 22: GSM MAP Screening Database Relationships* shows the relationships of the database elements that are configured in these procedures.

The following is a brief description of the GSM MAP Screening entities. These entities must be configured in the order that they are shown.

1. The Global Title Translation (GTT) feature must be turned on with the `chg-feat` command using the `gtt=on` parameter. The global title translation feature must be on before the GSMMAP Screening feature can be enabled and turned on. Verify that the GTT feature is on using the `rtrv-feat` command.

**Note:** Once the Global Title Translation (GTT) feature is turned on with the `chg-feat` command, it cannot be turned off.

The GTT feature must be purchased before turning on the GTT feature. If you are not sure whether you have purchased the GTT feature, contact your Tekelec Sales Representative or Account Representative.

2. The GSMMAP Screening feature must be enabled with the `enable-ctrl-feat` command, and turned on with the `chg-ctrl-feat` command. Verify the status of the GSMMAP Screening feature with the `rtrv-ctrl-feat` command.

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

3. GSM MAP Screening can process TCAP Continue and TCAP End messages in addition to TCAP Begin messages by setting the SCCP option parameter `GMSTCAPCE` to `on` with the `chg-sccpopts` command. Setting the SCCP option parameter `GMSTCAPCE` to `off` disables the processing of the TCAP Continue and TCAP End messages. The current value of the `GMSTCAPCE` parameter is shown in the `rtrv-sccpopts` output. For more information on setting the SCCP option parameter `GMSTCAPCE`, see the [Changing the GSM MAP Screening TCAP Continue and End Message Processing Option](#) procedure.

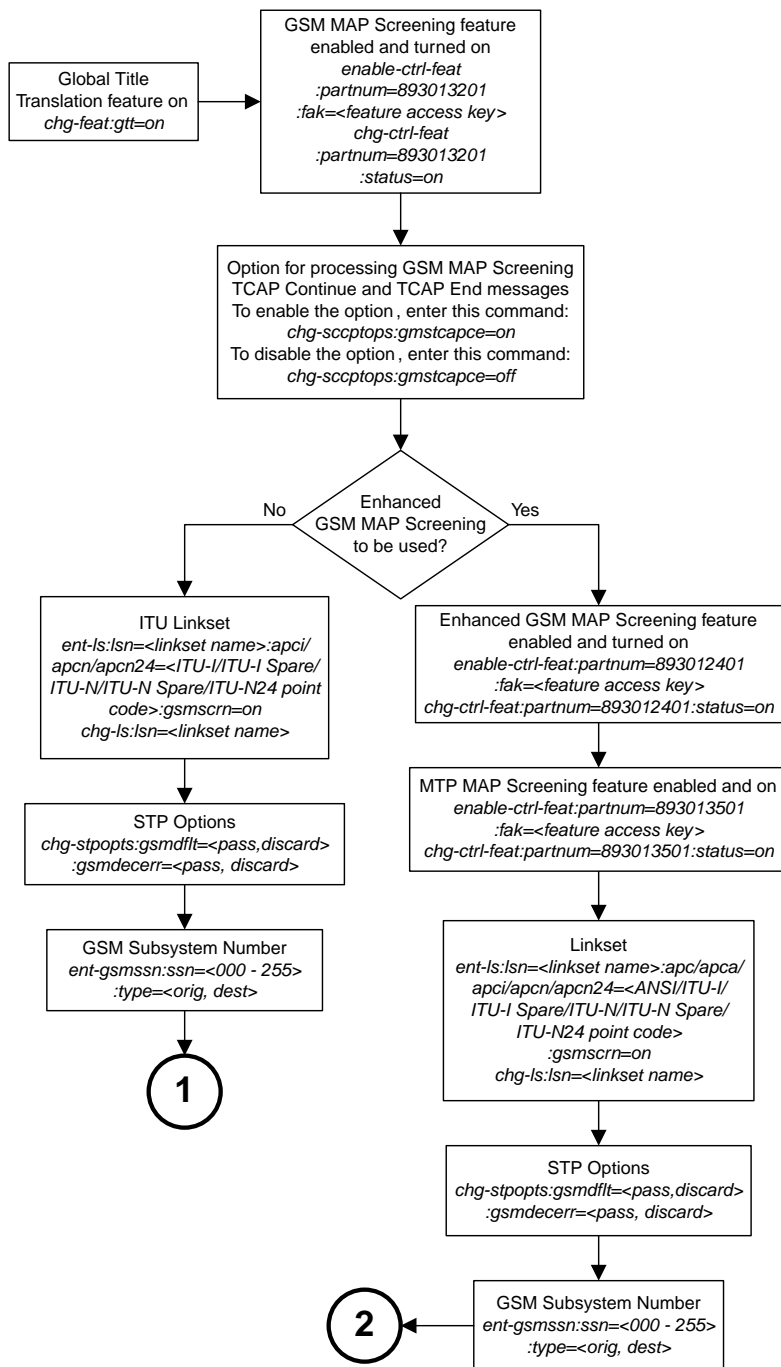
4. To use GSMMAP Screening on all types of linksets including ANSI linksets, or to provision CDPA entries in the GSMMAP Screening table, the Enhanced GSMMAP Screening feature must be enabled with the `enable-ctrl-feat` command, and turned on with the `chg-ctrl-feat` command. Verify the status of the Enhanced GSMMAP Screening features with the `rtrv-ctrl-feat` command.

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

5. MSUs that do not require global title translation and are MTP routed can be sent to GSMMAP Screening only if the MTPMAP Screening feature is enabled with the `enable-ctrl-feat` command, and turned on with the `chg-ctrl-feat` command. The Enhanced GSMMAP Screening feature must be enabled and turned on to enable and turn on the MTPMAP Screening feature.
6. Linksets containing the `gsmscrn=on` parameter must be in the database. The `gsmscrn=on` parameter allows the messages on these linksets to be screened by the GSMMAP Screening feature. Verify this with the `rtrv-ls` command. If the necessary linksets are not in the database, add them with the `ent-ls` command, specifying the `gsmscrn=on` parameter. If the necessary linksets are in the database, but do not contain the `gsmscrn=on` parameter, change these linksets with the `chg-ls` command, specifying the `gsmscrn=on` parameter. If the Enhanced GSMMAP screening feature is enabled and on, the adjacent point code of the linkset can be any type. If the Enhanced GSMMAP screening feature is not enabled and off, the adjacent point code of the linkset can be either an ITU international, ITU international spare, or 14 bit ITU national, 14-bit ITU national

spare, or 24-bit ITU national point code. The EAGLE 5 ISS can contain either 14 bit or 24-bit ITU national point codes, but not both at the same time.

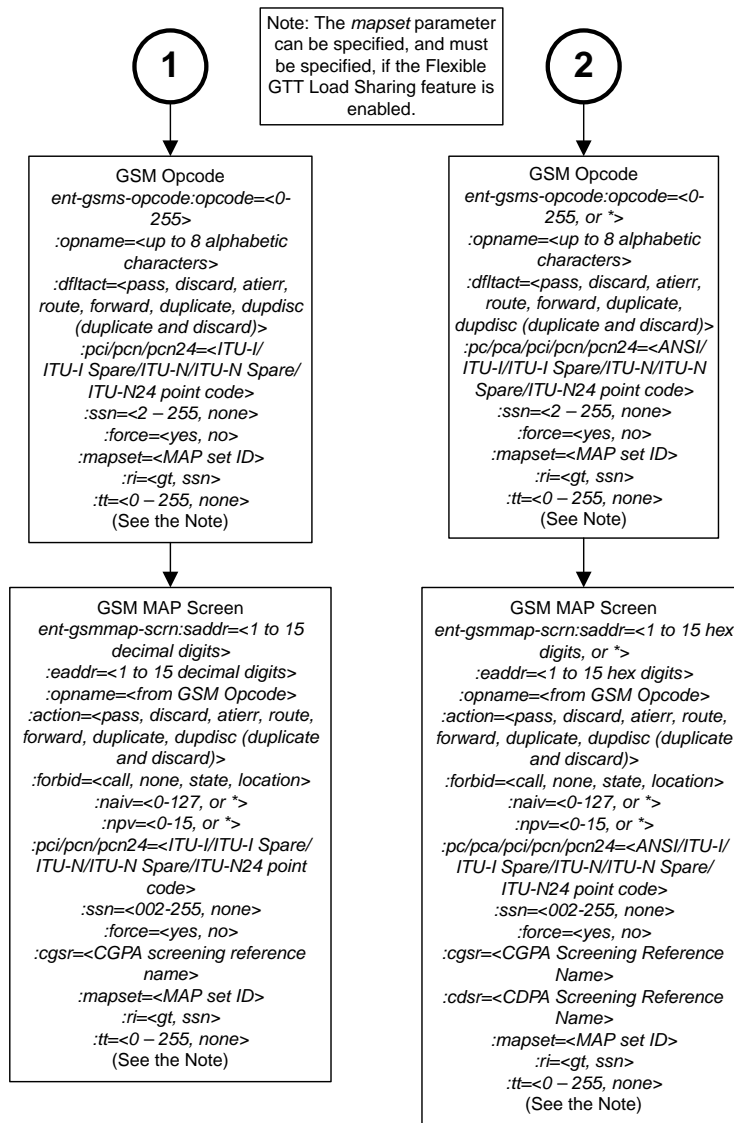
7. The GSMMAP screening options, `gsmdflt` (GSMMAP screening default action) and `gsmdecerr` (GSMMAP screening decode error action), can be changed with the `chg-stpopts` command. The current values for these options can be verified with the `rtrv-stpopts` command. The `GSMDFLT` parameter allows the user to specify the default screening action (PASS or DISCARD) that occurs when a MAP operations code contained in the MSU is not found in the GSMMAP operations code table. The `gsmdecerr` parameter allows the user to specify the default screening action (PASS or DISCARD) that occurs when an error is detected in the TCAP layer of the MSU being screened. Such errors included an invalid value for a parameter, length error, missing data, and so on.
8. The origination and destination subsystem numbers that are being screened using the GSMMAP screening feature need to be provisioned in the database. These subsystem numbers are shown in the `rtrv-gsmssn-scrn` command and provisioned using the `ent-gsmssn-scrn` command.
9. The concerned GSMMAP screening operation codes and the default screening action for the operation code need to be provisioned in the database. These operation codes are shown in the `rtrv-gsms-opcode` command and provisioned using the `ent-gsms-opcode` command. The `ent-gsms-opcode` allows the user to provision a list of all operation codes that the EAGLE 5 ISS uses in performing GSM screening. If a point code and subsystem number is provisioned for the GSMMAP screening operation code, the point code and subsystem number must be shown in the `rtrv-map` output. If the flexible GTTLoad Sharing feature is enabled, a MAP set containing the point code and subsystem number must be assigned to the GSMMAP screening operation code. For more information on provisioning GSMMAP screening operation codes, see the [Adding a GSM MAP Screening Operation Code](#) procedure.
10. The GSMMAP screening entries that filter or allow TCAP messages for certain MAP operation codes need to be provisioned in the database. The GSMMAP screening entries are shown in the `rtrv-gsmmap-scrn` command and provisioned using the `ent-gsmmap-scrn` command. The messages are filtered or allowed based on the origination addresses (`saddr/eaddr`), numbering plan value (`npv`), nature of address indicator value (`naiv`), MAP opnames (`opname`), and forbidden (`forbid`) parameters. If the Enhanced GSMMAP Screening feature is enabled and on, the CGPA and CDPA of the messages are checked by the GSMMAP Screening table. If the Enhanced GSMMAP Screening feature is not enabled and off, only the CGPA of the messages are checked by the GSMMAP Screening table. If a point code and subsystem number is provisioned for the GSMMAP screening entry, the point code and subsystem number must be shown in the `rtrv-map` output. If the Flexible GTTLoad Sharing feature is enabled, a MAP set containing the point code and subsystem number must be assigned to the GSMMAP screening entry. For more information on provisioning GSMMAP screening operation entries, see the [Adding a GSM MAP Screening Entry](#) procedure.



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Figure 22: GSM MAP Screening Database Relationships





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## Activating the GSM MAP Screening Feature

The GSM MAP screening feature is activated by enabling the GSM MAP Screening feature with the `enable-ctrl-feat` command, then by turning the feature on with the `chg-ctrl-feat` command. The status of the GSM MAP Screening feature can be verified with the `rtrv-ctrl-feat` command.

Before the GSM MAP Screening feature is activated, the global title translation feature must be on. This can be verified with the `rtrv-feat` command.

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

The global title translation feature must be purchased before you turn the feature on with the `chg-feat` command. If you are not sure if you have purchased the global title translation feature, contact your Tekelec Sales Representative or Account Representative.

This procedure can also be used to enable and turn on the Enhanced GSM MAP Screening feature. The `enable-ctrl-feat` and `chg-ctrl-feat` commands are used to enable and turn on the Enhanced GSM MAP Screening feature. The GSM MAP Screening feature must be enabled and turned on before the Enhanced GSM MAP Screening feature is enabled and turned on.

The `enable-ctrl-feat` command enables the feature by inputting the feature's access key and the feature's part number with these parameters:

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

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

- The 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 5 ISS, and that this serial number is locked. This can be verified with the `rtrv-serial-num` command. The EAGLE 5 ISS is shipped with a serial number in the database, but the serial number is not locked. The serial number can be changed, if necessary, and locked once the EAGLE 5 ISS is on-site, with the `ent-serial-num` command. The `ent-serial-num` command uses these parameters.

`:serial` – The serial number assigned to the EAGLE 5 ISS. The serial number is not case sensitive.

`:lock` – Specifies whether or not the serial number is locked. This parameter has only one value, `yes`, which locks the serial number. Once the serial number is locked, it cannot be changed.

**Note:** To enter and lock the EAGLE 5 ISS's serial number, the `ent-serial-num` command must be entered twice, once to add the correct serial number to the database with the `serial` parameter, then again with the `serial` and the `lock=yes` parameters to lock the serial number. You should verify that the serial number in the database is correct before locking the serial number. The serial number can be found on a label affixed to the control shelf (shelf 1100).

The GSM MAP Screening and Enhanced GSM MAP Screening features cannot be temporarily enabled (with the temporary feature access key).

Once these features have been enabled, the features must be turned on with the `chg-ctrl-feat` command. The `chg-ctrl-feat` command uses these parameters:

`:partnum` – The Tekelec-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 GSM MAP Screening and Enhanced GSM MAP Screening features are turned on, they cannot be turned off.

The status of the features in the EAGLE 5 ISS is shown with the `rtrv-ctrl-feat` command.

The GSM MAP Screening feature requires that Service Module cards (DSM cards or E5-SM4G cards) are installed and provisioned in the EAGLE 5 ISS. The Enhanced GSM MAP Screening feature requires that Service Module cards (DSM cards or E5-SM4G cards) are installed and provisioned in the EAGLE 5 ISS. DSM and E5-SM4G cards are shown by the entry DSM in the TYPE column of the `rtrv-card` output and SCCP in the APPL column of the `rtrv-card` output.

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

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

Feature Name          Partnum    Status    Quantity
HC-MIM SLK Capacity  893012707 on        64
Command Class Management 893005801 on        ----
LNP Short Message Service 893006601 on        ----
Intermed GTT Load Sharing 893006901 on        ----
XGTT Table Expansion    893006101 on        400000
XMAP Table Expansion    893007710 off       ----
Large System # Links    893005910 on        2000
Routesets              893006401 on        6000

The following features have been temporarily enabled:

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

The following features have expired temporary keys:

Feature Name          Partnum
Zero entries found.
```

If the GSM MAP Screening feature (shown in the `rtrv-ctrl-feat` output as GSM Map Screening (GMS)) is enabled and on, no further action is necessary. This procedure does not need to be performed.

If you wish to use the Enhanced GSM MAP Screening feature, and the Enhanced GSM MAP Screening feature (shown in the `rtrv-ctrl-feat` output as Enhanced GMS (EGMS)) is enabled and on, no further action is necessary. This procedure does not need to be performed.

If the GSM MAP Screening feature is enabled and off, skip steps 2 through 7 and go to step 8.

If the Enhanced GSM MAP Screening feature is enabled and off, skip steps 2 through 10 and go to step 11.

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

The GSM MAP Screening feature requires that Service Module cards are in the database. The Enhanced GSM MAP Screening feature requires that DSMs or E5-SM4G cards are in the database.

```
rlghncxa03w 09-05-25 09:58:31 GMT EAGLE5 45.0.0
CARD  TYPE    APPL    LSET NAME    LINK SLC LSET NAME    LINK SLC
1113  E5-MCAP   OAMHC
1114  E5-TDM-A
1115  E5-MCAP   OAMHC
```

1116	E5-TDM-B								
1117	E5-MDAL								
1201	LIMDS0	SS7ANSI	sp2	A	0	sp1	B	0	
1203	LIMDS0	SS7ANSI	sp3	A	0				
1204	LIMDS0	SS7ANSI	sp3	A	1				
1206	LIMDS0	SS7ANSI	nsp3	A	1	nsp4	B	1	
1216	DCM	STPLAN							
1308	LIMDS0	SS7ANSI	sp6	A	1	sp7	B	0	
1314	LIMDS0	SS7ANSI	sp7	A	1	sp5	B	1	
1317	DCM	STPLAN							

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

If no Service Module cards are shown in the `rtrv-card` output, perform the “Adding a Service Module” procedure in *Database Administration Manual - Global Title Translation* and add the required Service Module cards to the database.

If DSM or E5-SM4G cards are in the EAGLE 5, go to step 3.

**Note:** If the `rtrv-ctrl-feat` output in step 1 shows any controlled features, skip steps 3 through 6, and go to step 7. If the `rtrv-ctrl-feat` output shows only the HC-MIMSLK Capacity feature with a quantity of 64, steps 3 through 6 must be performed.

3. Display the serial number in the database with the `rtrv-serial-num` command.

This is an example of the possible output.

```
rlghncxa03w 06-10-28 21:15:37 GMT EAGLE5 36.0.0
System serial number = nt00001231

System serial number is not locked.

rlghncxa03w 06-10-28 21:15:37 GMT EAGLE5 36.0.0
Command Completed
```

**Note:** If the serial number is correct and locked, skip steps 4, 5, and 6, and go to step 7. If the serial number is correct but not locked, skip steps 4 and 5, and go to step 6. If the serial number is not correct, but is locked, the GSM MAP Screening and Enhanced GSM MAP Screening features cannot be enabled and the remainder of this procedure cannot be performed. Contact the Customer Care Center to get an incorrect and locked serial number changed. Refer to [My Oracle Support \(MOS\)](#) for the contact information. The serial number can be found on a label affixed to the control shelf (shelf 1100).

4. Enter the correct serial number into the database using the `ent-serial-num` command with the `serial` parameter.

For this example, enter this command.

```
ent-serial-num:serial=<EAGLE 5 ISS's correct serial number>
```

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

```
rlghncxa03w 06-10-28 21:15:37 GMT EAGLE5 36.0.0
System serial number = nt00001231
```

```
System serial number is not locked.
```

```
rlghncxa03w 06-10-28 21:15:37 GMT EAGLE5 36.0.0
Command Completed
```

If the serial number was not entered correctly, repeat steps 4 and 5 and re-enter the correct serial number.

6. Lock the serial number in the database by entering the `ent-serial-num` command with the serial number shown in step 3, if the serial number shown in step 3 is correct, or with the serial number shown in step 5, if the serial number was changed in step 4, and with the `lock=yes` parameter.

For this example, enter this command.

```
ent-serial-num:serial=<EAGLE 5 ISS's serial number>:lock=yes
```

7. Enable the GSM MAP Screening feature with the `enable-ctrl-feat` command specifying the part number for the GSM MAP Screening feature and the feature access key.

Enter this command.

```
enable-ctrl-feat:partnum=893013201:fak=<GSM MAP Screening feature access
key>
```

**Note:** A temporary feature access key cannot be specified to enable this feature.

**Note:** The values for the feature access key (the `fak` parameter) are provided by Tekelec. If you do not have the feature access key for the GSM MAP Screening feature, contact your Tekelec Sales Representative or Account Representative.

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

Enter this command.

```
chg-ctrl-feat:partnum=893013201:status=on
```

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

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

Enter this command.

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

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

Feature Name	Partnum	Status	Quantity
GSM Map Screening (GMS)	893013201	on	----

```
The following features have been temporarily enabled:
```

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

```
The following features have expired temporary keys:
```

Feature Name	Partnum
Zero entries found.	

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

**Note:** If you do not wish to enable and turn on the Enhanced GSMMAP Screening feature, skip steps 10, 11, and 12, and go to step 13.

Enter this command.`enable-ctrl-feat:partnum=893012401:fak=<Enhanced GSM MAP Screening feature access key>`

**Note:** A temporary feature access key cannot be specified to enable this feature.

**Note:** The values for the feature access key (the `fak` parameter) are provided by Tekelec. If you do not have the feature access key for the Enhanced GSMMAP Screening feature, contact your Tekelec Sales Representative or Account Representative.

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

Enter this command.

`chg-ctrl-feat:partnum=893012401:status=on`

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

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

Enter this command.

`rtrv-ctrl-feat:partnum=893012401`

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

Feature Name	Partnum	Status	Quantity
Enhanced GMS (EGMS)	893012401	on	----

```
The following features have been temporarily enabled:
```

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

```
The following features have expired temporary keys:
```

Feature Name	Partnum
Zero entries found.	

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

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

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

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

## Configuring the MTP MAP Screening Feature

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

The MTP MAP screening feature is enabled with the `enable-ctrl-feat` command. Once enabled, the feature can be turned on or off with the `chg-ctrl-feat` command. If the feature is already on, it can only be turned off. If the feature is off, it can only be turned on.

Before the MTP MAP Screening feature is enabled and turned on, the Enhanced GSM MAP Screening feature must be enabled and on. The Measurements Platform must be enabled if MTP MAP Screening measurements is desired.

The status of the MTP MAP Screening and Enhanced GSM MAP Screening features can be verified with the `rtvr-ctrl-feat` command. The `rtvr-measopts` command shows whether the Measurements Platform is enabled or not.

The `enable-ctrl-feat` command enables the feature by inputting the feature's access key and the feature's part number with these parameters:

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

`: partnum` – The Tekelec-issued part number of the MTP MAP Screening feature, 893013501

The MTP MAP Screening feature cannot be temporarily enabled (with a temporary feature access key).

The `chg-ctrl-feat` command uses these parameters:

`: partnum` – The Tekelec-issued part number of the MTP MAP Screening feature, 893013501.

`: status=on` – used to turn the MTP MAP Screening feature on.

`: status=off` – used to turn the MTP MAP Screening feature off.

**Note:** Turning the MTPMAP Screening feature on allows GSM MAP Screening to be performed on all SCCP messages, even if these messages do not require Global Title Translation and are MTP routed. The value of the `GSMSCRN` parameter of the linkset carrying these SCCP messages must be `YES`.

**Note:** Turning the MTPMAP Screening feature off allows GSM MAP Screening to be performed only on those SCCP messages, on linksets with the `GSMSCRN=YES` value, that have passed Global Title Translation and Gateway Screening.

**Note:** When MTP routed messages are routed through SCCP Service Modules for MTP MAP Screening, Eagle may replace the original OPC in the message with a secondary point code provisioned for the DPC (if a secondary point code is already provisioned for the DPC in the destination table), or with a secondary point code provisioned for the linkset (if the linkset is uses MLS feature and the linkset

is a direct route to the destination), even if messages pass (no MAP screening action is performed) MAP screening.

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

The following is an example of the possible output.

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

Feature Name          Partnum    Status    Quantity
HC-MIM SLK Capacity  893012707 on        64
Command Class Management 893005801 on        ----
LNP Short Message Service 893006601 on        ----
Intermed GTT Load Sharing 893006901 on        ----
XGTT Table Expansion    893006101 on        400000
XMAP Table Expansion    893007710 off       ----
Large System # Links    893005910 on        2000
Routesets              893006401 on        6000

The following features have been temporarily enabled:

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

The following features have expired temporary keys:

Feature Name          Partnum
Zero entries found.
```

If the MTP MAP Screening feature (shown in the `rtrv-ctrl-feat` output as MTP Map Screening) is enabled and on, and you do not wish to turn the feature off, no further action is necessary. If you wish to turn this feature off, skip steps 2 through 4, and go to step 5.

If the MTP MAP Screening feature is enabled and off, skip steps 2 through 4 and go to step 5 to turn the feature on.

2. If the `rtrv-ctrl-feat` in step 1 shows that the Enhanced GSM MAP Screening feature is enabled and on, skip this step and go to step 3.

If the `rtrv-ctrl-feat` in step 1 shows that the Enhanced GSM MAP Screening feature is not enabled or off, perform the [Activating the GSM MAP Screening Feature](#) to enable and turn on the Enhanced GSM MAP Screening feature.

3. Verify whether or nor the Measurements Platform option is enabled (`PLATFORMENABLE = on`) using the `rtrv-measopts` command.

```
rlghncxa03w 06-10-01 16:02:05 GMT EAGLE5 36.0.0

PLATFORMENABLE = on
COLLECT15MIN      = off
CLLIBASEDNAME     = off
-----
SYSTOTSTP        = off
SYSTOTTT         = off
```



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

If the Measurements Platform is not enabled, perform the “Configuring the Measurements Platform Feature” procedure in the *Database Administration Manual - System Management* to enable the Measurements Platform.

4. Enable the MTPMAP Screening feature with the `enable-ctrl-feat` command specifying the part number for the MTPMAP Screening feature and the feature access key.

Enter this command.

```
enable-ctrl-feat:partnum=893013501:fak=<MTP MAP Screening feature access key>
```

**Note:** A temporary feature access key cannot be specified to enable this feature.

**Note:** The values for the feature access key (the `fak` parameter) are provided by Tekelec. If you do not have the feature access key for the Enhanced GSM MAP Screening feature, contact your Tekelec Sales Representative or Account Representative.

5. Turn the MTPMAP Screening feature on or off with the `chg-ctrl-feat` command specifying the part number for the Enhanced GSM MAP Screening feature and either the `status=on` or `status=off` parameter.

To turn the MTP MAP Screening feature on, enter this command.

```
chg-ctrl-feat:partnum=893013501:status=on
```

To turn the MTP MAP Screening feature off, enter this command.

```
chg-ctrl-feat:partnum=893013501:status=off
```

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

Enter this command.

```
rtrv-ctrl-feat:partnum=893013501
```

In the following example, the feature Status is on.

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

Feature Name          Partnum   Status   Quantity
MTP MAP Screening    893013501  on      ----

The following features have been temporarily enabled:

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

The following features have expired temporary keys:

Feature Name          Partnum
Zero entries found.
```

In the following example, the feature Status is off

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

Feature Name          Partnum    Status    Quantity
MTP MAP Screening    893013501  off      ----

The following features have been temporarily enabled:

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

The following features have expired temporary keys:

Feature Name          Partnum
Zero entries found.
```

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

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

## Configuring a Linkset for the GSM MAP Screening Feature

This procedure is used to configure SS7 linksets for the GSM MAP Screening feature using the `gsmscrn` parameter of either the `ent-ls` or `chg-ls` command.

The `gsmscrn` parameter specifies whether or not GSM MAP screening is applied to messages arriving on the linkset. This parameter can be applied to all linksets, but this parameter can be specified for linksets with ANSI adjacent point codes only if the Enhanced GSM MAP Screening feature is enabled and on. The values for this parameter are `on` (GSM MAP screening is applied to the linkset) or `off` (GSM MAP screening is not applied to the linkset). GSM MAP screening is used to screen GSM MAP messages to control which external entities can request information about a GSM subscriber and the specific information these entities can request before allowing the GSM MAP message to pass through to the HLR.

Before the `gsmscrn` parameter can be specified for a specific linkset, the GSM MAP screening feature must be enabled and on. The status of the GSM MAP Screening feature, and if applicable the Enhanced GSM MAP screening feature, is shown in the `rtrv-ctrl-feat` command output with the entries `GSM Map Screening (GMS)` (for the GSM MAP Screening feature) and `Enhanced GMS (EGMS)` (for the Enhanced GSM MAP Screening feature). Perform the [Activating the GSM MAP Screening Feature](#) procedure to enable and turn on either of these features as required.

The value of the `gsmscrn` parameter is only displayed in the `rtrv-ls` command output when a specific linkset is being displayed with the `rtrv-ls:lsn=<linkset name>` command.

To configure a linkset for the GSM MAP Screening feature, the `ent-ls` or `chg-ls` commands uses these mandatory parameters in addition to the `gsmscrn` parameter.

`:lsn` – The name of the linkset. The linkset name can contain up to 10 characters, with the first character being a letter.

`:apc/apca/apci/apcn/apcn24` – Adjacent point code – the point code identifying the node that is next to the EAGLE 5 ISS. This parameter is only mandatory for the `ent-ls` command.

**Note:** See Chapter 2, Configuring Destination Tables in the *Database Administration Manual - SS7* for a definition of the point code types that are used on the EAGLE 5 ISS and for a definition of the different formats that can be used for ITU national point codes.

**Note:** The EAGLE 5 ISS can contain a 14-bit ITU-N point code (`apcn`) or a 24-bit ITU-N point code (`apcn24`), but not both at the same time.

`:lst` – The linkset type of the specified linkset This parameter is only mandatory for the `ent-ls` command.

The `ent-ls` and `chg-ls` commands contain other optional parameters that can be used to configure a linkset. These parameters are not shown here because they are not necessary for configuring a linkset for the GSM MAP Screening feature. These parameters are explained in more detail in the Adding an SS7 Linkset procedure or in the Changing an SS7 Linkset procedure in the *Database Administration Manual - SS7*, or in the `ent-ls` and `chg-ls` command descriptions in the *Commands Manual*.

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

This examples used in this procedure are based on the examples shown in [Table 25: GSM MAP Screening Linkset Configuration Table](#).

**Table 25: GSM MAP Screening Linkset Configuration Table**

Linkset Names	Linkset APC	LST	GSMSCRN
New Linksets Being Added			
lsn5	10685	a	on
lsi7	3-150-4	a	on
Existing Linkset Being Changed			
lsn4	N/A	N/A	on

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

#### Canceling the `RTRV-LS` and `RTRV-DSTN` Commands

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

- Press the F9 function key on the keyboard at the terminal where the `rtrv-ls` or `rtrv-dstn` commands were entered.

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

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

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

This is an example of the possible output.

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

LSN          APCA   (SS7)  SCRNL3T SLT          GWS GWS GWS
lsa1         240-020-000 scr1  1  1  yes a  1  off off off no  off
lsa2         240-030-000 scr2  1  2  no  c  3  on  on  on yes off
lsa3         240-040-000 scr3  1  3  yes c  5  off off off yes off
ls04         001-002-003 scr2  1  1  no  a  4  on  off on  yes off

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

LSN          APCN   (SS7)  SCRNL3T SLT          GWS GWS GWS
lsn1         11111  scr1  1  1  yes a  1  on  off off --- off
lsn2         11112  scr2  1  2  no  c  3  on  on  on --- off
lsn3         11113  scr3  1  3  yes c  5  on  off off --- off
lsn5         10685  scr1  1  3  yes a  4  on  off off --- off

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

2. Display the point code and capability point code of the EAGLE 5 ISS by using the `rtrv-sid` command.

**Note:** If the APC of an existing linkset is not being changed, skip steps 2, 3, and 4, and go to step 5.

This is an example of the possible output.

```
rlghncxa03w 06-10-10 11:43:04 GMT EAGLE5 36.0.0
PCA          PCI          PCN          CLLI          PCTYPE
001-001-001  3-150-4        13482        rlghncxa03w   OTHER
              s-3-150-4      s-13482

CPCA
002-002-002  002-002-003   002-002-004   002-002-005
002-002-006  002-002-007   002-002-008   002-002-009
004-002-001  004-003-003   144-212-003

CPCA (LNP)
005-005-002  005-005-004   005-005-005
```

CPCI				
1-001-1	1-001-2	1-001-3	1-001-4	
CPCN				
02091	02092	02094	02097	
02191	02192	11177		

If you wish to use ITU-I or ITU-N spare point codes with GSM MAP Screening, and the `rtrv-sid` output does not show any ITU-I or ITU-N spare point codes, add ITU-I and ITU-N spare point codes, as necessary, to the self identification of the EAGLE 5 ISS by performing the “Changing the Self-Identification of the EAGLE 5 ISS” procedure in the *Database Administration Manual - SS7*.

3. Display the point codes in the destination point code table by using the `rtrv-dstn` command with the linkset's adjacent point code.

For this example, enter these commands.

```
rtrv-dstn:dpci=3-150-4
```

This is an example of the possible output.

```
rlghncxa03w 10-12-10 11:43:04 GMT EAGLE5 43.0.0
DPCI          CLLI          BEI  ELEI  ALIASA          ALIASN/N24  DMN
3-150-4      lsi7clli         yes  ---  -----  -----  SS7

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

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

```
rtrv-dstn:dpcn=10685
```

This is an example of the possible output.

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

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

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

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

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

No destinations meeting the requested criteria were found

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

If a linkset is being added to the database, or the adjacent point code of the linkset is being changed, and the adjacent point code is not shown in the `rtrv-dstn` command output, go to the “Adding a Destination Point Code” procedure in the *Database Administration Manual - SS7* and add the adjacent point code to the destination point code table.

**Note:** An ANSI point code can be used as the APC of a linkset for GSM MAP Screening only if the Enhanced GSM MAP Screening feature is enabled and on.

- The adjacent point code of the linkset cannot be the DPC of any exception route.

**Note:** If the adjacent point code was added in step 3, skip step 4 and go to step 5.

Verify that the adjacent point code of the new linkset is not the DPC of any exception route by entering the `rtrv-rtx` command with the `dpc/dpca/dpci/dpcn/dpcn24` parameter. The `dpc/dpca/dpci/dpcn/dpcn24` parameter value is the adjacent point code value that will be specified for the new linkset. For this example, enter this command.

```
rtrv-rtx:dpci=3-150-4
```

This is an example of the possible output.

```
rlghncxa03w 06-10-10 11:43:04 GMT EAGLE5 36.0.0
  DPCI          RTX-CRITERIA          LSN          RC          APC
  3-150-4      OPCI
                4-050-1                      lsi2         20         1-111-2
DESTINATION ENTRIES ALLOCATED:    2000
  FULL DPC(s):                      13
  EXCEPTION DPC(s):                  5
  NETWORK DPC(s):                    0
  CLUSTER DPC(s):                     1
  TOTAL DPC(s):                       19
  CAPACITY (% FULL):                   1%
ALIASES ALLOCATED:                  12000
  ALIASES USED:                       0
  CAPACITY (% FULL):                   0%
X-LIST ENTRIES ALLOCATED:           500
```

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

```
rlghncxa03w 06-10-10 11:43:04 GMT EAGLE5 36.0.0
  DESTINATION ENTRIES ALLOCATED:    2000
  FULL DPC(s):                      15
  EXCEPTION DPC(s):                  5
  NETWORK DPC(s):                    0
  CLUSTER DPC(s):                     1
  TOTAL DPC(s):                       21
  CAPACITY (% FULL):                   1%
ALIASES ALLOCATED:                  12000
  ALIASES USED:                       0
  CAPACITY (% FULL):                   0%
X-LIST ENTRIES ALLOCATED:           500
```

If the point code specified in this step is shown in the `DPCA/DPCI/DPCN/DPCN24` columns in this step, the point code value cannot be used as an adjacent point code unless one of two actions are taken:

- Choose another adjacent point code value and repeat steps 2, 3, and 4.

- Remove all the entries displayed in this step by performing the “Removing a Route Exception Entry” procedure in the *Database Administration Manual - SS7*.
5. Verify that the GSM MAP Screening feature is enabled and on by entering the `rtrv-ctrl-feat` command with the part number of the GSM MAP Screening feature.

Enter this command.

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

The following is an example of the possible output.

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

Feature Name          Partnum    Status    Quantity
GSM Map Screening (GMS) 893013201 on        ----

The following features have been temporarily enabled:

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

The following features have expired temporary keys:

Feature Name          Partnum
Zero entries found.
```

If the GSM MAP screening feature is not enabled or off, go to the [Activating the GSM MAP Screening Feature](#) procedure to enable and turn on the GSM MAP screening feature.

6. Verify that the Enhanced GSM MAP Screening feature is enabled and on by entering the `rtrv-ctrl-feat` command with the part number of the Enhanced GSM MAP Screening feature.

**Note:** If ANSI point codes are not being used, skip step 6 and go to step 7.

Enter this command.

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

The following is an example of the possible output.

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

Feature Name          Partnum    Status    Quantity
Enhanced GMS (EGMS) 893012401 on        ----

The following features have been temporarily enabled:

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

The following features have expired temporary keys:

Feature Name          Partnum
Zero entries found.
```

If the Enhanced GSM MAP screening feature is not enabled or off, go to the [Activating the GSM MAP Screening Feature](#) procedure to enable and turn on the Enhanced GSM MAP screening feature.

7. Display the current linkset configuration of the linkset to be changed using the `rtrv-ls` command with the linkset name.

**Note:** If no existing linksets are being changed, skip step 7 and go to step 8.

For this example, enter this command.

```
rtrv-ls:lsn=lsn4
```

This is an example of the possible output.

```
rlghncxa03w 09-07-17 11:43:04 GMT EAGLE5 41.1.0

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

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

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

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

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

8. Add the new linkset to the database using the `ent-ls` command.

**Note:** If you are not adding a new linkset to the database, skip step 8 and go to step 9.

For this example, enter these commands.

```
ent-ls:lsn=lsn5:apcn=10685:lst=a:gmscrn=on
```

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

**Note:** An ANSI point code can be used as the APC of a linkset for GSM MAP Screening only if the Enhanced GSM MAP Screening feature is enabled and on.

The `apci` parameter value can be either an ITU-I point code or an ITU-I spare point code.

The `apcn` parameter value can be either an ITU-N point code or an ITU-N spare point code.

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

```
rlghncxa03w 06-10-17 16:23:21 GMT EAGLE5 36.0.0
Link set table is ( 21 of 1024) 2% full
ENT-LS: MASP A - COMPLTD
```

9. Change the `gmscrn` parameter value in the existing linkset in the database using the `chg-ls` command.

**Note:** If you are not changing an existing linkset in the database, skip step 9 and go to step 10.

For this example, enter this command.

```
chg-ls:lsn=lsn4:gmscrn=on
```

**Note:** The `gmscrn` parameter can be specified for a linkset with an ANSI APC only if the Enhanced GSM MAP Screening feature is enabled and on.



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

```
rlghncxa03w 06-10-17 16:23:21 GMT EAGLE5 36.0.0
Link set table is ( 21 of 1024) 2% full
CHG-LS: MASP A - COMPLTD
```

10. Verify the changes using the `rtrv-ls` command specifying the linkset name specified in either steps 8 or 9 with the `lsn` parameter.

For this example, enter these commands.

```
rtrv-ls:lsn=lsn4
```

This is an example of the possible output.

```
rlghncxa03w 09-07-17 11:43:04 GMT EAGLE5 41.1.0

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

          CLLI          TFATCABMLQ MTPRSE ASL8  SLRSRB ITUTFR GSMSCRN
lsn4c11i          1          ---   ---   1     on     on

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

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

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

```
rtrv-ls:lsn=lsn5
```

This is an example of the possible output.

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

LSN          APCN   (SS7)  SCRN   SET SET BEI LST LNKS ACT MES DIS SLSCI NIS
lsn5         10685          none  1  2  no  a   0   off off off no   off

          CLLI          TFATCABMLQ MTPRSE ASL8  SLRSRB ITUTFR GSMSCRN
lsn5c11i          1          ---   ---   1     on     on

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

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

```
rtrv-ls:lsn=lsi7
```

This is an example of the possible output.

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

LSN          APCI   (SS7)  SCRN   SET SET BEI LST LNKS ACT MES DIS SLSCI NIS
lsi7         3-150-4          none  1  2  no  a   0   off off off no   off
```

```

      CLI          TFATCABMLQ MTPRSE ASL8  SLRSRB ITUTFR GSMSCRN
lsn7c11i         1          ---   ---   1      off   on

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

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

```

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

```

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

```

## Changing the System-Wide GSM MAP Screening Options

The GSM MAP screening options can be changed with the `chg-stpopts` command after the GSM MAP screening feature has been activated. The `chg-stpopts` command contains two options for GSM MAP screening.

- `GSMDFLT` – GSM MAP screening default action – Allows the user to specify the default screening action (PASS or DISCARD) that occurs when a MAP operations code contained in the MSU is not found in the GSM MAP operations code table.
- `gsmdecerr` – GSM MAP screening decode error action – Allows the user to specify the default screening action (PASS or DISCARD) that occurs when an error is detected in the TCAP layer of the MSU being screened. Such errors included an invalid value for a parameter, length error, missing data, and so on.

The GSM MAP Screening feature must be enabled and on before performing this procedure. Use the `rtrv-ctrl-feat` command to verify the status of the GSM MAP Screening feature. If the GSM MAP Screening feature is not enabled and off, go to the [Activating the GSM MAP Screening Feature](#) procedure to enable and turn on the GSM MAP screening feature.

When the GSM MAP screening feature is activated, the values for the `gsmdf1t` and `gsmdecerr` parameters are set to `pass`. The current values for these options can be verified with the `rtrv-stpopts` command.

1. Verify that the GSMMAP Screening feature is enabled and on by entering the `rtrv-ctrl-feat` command with the part number of the GSMMAP Screening feature.

Enter this command.

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

The following is an example of the possible output.

```

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

```

Feature Name	Partnum	Status	Quantity
--------------	---------	--------	----------

```
GSM Map Screening (GMS)  893013201  on  ----
The following features have been temporarily enabled:
Feature Name              Partnum  Status  Quantity  Trial Period Left
Zero entries found.
The following features have expired temporary keys:
Feature Name              Partnum
Zero entries found.
```

If the GSM MAP screening feature is not enabled or off, go to the [Activating the GSM MAP Screening Feature](#) procedure to enable and turn on the GSM MAP screening feature.

2. Display the existing values for the `gsmdf1t` and `gsmdecerr` parameters by entering the `rtrv-stpopts` command.

The value for the `gsmdf1t` parameter is shown in the `GSMDFLT` field. The value for the `gsmdecerr` parameter is shown in the `GSMDECERR` field. This is an example of the possible output.

```
rlghncxa03w 06-10-17 16:02:05 GMT  EAGLE5 36.0.0
STP OPTIONS
-----
GSMDFLT          PASS
GSMDECERR        PASS
```

**Note:**

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

3. Change either the GSM MAP screening default action (`gsmdf1t`) and GSM MAP screening decode error action (`gsmdecerr`) options using the `chg-stpopts` command.

If you wish to change both options, enter the `chg-stpopts` command with the `gsmdf1t` and `gsmdecerr` parameters as shown in this example.

```
chg-stpopts:gsmdf1t=discard:gsmdecerr=discard
```

If you wish to change only one option, enter the `chg-stpopts` command with either the `gsmdf1t` and `gsmdecerr` parameters as shown in these examples.

```
chg-stpopts:gsmdf1t=discard
```

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

For this example, the GSM MAP screening error code action is being changed.

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

```
rlghncxa03w 06-10-07 00:22:57 GMT  EAGLE5 36.0.0
CHG-STPOPTS: MASP A - COMPLTD
```

4. Verify the changes using the `rtrv-stpopts` command.

This is an example of the possible output.

```
rlghncxa03w 06-10-17 16:02:05 GMT EAGLE5 36.0.0
STP OPTIONS
-----
GSMDFLT          PASS
GSMDECERR        DISCARD
```

**Note:**

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

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

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

## Adding a GSM Subsystem Number Screening Entry

Use this procedure to provision the origination and destination SSNs (subsystem numbers) to be screened with the GSM MAP screening feature using the `ent-gsmssn-scrn` command.

The `ent-gsmssn-scrn` command uses these parameters.

`:ssn` – The subsystem number contained in either the calling party address (CGPA) or the called party address (CDPA) contained in the MAP message.

`:type` – The type of SSN, either an origination SSN (`orig`) or a destination SSN (`dest`). The origination SSN is found in the calling party address of the message. The destination SSN is found in the called party address of the message.

The GSM MAP Screening feature must be enabled and on before performing this procedure. Use the `rtrv-ctrl-feat` command to verify the status of the GSM MAP Screening feature. If the GSM MAP Screening feature is not enabled and off, go to the [Activating the GSM MAP Screening Feature](#) 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 26: Example GSM MAP Screening SSN Configuration Table](#).

**Table 26: Example GSM MAP Screening SSN Configuration Table**

SSN	TYPE
250	orig

SSN	TYPE
251	dest

1. Verify that the GSM MAP Screening feature is enabled and on by entering the `rtrv-ctrl-feat` command with the part number of the GSM MAP Screening feature.

Enter this command.

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

The following is an example of the possible output.

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

Feature Name          Partnum    Status    Quantity
GSM Map Screening (GMS) 893013201 on        ----

The following features have been temporarily enabled:

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

The following features have expired temporary keys:

Feature Name          Partnum
Zero entries found.
```

If the GSM MAP screening feature is not enabled or off, go to the [Activating the GSM MAP Screening Feature](#) to enable and turn on the GSM MAP screening feature.

2. Display the GSM MAP Screening subsystem numbers in the database using the `rtrv-gsmssn-scrn` command.

This is an example of the possible output.

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

3. Add the new subsystem numbers to be screened to the database with the `ent-gsmssn-scrn` command.

For this example, enter these commands:

```
ent-gsmssn-scrn:ssn=250:type=orig
```

```
ent-gsmssn-scrn:ssn=251:type=dest
```

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

```
rlghncxa03w 06-10-07 00:29:31 GMT EAGLE5 36.0.0
ENT-GSMSSN-SCRN: MASP A - COMPLTD
```

4. Verify the changes using the `rtrv-gsmssn-scrn` command.

This is an example of the possible output.

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

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

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

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

## Removing a GSM Subsystem Number Screening Entry

Use this procedure to remove an SSN (subsystem number) from the GSM MAP SSN screening table using the `dlt-gsmssn-scrn` command.

The `dlt-gsmssn-scrn` command uses these parameters.

`:ssn` – The subsystem number contained in either the calling party address (CGPA) or the called party address (CDPA) contained in the MAP message.

`:type` – The type of SSN, either an origination SSN (`orig`) or a destination SSN (`dest`). The origination SSN is found in the calling party address of the message. The destination SSN is found in the called party address of the message.

The `ssn` and `type` parameter combination specified in the `dlt-gsmssn-scrn` command must be in the database.

1. Display the GSM MAP Screening subsystem numbers in the database using the `rtrv-gsmssn-scrn` command.

This is an example of the possible output.

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

- 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
```

- 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
```

- 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.
```

## Adding a GSM MAP Screening Operation Code

Use this procedure to provision the concerned GSM MAP screening operation codes and the default screening action for the operation code in the database using the `ent-gsms-opcode` command. This procedure allows the user to provision a list of all operation codes that the EAGLE 5 ISS uses in performing GSM screening.

The `ent-gsms-opcode` command uses these parameters.

`:opcode` – The MAP operation code. This parameter refers to the actual decimal value of the MAP operation codes from the TCAP layer of GSM MAP messages.

`:opname` – The name of operation code. This parameter lets the user give a meaningful name to the MAP operation code (`opcode`) entered. This name is used by subsequent commands such as `dlt-/chg-gsms-opcode` and `ent-/chg-/dlt-/rtrv-gsmmap-scrn`.

`:dfltact` – The default screening action. This parameter lets the user define a default screening action for the MAP operation code (`opcode`) entered. The default screening action is used when a

matching CGPA (calling party) address is not found in the GSM MAP screening table or when a CGPA address is found but does not have the correct `npv` and `naiv` parameters as defined by the `ent-gsmmap-scrn` command. One of these actions can be assigned.

- `pass` – Route the message as normal to the destination.
- `discard` – The MSU is to be discarded.
- `atierr` – An ATI (Any Time Interrogation) reject message is generated. This option is only valid for ATI MAP operation codes.
- `route` – Route the message as normal to the original destination node.
- `forward` – Route the original message to the forward node. The original message is not sent to the original node. If, however, the forwarded node is not available for routing then the MSU is routed to the original node.
- `duplicate` – Route the message as normal to the original destination and route a copy of the original message to the duplicate node.
- `dupdisc` – Duplicate and discard – Route the original message to the duplicate node. The original message is not sent to the original node.

`:pc/pca/pci/pcn/pcn24` – The ANSI point code (`pc/pca`), ITU-I point code or ITU-I spare point code (`pci`), 14-bit ITU-N point code or 14-bit ITU-N spare point code (`pcn`), or 24-bit ITU-N point code (`pcn24`) of the node that the MSU is routed to by the `forward`, `duplicate`, or `dupdisc` screening actions. The EAGLE 5 ISS can contain 14-bit ITU-N point codes or 24-bit ITU-N point codes, but not both. To specify the `pc/pca` parameters, the Enhanced GSM MAP Screening feature must be enabled and on.

`:ssn` – The subsystem number of the node that the MSU is routed to by the `forward`, `duplicate`, or `dupdisc` screening actions. The values for this parameter are 2 to 255, or the value `none`. The default value for this parameter is `none`.

`:force` – The mated application override. Is the GSM MAP screening operation code to be entered without a mated application in the database (`yes` or `no`)?

`:mapset` – The MAP set ID, shown in the `rtrv-map` command. This parameter can be specified only if the Flexible GTT Load Sharing feature is enabled. The status of the Flexible GTT Load Sharing feature is shown in the `rtrv-ctrl-feat` output. To enable the Flexible GTT Load Sharing feature, perform the “Activating the Flexible GTT Load Sharing Feature” procedure in the *Database Administration Manual* - Global Title Translation.

If the Flexible GTT Load Sharing feature is not enabled:

- The `mapset` parameter cannot be used.
- The `pc/pca/pci/pcn/pcn24` and `ssn` values must be shown in the `rtrv-map` output, or else the `force=yes` parameter must be specified.

If the Flexible GTT Load Sharing feature is enabled:

- The `mapset` parameter can be specified only for GSM OPCODE entries that contain point code and subsystem entries. The `dfltact` parameter value for these GSM OPCODE entries can be either `forward`, `duplicate`, or `dupdisc`.



- If the `dfltact` parameter value for the GSM OPCODE entry will be `forward`, `duplicate`, or `dupdisc`, and the `pc/pca/pci/pcn/pcn24` and `ssn` parameters will be specified for the GSM OPCODE entry, the `mapset` parameter must be specified.
- The `force=yes` parameter can be used only if the MAP set assigned to the GSM OPCODE entry is the default MAP set.
- If the MAP set assigned to the GSM OPCODE entry is a MAP set other than the default MAP set, the `force=yes` parameter cannot be used. The point code and subsystem contained in the GSM OPCODE entry must be in the MAP set assigned to the GSM OPCODE entry.
- If the default MAP set is assigned to the GSM OPCODE entry and the `force=yes` parameter is not specified, the point code and subsystem contained in the GSM OPCODE entry must be in the default MAP set.

`:ri` - The routing indicator parameter. This parameter specifies whether a subsequent global title translation is required. This parameter has two values.

- `gt` - subsequent global title translation is required.
- `ssn` - subsequent global title translation is not required. This is the default value for the `ri` parameter.

`:tt` - the translation type that will be assigned to the GSM OPCODE entry. The values for this parameter are 0 to 255, or the value `none` which specifies that no translation type will be assigned to the GSM OPCODE entry.

The GSM MAP Screening feature must be enabled and on before performing this procedure. Use the `rtrv-ctrl-feat` command to verify the status of the GSM MAP Screening feature. If the GSM MAP Screening feature is not enabled and off, go to the [Activating the GSM MAP Screening Feature](#) to enable and turn on the GSM MAP screening feature.

The `opcode` parameter value must be a number between 0 and 255 or an asterisk (\*). The `opcode=*` parameter can be specified only if the Enhanced GSM MAP Screening feature is enabled and on. Use the `rtrv-ctrl-feat` command to verify the status of the Enhanced GSM MAP Screening feature. If the Enhanced GSM MAP Screening feature is not enabled or off, go to the [Activating the GSM MAP Screening Feature](#) to enable and turn on the Enhanced GSM MAP screening feature.

The `opname` parameter value must be no more than 8 alphanumeric characters.

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

The `dfltact=atierr` parameter cannot be specified unless the value of the operation code (`opcode`) referenced by the `opname` parameter value is 71. The `atierr` option is only valid for ATI MAP operation codes; `opcode=71` signifies an ATI MAP operation code.

The value specified for the `opcode` parameter cannot already exist in the GSM MAP operation code table.

The value specified for the `opname` parameter cannot already be used in the GSM MAP operation code table.

The `pc/pca/pci/pcn/pcn24` and `ssn` values must be shown in the `rtrv-map` output, or else the `force=yes` parameter must be specified. If the `pc/pca/pci/pcn/pcn24` and `ssn` values are not shown in the `rtrv-map` output, and a new mated application is to be added, perform one of the "Provisioning a Mated Application" procedures in the *Database Administration Manual - Global Title Translation* and add the required 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 the *Database Administration Manual - SS7* and add a new route containing the `pc/pca/pci/pcn/pcn24` value. To verify whether or not a proxy point code is assigned to the `pc/pca/pci/pcn/pcn24` value, enter the `rtrv-dstn` command with the point code value. If a proxy point code is assigned to the point code, choose another point code.

This examples used in this procedure are based on the examples shown in [Table 27: Example GSM MAP Screening Operation Code Configuration Table](#).

**Table 27: Example GSM MAP Screening Operation Code Configuration Table**

OPCODE	OPNAME	DFLTACT	PC/PCA/PCI/PCN/PCN24	SSN	MAPSET
100	pass100	pass	N/A	N/A	N/A
150	discard1	discard	N/A	N/A	N/A
71	ati	atierr	N/A	N/A	N/A
25	route25	route	N/A	N/A	N/A
139	fwd139	forward	3-159-7	128	dflt
187	dup187	duplicate	11519	79	10
93	dd93	dupdisc	5-25-3	200	20
36	for1	forward	002-002-002	10	25
*	star	pass	N/A	N/A	N/A

1. Verify that the GSM MAP Screening feature is enabled and on by entering the `rtrv-ctrl-feat` command with the part number of the GSM MAP Screening feature.

Enter this command.

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

The following is an example of the possible output.

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

Feature Name          Partnum    Status   Quantity
GSM Map Screening (GMS) 893013201 on       ----

The following features have been temporarily enabled:

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

The following features have expired temporary keys:

Feature Name          Partnum
Zero entries found.
```

If the GSMMAP screening feature is not enabled or off, go to the [Activating the GSM MAP Screening Feature](#) to enable and turn on the GSMMAP screening feature.

**Note:** If the opcode=\* or the pc/pca parameters are not being used in this procedure, continue the procedure with [Step 3](#).

2. Verify that the Enhanced GSMMAP Screening feature is enabled and on by entering the `rtrv-ctrl-feat` command with the part number of the Enhanced GSMMAP Screening feature. Enter this command.

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

The following is an example of the possible output.

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

Feature Name          Partnum    Status   Quantity
Enhanced GMS (EGMS) 893012401 on       ----

The following features have been temporarily enabled:

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

The following features have expired temporary keys:

Feature Name          Partnum
Zero entries found.
```

If the Enhanced GSMMAP screening feature is not enabled or off, go to the [Activating the GSM MAP Screening Feature](#) to enable and turn on the Enhanced GSMMAP screening feature.

3. Display the GSMMAP screening operation codes in the database using the `rtrv-gsms-opcode` command.

This is an example of the possible output.

```
rlghncxa03w 08-09-10 11:43:04 GMT EAGLE5 39.2.0
```

```

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

```

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

If the Flexible GTTLoad Sharing feature is enabled, the MAPSET field is shown in the `rtrv-gsms-opcode` output. This is an example of the possible output

```

rlghncxa03w 08-09-10 11:43:04 GMT EAGLE5 39.2.0
OPCODE  OPNAME    DFLTACT  PCA          SSN  MAPSET RI  TT
OPCODE  OPNAME    DFLTACT  PCI          SSN  MAPSET RI  TT
OPCODE  OPNAME    DFLTACT  PCN          SSN  MAPSET RI  TT
OPCODE  OPNAME    DFLTACT  PCN24       SSN  MAPSET RI  TT
OPCODE  OPNAME    DFLTACT
 22     sri       disc
 50     pass50   pass

```

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

#### 4. Perform one of these actions.

- If the `dfltact` parameter value will be either `pass`, `discard`, `route`, or `atierr`, continue the procedure with [Step 9](#).
- If the `dfltact` parameter value will be either `forward`, `duplicate`, or `dupdisc`, perform one of these actions.
  - To use a point code and a MAP set from the mated application table, and MAP sets are not shown in the `rtrv-gsms-opcode` output in [Step 3](#), the Flexible GTT Load Sharing Feature must be enabled. Perform the “Activating the Flexible GTTLoad Sharing Feature” procedure in the *Database Administration Manual - Global Title Translation* and enable the Flexible GTTLoad Sharing feature. After enabling the Flexible GTTLoad Sharing feature, continue the procedure with [Step 7](#).
  - To use a point code and a MAP set from the mated application table, and MAP sets are shown in the `rtrv-gsms-opcode` output in [Step 3](#), continue the procedure with [Step 7](#).
  - To use a point code in the mated application table, but without using a MAP set, and MAP sets are not shown in the `rtrv-gsms-opcode` output in [Step 3](#), skip continue the procedure with [Step 7](#).
  - To use a point code that is not in the mated application table, the `force=yes` parameter must be specified with the `ent-gsms-opcode` command. A proxy point code cannot be assigned to this point code. If the Flexible GTT Load Sharing feature is enabled, the `force=yes` parameter can be used only if the default MAP set is assigned to the GSM OPCODE entry. Continue the procedure with [Step 5](#).

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

```
rlghncxa03w 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 Manual - SS7* to add the required point code. A proxy point code cannot be assigned to the point code.

After the new point code has been added, perform the "Adding a Route Containing an SS7 DPC" procedure in the *Database Administration Manual - SS7* and add the required route to the database. After the route has been added, continue the procedure with [Step 9](#).

6. Display the point code that will be assigned to the mated application by using the `rtrv-dstn` command and specifying the point code. For this example, enter this command.

```
rtrv-dstn:dPCA=010-020-005
```

This is an example of the possible output.

```
rlghncxa03w 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 the *Database Administration Manual - SS7* and add the adjacent point code to the destination point code table.

After the new point code has been added, perform the "Adding a Route Containing an SS7 DPC" procedure in the *Database Administration Manual - SS7* and add the required route to the database. After the route has been added, continue the procedure with [Step 9](#).

- The point code and subsystem number being assigned to the 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 [Step 9](#).

If the Flexible GTT Load Sharing feature is not enabled, for this example, enter these commands.

```
rtrv-map:pci=3-159-7:ssn=128
```

This is an example of the possible output.

```
rlghncxa03w 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 [Step 9](#).
- The point code and subsystem contained in the GSM OPCODE entry must be in the MAP set assigned to the GSM OPCODE entry.

For this example, enter these commands.

```
rtrv-map:pci=3-159-7:ssn=128
```

This is an example of the possible output.

```
rlghncxa03w 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 the *Database Administration Manual - Global Title Translation* and add the required point code and subsystem number to the mated application table.

8. The point code specified with the `ent-gsms-opcode` command must be the DPC of a route. If the point code specified with the `ent-gsms-opcode` command is an ANSI point code, the point code can be a member of a cluster point code when that cluster point code is the DPC of a route.

Enter the `rtrv-rte` command with the `dpc` parameter specifying the point code to be used with the `ent-gsms-opcode` command to verify whether or not the point code is the DPC of a route. For this example, enter these commands.

```
rtrv-rte:dpci=3-159-7
```

This is an example of the possible output.

```

rlghncxa03w 06-10-07 11:43:04 GMT EAGLE5 36.0.0
DPCI        ALIASN/N24      ALIASA      LSN          RC      APC
3-159-7     12111                    240-111-111 ls100001     10     1-234-5
                                           ls100002     10     1-234-6
                                           ls100003     20     1-234-7
                                           ls100004     30     1-234-1
                                           ls100005     40     1-234-2
                                           ls100006     50     1-234-3
                                           RTX:No  CLLI=idp1

```

```
rtrv-rte:dpcn=11519
```

This is an example of the possible output.

```

rlghncxa03w 06-10-07 11:43:04 GMT EAGLE5 36.0.0
DPCN        ALIASA      ALIASI      LSN          RC      APC
11519       011-222-111 0-001-1    ls200001     10     11111
                                           ls200002     10     11112
                                           ls200003     20     11113
                                           ls200004     30     11114
                                           ls200005     40     11115
                                           ls200006     50     11116
                                           RTX:No  CLLI=ndp1

```

```
rtrv-rte:dpci=5-25-3
```



This is an example of the possible output.

```
rlghncxa03w 06-10-07 11:43:04 GMT EAGLE5 36.0.0
DPCI          ALIASN/N24          ALIASA          LSN          RC          APC
5-25-3        07659                          240-039-150    ls100001     10          5-25-3
                                           ls100002     10          3-250-6
                                           ls100003     20          7-34-7
                                           ls100004     30          6-98-1
                                           ls100005     40          3-142-2
                                           ls100006     50          1-178-3
                                           RTX:No      CLLI=idp1
```

```
rtrv-rte:dpca=002-002-002
```

```
rlghncxa03w 06-10-25 09:42:31 GMT EAGLE5 36.0.0
DPCA          ALIASI          ALIASN/N24      LSN          RC          APCA
002-002-002  -----          -----          lsn1         10          002-002-002
                                           RTX:No      CLLI=-----
```

If the point code is not shown in the `rtrv-rte` output, or, if the point code is an ANSI point code, the point code is not a member of a cluster point code when that cluster point code is the DPC of a route, go to the "Adding a Route Containing an SS7 DPC" procedure in the *Database Administration Manual - SS7* and add the required route to the database.

9. Add the new GSM MAP screening operation codes to the database with the `ent-gsms-opcode` command.

For this example, enter these commands:

```
ent-gsms-opcode:opcode=100:opname=pass100:dfltact=pass
```

```
ent-gsms-opcode:opcode=150:opname=discard1:dfltact=discard
```

```
ent-gsms-opcode:opcode=71:opname=ati:dfltact=atierr
```

```
ent-gsms-opcode:opcode=25:opname=route25:dfltact=route
```

```
ent-gsms-opcode:opcode=139:opname=fwd139:dfltact=forward
:pci=3-159-7:ssn=128:mapset=dflt
```

```
ent-gsms-opcode:opcode=187:opname=dup187:dfltact=duplicate
:pcn=11519:ssn=79:mapset=10
```

```
ent-gsms-opcode:opcode=93:opname=dd93:dfltact=dupdisc
:pci=5-25-3:ssn=200:mapset=20
```

```
ent-gsms-opcode:opcode=36:opname=for1:dfltact=forward
:pca=002-002-002:ssn=10:mapset=25
```

```
ent-gsms-opcode:opcode=*:opname=star1:dfltact=pass
```

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

```
rlghncxa03w 06-10-10 11:43:04 GMT EAGLE5 36.0.0
ENT-GSMS-OPCODE: MASP A - COMPLTD
```

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

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 [Step 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.
  3. The EAGLE 5 ISS can contain 14-bit ITU-N point codes or 24-bit ITU-N point codes, but not both.
  4. To specify the opcode=\* or pc/pca parameters, the Enhanced GSM MAP Screening feature must be enabled and on.
  5. If the Flexible GTT Load Sharing feature is not enabled, shown on [Step 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 [Step 7](#), otherwise, the force=yes parameter must be specified.
  6. If the Flexible GTT Load Sharing feature is enabled, shown on [Step 3](#), the mapset parameter must be used. The force=yes parameter can be used only if the MAP set assigned to the GSM OPCODE entry is the default MAP set. If the MAP set assigned to the GSM OPCODE entry is a MAP set other than the default MAP set, the force=yes parameter cannot be used. The point code and subsystem contained in the GSM OPCODE entry must be in the MAP set assigned to the GSM OPCODE entry. If the default MAP set is assigned to the GSM OPCODE entry and the force=yes parameter is not specified, the point code and subsystem contained in the GSM OPCODE entry must be in the default MAP set.
  7. If the ri or tt parameters are not specified, the default values for these parameters are assigned to the GSM OPCODE entry. The default values for these parameters are:
    - ri - ssn
    - tt - no value is specified. A dash is shown in the TT column of the rtrv-gsms-opcode output.
  8. If the ri=ssn parameter is specified, a numerical value must be specified for the ssn parameter.
10. Verify the changes using the rtrv-gsms-opcode command and specifying the opcode parameter value used in [Step 9](#).

For this example, enter these commands.

```
rtrv-gsms-opcode:opcode=025
```

This is an example of the possible output.

```
rlghncxa03w 06-10-10 11:43:04 GMT EAGLE5 36.0.0
OPCODE  OPNAME      DFLTACT
 25      route25     route
```

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

```
rtrv-gsms-opcode:opcode=071
```

This is an example of the possible output.

```
rlghncxa03w 06-10-10 11:43:04 GMT EAGLE5 36.0.0
OPCODE  OPNAME      DFLTACT
 71      ati         atiterr
```

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

```
rtrv-gsms-opcode:opcode=093
```

This is an example of the possible output.

```
rlghncxa03w 08-09-10 11:43:04 GMT EAGLE5 39.2.0
OPCODE  OPNAME      DFLTACT   PCI          SSN  MAPSET RI  TT
 93      dd93          dupdc     5-25-3      200  20    ssn -
GSMMS OPCODE Table (11 of 257) is 4% full
```

```
rtrv-gsms-opcode:opcode=100
```

This is an example of the possible output.

```
rlghncxa03w 06-10-10 11:43:04 GMT EAGLE5 36.0.0
OPCODE  OPNAME      DFLTACT
 100    pass100    pass
GSMMS OPCODE Table (11 of 257) is 4% full
```

```
rtrv-gsms-opcode:opcode=139
```

This is an example of the possible output.

```
rlghncxa03w 08-09-10 11:43:04 GMT EAGLE5 39.2.0
OPCODE  OPNAME      DFLTACT   PCI          SSN  MAPSET RI  TT
 139    fwd139     fwd        3-159-7     128  DFLT   ssn -
GSMMS OPCODE Table (11 of 257) is 4% full
```

```
rtrv-gsms-opcode:opcode=150
```

This is an example of the possible output.

```
rlghncxa03w 06-10-10 11:43:04 GMT EAGLE5 36.0.0
OPCODE  OPNAME      DFLTACT
 150    discard1   disc
GSMMS OPCODE Table (11 of 257) is 4% full
```

```
rtrv-gsms-opcode:opcode=187
```

This is an example of the possible output.

```
rlghncxa03w 08-09-10 11:43:04 GMT EAGLE5 39.2.0
OPCODE  OPNAME      DFLTACT   PCN          SSN  MAPSET RI  TT
 187    dup187     dupl      11519        79   10    ssn -
GSMMS OPCODE Table (11 of 257) is 4% full
```

```
rtrv-gsms-opcode:opcode=36
```

This is an example of the possible output.

```
rlghncxa03w 08-09-10 11:43:04 GMT EAGLE5 39.2.0
OPCODE OPNAME   DFLTACT   PCA          SSN   MAPSET RI  TT
 36     for1     fwd       002-002-002  10    25    ssn -
GSMMS OPCODE Table (11 of 257) is 4% full
```

```
rtrv-gsms-opcode:opcode=*
```

This is an example of the possible output.

```
rlghncxa03w 06-10-10 11:43:04 GMT EAGLE5 36.0.0
OPCODE OPNAME   DFLTACT
*       star    pass
GSMMS OPCODE Table (11 of 257) is 4% full
```

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

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

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

## Removing a GSM MAP Screening Operation Code

Use this procedure to remove GSM MAP screening operation codes and the default screening action for that operation code using the `dlt-gsms-opcode` command.

The `dlt-gsms-opcode` command uses only one parameter, `opname`. The value for the `opname` parameter is the user-defined name for the operation code shown in the `rtrv-gsms-opcode` command output.

The `opname` value being removed cannot be referenced by any GSM MAP screening entries (shown in the `rtrv-gsmmap-scrn` command output). Use the [Removing a GSM MAP Screening Entry](#) procedure to remove any GSM MAP screening entries that reference the `opname` name value being removed from the database.

1. Display the GSM MAP screening opcodes in the database using the `rtrv-gsms-opcode` command.

This is an example of the possible output.

```
rlghncxa03w 08-09-10 11:43:04 GMT EAGLE5 39.2.0
OPCODE OPNAME   DFLTACT   PCA          SSN   RI  TT
 36     for1     fwd       002-002-002  10    gt  40
```

```

OPCODE  OPNAME  DFLTACT  PCI      SSN  RI  TT
  93    dd93    dupdc    5-25-3  200 ssn 10
 139    fwd139  fwd      3-159-7 128 ssn -

OPCODE  OPNAME  DFLTACT  PCN      SSN  RI  TT
 187    dup187  dupl     11519    79  gt  50

OPCODE  OPNAME  DFLTACT  PCN24    SSN  RI  TT

OPCODE  OPNAME  DFLTACT
 22     sri     disc
 25     route25 route
 50     pass50  pass
 71     ati     atiterr
100     pass100 pass
150     discard1 disc
*       star   pass

```

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

2. Display the GSM MAP screening entries that reference the opname value being removed from the database using the `rtrv-gsmmap-scrn` command specifying the opname parameter with the opname value being removed from the database. For this example, enter this command.

```
rtrv-gsmmap-scrn:opname=sri
```

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

```

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

Single CgPA Entries for OPNAME: sri
-----
SADDR          NP NAI FORBD ACT      PCA          SSN CGSR RI  TT
SADDR          NP NAI FORBD ACT      PCI          SSN CGSR RI  TT
SADDR          NP NAI FORBD ACT      PCN          SSN CGSR RI  TT
SADDR          NP NAI FORBD ACT      PCN24        SSN CGSR RI  TT
SADDR          NP NAI FORBD ACT      CGSR

Range CgPA Entries for OPNAME: sri
-----
SADDR          EADDR          NP NAI FORBD ACT      PCA          SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT      PCI          SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT      PCN          SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT      PCN24        SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT      CGSR

GSM Map Screening table is (1500 of 4000) 38% full

```

This is an example of the possible output if the `rtrv-gsmmap-scrn` output contains entries that reference the opname value being removed.

```
rtrv-gsmmap-scrn:opname=sri
```

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

Single CgPA Entries for OPNAME: sri
-----
SADDR          NP NAI FORBD ACT      PCA          SSN CGSR RI  TT
SADDR          NP NAI FORBD ACT      PCI          SSN CGSR RI  TT
SADDR          NP NAI FORBD ACT      PCN          SSN CGSR RI  TT
SADDR          NP NAI FORBD ACT      PCN24        SSN CGSR RI  TT

SADDR          NP NAI FORBD ACT  CGSR
91946200000005 1 0  none  pass  sri1

Range CgPA Entries for OPNAME: sri
-----
SADDR          EADDR          NP NAI FORBD ACT      PCA          SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT      PCI          SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT      PCN          SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT      PCN24        SSN CGSR

SADDR          EADDR          NP NAI FORBD ACT  CGSR
91946188888888 919461900000000 4 1  all  pass  sri2
91946200000000 919463000000000 * *  all  disc  sri3

GSM Map Screening table is (1500 of 4000) 38% full
```

If the GSM MAP screening entry in this step contains any CGPA entries, go to the [Removing a GSM MAP Screening Entry](#) procedure to remove the CGPA entries shown in this step.

3. Remove the GSM MAP opname value from the database using the `dlt-gsms-opcode` command. For this example, enter this command.

```
dlt-gsms-opcode:opname=sri
```

When this command has successfully completed, this message appears.

```
rlghncxa03w 06-10-07 00:29:31 GMT EAGLE5 36.0.0
DLT-GSMS-OPCODE: MASP A - COMPLTD
```

4. Verify the changes using the `rtrv-gsms-opcode` command with the `opname` parameter value specified in step 3. For this example, enter this command.

```
rtrv-gsms-opcode:opname=sri
```

This is an example of the possible output.

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

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.
```

## 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/npc/npci/npcn/npcn24` – The new ANSI point code (`npc/npc`), new ITU-I point code or ITU-I spare point code (`npci`), new 14-bit ITU-N point code or 14-bit ITU-N spare point code (`npcn`), or new 24-bit ITU-N point code (`npcn24`) of the node that the MSU is routed to by the `forward`, `duplicate`, or `dupdisc` screening actions. The EAGLE 5 ISS can contain 14-bit ITU-N point codes or 24-bit ITU-N point codes, but not both. The `npc/npc` parameters can be specified only if the Enhanced GSM MAP Screening feature is enabled and on.

`:nssn` – The new subsystem number of the node that the MSU is routed to by the `forward`, `duplicate`, or `dupdisc` screening actions

`:force` – The mated application override. Is the GSM MAP screening operation code to be entered without a mated application in the database (yes or no)?

:nmapset – The new MAP set ID, shown in the `rtrv-map` command. This parameter can be specified only if the Flexible GTT Load Sharing feature is enabled. The status of the Flexible GTT Load Sharing feature is shown in the `rtrv-ctrl-feat` output. To enable the Flexible GTT Load Sharing feature, perform the “Activating the Flexible GTT Load Sharing Feature” procedure in the *Database Administration Manual - Global Title Translation*.

If the Flexible GTT Load Sharing feature is not enabled:

- The `nmapset` parameter cannot be used.
- The `npc/npca/npci/npcn/npcn24` and `nssn` values must be shown in the `rtrv-map` output, or else the `force=yes` parameter must be specified.

If the Flexible GTT Load Sharing feature is enabled:

- If the current `dfltact` parameter value is either `pass`, `route`, `discard`, or `atierr`, and the `dfltact` parameter value is changed to either `forward`, `duplicate`, or `dupdisc`, the GSM OPCODE entry must be assigned to a MAP set with the `nmapset=dflt` parameter (to assign the GSM OPCODE entry to the default MAP set), or with the `nmapset=<numbered MAP set ID>` parameter (to assign the GSM OPCODE entry to a MAP set other than 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 an existing translation type that is assigned to the GSM OPCODE entry.

The `nopname` parameter value must be no more than 8 alphanumeric characters.

The reserved word `none` cannot be used as a value for the `nopname` parameter.

The `ndfltact=atierr` parameter cannot be specified unless the value of the operation code (`opcode`) referenced by the `opname` parameter value is 71. The `atierr` option is only valid for ATI MAP operation codes; `opcode=71` signifies an ATI MAP operation code.

The `npc/npca/npci/npcn/npcn24` and `nssn` values must be shown in the `rtrv-map` output, or else the `force=yes` parameter must be specified. If the `npc/npca/npci/npcn/npcn24` and `nssn` values are not shown in the `rtrv-map` output, and a new mated application is to be added, perform one of the “Provisioning a Mated Application” procedures in the *Database Administration Manual -*



Global Title Translation and add the required mated application with the npc/npca/npci/npcn/npcn24 and nssn values.

The force=yes parameter can be specified only with the npc/npca/npci/npcn/npcn24 and nssn parameters.

The ndfltact=forward, ndfltact=duplicate, or ndfltact=dupdisc parameters can be specified only with the npc/npca/npci/npcn/npcn24 and nssn parameters. If the npc/npca/npci/npcn/npcn24 and nssn parameters are specified, the ndfltact=forward, ndfltact=duplicate, or ndfltact=dupdisc parameters must be specified.

The npc/npca/npci/npcn/npcn24 and nssn parameters must be specified together.

The npc/npca/npci/npcn/npcn24 parameter values must be the DPC of a route or a member of a cluster route, and a proxy point code cannot be assigned to the point code. This can be verified with the rtrv-rte command. If the npc/npca/npci/npcn/npcn24 value is not shown in the rtrv-rte as the DPC of a route, go to the "Adding a Route Containing an SS7 DPC" procedure in the *Database Administration Manual - SS7* and add a new route containing the npc/npca/npci/npcn/npcn24 value. To verify whether or not a proxy point code is assigned to the npc/npca/npci/npcn/npcn24 value, enter the rtrv-dstn command with the point code value. If a proxy point code is assigned to the point code, choose another point code.

1. Display the GSM MAP screening operation codes in the database using the rtrv-gsms-opcode command.

If the Flexible GTT Load Sharing feature is not enabled, this is an example of the possible output.

```

rlghncxa03w 08-09-10 11:43:04 GMT EAGLE5 39.2.0

OPCODE  OPNAME      DFLTACT  PCA          SSN  RI  TT
 36     for1        fwd      002-002-002  10  gt  10

OPCODE  OPNAME      DFLTACT  PCI          SSN  RI  TT
 93     dd93        dupdc    5-025-3     200 ssn 40
139     fwd139      fwd      3-159-7     128 ssn -

OPCODE  OPNAME      DFLTACT  PCN          SSN  RI  TT
187     dup187      dupl     11519       79  gt  50

OPCODE  OPNAME      DFLTACT  PCN24        SSN
22     sri         disc
25     route25    route
50     pass50     pass
71     ati        atiterr
150    discardl   disc
*     star       pass

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

```

If the Flexible GTT Load Sharing feature is enabled, this is an example of the possible output.

```

rlghncxa03w 08-09-10 11:43:04 GMT EAGLE5 39.2.0

OPCODE  OPNAME      DFLTACT  PCA          SSN  MAPSET  RI  TT
 36     for1        fwd      002-002-002  10   25      gt  10

```

```

OPCODE  OPNAME      DFLTACT  PCI          SSN  MAPSET RI  TT
  93     dd93        dupdc    5-025-3     200  20    ssn 40
 139     fwd139      fwd      3-159-7     128  DFLT  ssn -

OPCODE  OPNAME      DFLTACT  PCN          SSN  MAPSET RI  TT
 187     dup187      dupl     11519       79   10    gt  50

OPCODE  OPNAME      DFLTACT  PCN24        SSN  MAPSET RI  TT

OPCODE  OPNAME      DFLTACT
 22     sri         disc
 25     route25    route
 50     pass50     pass
 71     ati        atierr
 150    discard1   disc
 *     star      pass

```

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

**Note:** If the default action parameter value will be changed to either pass, discard, route, or atierr, or the npc/npca/npci/npcn/npcn24 and nssn parameters are not to be specified, continue the procedure with [Step 8](#).

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

- Verify that the Enhanced GSM MAP Screening feature is enabled and on by entering the rtrv-ctrl-feat command with the part number of the Enhanced GSM MAP Screening feature. Enter this command.

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

The following is an example of the possible output.

```

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

Feature Name          Partnum    Status  Quantity
Enhanced GMS (EGMS)  893012401  on      ----

The following features have been temporarily enabled:

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

The following features have expired temporary keys:

Feature Name          Partnum
Zero entries found.

```

If the Enhanced GSM MAP screening feature is not enabled or off, go to the [Activating the GSM MAP Screening Feature](#) to enable and turn on the Enhanced GSM MAP screening feature.

- Perform one of these actions.
  - If the ndfltact parameter value will be either pass, discard, route, or atierr, continue the procedure with [Step 8](#).

- If the point code is not being changed, continue the procedure with [Step 8](#). If the point code and subsystem values are not being changed, and the Flexible GTT Load Sharing feature is enabled, the `nmapset` parameter does not have to be specified unless the MAP set ID assigned to the GSM OPCODE entry is being changed. The new MAP set must contain the point code and subsystem values in the GSM OPCODE entry.
  - If the `ndfltact` parameter value will be either `forward`, `duplicate`, or `dupdisc`, perform one of these actions.
    - To use a point code and a MAP set from the mated application table, and MAP sets are not shown in the `rtrv-gsms-opcode` output in [Step 1](#), the Flexible GTT Load Sharing Feature must be enabled. Perform the “Activating the Flexible GTT Load Sharing Feature” procedure in the *Database Administration Manual - Global Title Translation* and enable the Flexible GTT Load Sharing feature. After enabling the Flexible GTT Load Sharing feature, continue the procedure with [Step 6](#).
    - To use a point code and a MAP set from the mated application table, and MAP sets are shown in the `rtrv-gsms-opcode` output in [Step 1](#), skip steps 4 and 5 and continue the procedure with [Step 6](#).
    - To use a point code in the mated application table, but without using a MAP set, and MAP sets are not shown in the `rtrv-gsms-opcode` output in [Step 1](#), continue the procedure with [Step 6](#).
    - To use a point code that is not in the mated application table, the `force=yes` parameter must be specified with the `chg-gsms-opcode` command. A proxy point code cannot be assigned to this point code. If the Flexible GTT Load Sharing feature is enabled, the `force=yes` parameter can be used only if the default MAP set is assigned to the GSM OPCODE entry. Continue the procedure with [Step 4](#).
4. Display the destination point codes in the database by entering the `rtrv-dstn` command. This is an example of the possible output.

```

rlghncxa03w 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 Manual - SS7* to add the required point code. A proxy point code cannot be assigned to the point code.

After the new point code has been added, perform the "Adding a Route Containing an SS7 DPC" procedure in the *Database Administration Manual - SS7* and add the required route to the database. After the route has been added, continue the procedure with [Step 8](#).

5. Display the point code that will be assigned to the mated application by using the `rtrv-dstn` command and specifying the point code. For this example, enter this command.

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

This is an example of the possible output.

```
rlghncxa03w 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 SCCPMSCNV
  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 the *Database Administration Manual - SS7* and add the adjacent point code to the destination point code table.

After the new point code has been added, perform the "Adding a Route Containing an SS7 DPC" procedure in the *Database Administration Manual - SS7* and add the required route to the database. After the route has been added, continue the procedure with [Step 8](#).

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 [Step 8](#).

If the Flexible GTT Load Sharing feature is not enabled, for this example, enter these commands.

For this example, enter this command.

```
rtrv-map:pci=4-038-1:ssn=50
```

This is an example of the possible output.

```
rlghncxa03w 09-07-25 09:42:31 GMT EAGLE5 41.1.0
PCI          Mate PCI          SSN RC MULT SRM MRC GRP NAME SSO
4-038-1          50 10 SOL *N *N GRP01 ON
MAP TABLE IS (20 of 1024) 2 % FULL
```

**Note:** If the point code and subsystem number is not shown in the `rtrv-map` output, and is not added to the database in one of these procedures, the `force=yes` parameter must be specified with the `chg-gsms-opcode` command in [Step 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        LSN        RC        APC
4-038-1        12111        240-111-111 1s300001    10        4-038-1
                                     1s300002    10        2-066-7
                                     1s300003    20        5-087-4
                                     RTX:No     CLLI=idpl
```

If the point code is not shown in the `rtrv-rte` output, if the point code is an ANSI point code, the point code is not a member of a cluster point code when that cluster point code is the DPC of a route, go to the "Adding a Route Containing an SS7 DPC" procedure in the *Database Administration Manual - SS7* and add the required route to the database.

- Change the attributes of 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.

1. The word "none" cannot be used as a value for the opname or nopname parameters.
2. The EAGLE 5 ISS can contain 14-bit ITU-N point codes or 24-bit ITU-N point codes, but not both.
3. If the point code and subsystem number values are not being changed, the npc/npca/npci/npcn/npcn24 and nssn parameters must be specified with the current values for these parameters.
4. The npc/npca/npci/npcn/npcn24 value must be shown in the rtrv-rte output on [Step 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.
5. If the Flexible GTT Load Sharing feature is not enabled, shown on [Step 1](#), the npc/npca/npci/npcn/npcn24 and nssn values must be shown in the rtrv-map output on [Step 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.
6. If the Flexible GTT Load Sharing feature is enabled, shown on [Step 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).
7. If the Flexible GTT Load Sharing feature is enabled, shown on [Step 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 [Step 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.
8. If the Flexible GTT Load Sharing feature is enabled, shown on [Step 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 [Step 6](#).
9. To specify the npc/npca parameters, the Enhanced GSM MAP Screening feature must be enabled and turned on.
10. If only the point code or subsystem number value is being changed, the point code or subsystem number value being changed must be specified with the new value for the parameter being changed. The current value for the point code or subsystem number parameter not being changed must be specified. The ndfltact parameter does not have to be specified. For example, if the current point code is pca=002-002-002 and the subsystem number is 50, and the point code is being changed to pca=003-003-003 and the subsystem number is not changing, the npca

parameter value would be the new point code value (003-003-003) and the nssn parameter value would be the current value (50).

11. If the Flexible GTT Load Sharing feature is enabled, shown on [Step 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.
  12. If an optional parameter is not specified, the value for that parameter is not changed.
  13. The value none for the tt parameter removes the existing tt parameter value that is assigned to the GSM OPCODE entry. A dash is shown in the TT column of the rtrv-gsms-opcode output when the tt value is removed.
  14. If, when the chg-gsms-opcode command is completed, the ri parameter value is ssn, then a numerical value must be assigned to the ssn parameter.
9. Verify the changes using the rtrv-gsms-opcode command with the opname parameter value specified in [Step 8](#).

If the opname parameter value was changed in [Step 8](#), the new opname parameter value should be specified with the rtrv-gsms-opcode command. For this example, enter these commands.

```
rtrv-gsms-opcode:opname=pass100
```

This is an example of the possible output.

```
rlghncxa03w 06-10-10 11:43:04 GMT EAGLE5 36.0.0
OPCODE  OPNAME      DFLTACT
100      pass100      discard
GSMMS OPCODE Table (10 of 257) is 4% full
```

```
rtrv-gsms-opcode:opname=pass1
```

This is an example of the possible output.

```
rlghncxa03w 06-10-10 11:43:04 GMT EAGLE5 36.0.0
OPCODE  OPNAME      DFLTACT
150      pass1       pass
GSMMS OPCODE Table (10 of 257) is 4% full
```

```
rtrv-gsms-opcode:opname=irs
```

This is an example of the possible output.

```
rlghncxa03w 06-10-10 11:43:04 GMT EAGLE5 36.0.0
OPCODE  OPNAME      DFLTACT
22       irs         disc
GSMMS OPCODE Table (10 of 257) is 4% full
```

```
rtrv-gsms-opcode:opname=fwd1000
```

This is an example of the possible output.

```
rlghncxa03w 08-09-10 11:43:04 GMT EAGLE5 39.2.0
```

OPCODE	OPNAME	DFLTACT	PCI	SSN	MAPSET	RI	TT
139	fwd1000	fwd	4-38-1	50	18	gt	60

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

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

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

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

## 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 5 ISS can contain 14-bit ITU-N point codes or 24-bit ITU-N point codes, but not



both. To specify the `pc/pca` parameters, the Enhanced GSM MAP Screening feature must be enabled and on.

`:ssn` – The subsystem number of the node that the MSU is routed to by the `forward`, `duplicate`, or `dupdisc` screening actions. The values for this parameter are 2 to 255, or the value `none`. The default value for this parameter is `none`.

`:force` – The mated application override. Is the GSM MAP screening operation code to be entered without a mated application in the database (`yes` or `no`)?

`:forbid` – The forbidden parameter value. If a forbidden parameter is detected, the message is rejected by the action defined by the `action` parameter. One of four forbidden parameter values can be specified.

- `all` – All parameters are forbidden. Take the specified screening action defined by the `action` parameter for incoming messages that contain the entered address and operation code combination.
- `none` – No parameters are forbidden. Take the specified screening action defined by the `action` parameter for incoming messages that contain the entered address and operation code combination.
- `state` – Take the specified screening action defined by the `action` parameter for incoming messages that contain `state` as the forbidden parameter for the entered address and operation code combination.
- `location` – Take the specified screening action defined by the `action` parameter for incoming messages that contain `location` as the forbidden parameter for the entered address and operation code combination.

**Note:** The `state` and `location` values are valid only for GSM MAP 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-gsm-opcode` command. GSM MAP screening is performed on the specified address or addresses for the referenced operation code.

`:cgpr` – The CGPA screening reference name consisting of 1 alphabetic character and 3 optional alphanumeric characters.

`:cdpr` – 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 the *Database Administration Manual - Global Title Translation*.

`:ri` – The routing indicator parameter. This parameter specifies whether a subsequent global title translation is required. This parameter has two values.

- `gt` - subsequent global title translation is required.
- `ssn` - subsequent global title translation is not required. This is the default value for the `ri` parameter.

`:tt` – the translation type that will be assigned to the GSM MAP screening entry. This parameter specifies the value that the translation type for the CdPA is set to as a result of GSM MAP screening. The values for this parameter are 0 to 255, or the value `none` which specifies that no translation type will be assigned to the GSM MAP screening entry.

Table 28: Add GSM MAP Screening Entry Parameter Combinations shows the parameter combinations that can be used in this procedure.

Table 28: 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
<b>Mandatory Parameters</b>					
: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)
<b>Optional Parameters</b>					
:saddr = 0 - 15 hex digits, or * (See Notes 4, 5, and 6)	:saddr = 0 - 15 hex digits, or * (See Notes 4, 5, and 6)	:saddr = 0 - 15 hex digits, or * (See Notes 4, 5, and 6)	:eaddr = 0 - 15 decimal digits (See Notes 4, 5, and 6)	:eaddr = 0 - 15 decimal digits (See Notes 4, 5, and 6)	:eaddr = 0 - 15 decimal digits (See Notes 4, 5, and 6)
:eaddr = 0 - 15 hex digits (See Notes 4, 5, 6, and 7)	:eaddr = 0 - 15 hex digits (See Notes 4, 5, 6, and 7)	:eaddr = 0 - 15 hex digits (See Notes 4, 5, 6, and 7)	:forbid = all	:forbid = all, none (See Note 15)	:forbid = state, location
:cdsr = CDSR name (See Note 3)	:cdsr = CDSR name (See Note 3)	:cdsr = CDSR name (See Note 3)	:action = forward, duplicate, dupdisc (See Note 9)	:action = pass, discard, route (See Note 15)	:action = atierr

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
:forbid = all	:forbid = all, none (See Note 15)	:forbid = state, location	:npv = 0 - 15, or * (See Note 8)	:npv = 0 - 15, or * (See Note 8)	:npv = 0 - 15, or * (See Note 8)
:action = forward, duplicate, dupdisc (See Note 9)	:action = pass, discard, route (See Note 15)	:action = atierr	:naiv = 0 - 127, or * (See Note 8)	:naiv = 0 - 127, or * (See Note 8)	:naiv = 0 - 127, or * (See Note 8)
:npv = 0 - 15, or * (See Note 8)	:npv = 0 - 15, or * (See Note 8)	:npv = 0 - 15, or * (See Note 8)	:pci/pcn/pcn24 = point code value (See Notes 10, 11, 12, 13, and 14)		
:naiv = 0 - 127, or * (See Note 8)	:naiv = 0 - 127, or * (See Note 8)	:naiv = 0 - 127, or * (See Note 8)	:ssn = 0 - 255, none (See Notes 13, 14, and 16)		
pc/pca/pci/pcn/pcn24 = point code value (See Notes 10, 11, 12, 13, and 14)			:force=yes (See Notes 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		

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
:mapset = dflt or numbered MAP set ID (See Notes 13 and 14)					
:ri = gt, ssn (See Note 16)					
:tt = 0 - 255, none					
<p>Notes:</p> <ol style="list-style-type: none"> <li>1. When a CGPA entry (<i>cgsr</i> parameter is specified without the <i>cdsr</i> parameter) is added to the GSM MAP Screening table, a default wild card entry is created for the CGPA entry, thus adding two entries to the GSM MAP Screening table. The default wild card CDPA entry is not shown in the <i>rtrv-gsmmap-scrn</i> output. As a result, the GSM MAP Screening table must have at least two free entries in order to provision a CGPA entry in the GSM MAP Screening table. When the first provisioned wildcard (*) CDPA entry is added to a CGPA entry, the number of entries in the GSM MAP Screening table, shown in the GSM MAP Screening command outputs, does not change.</li> <li>2. The <i>opname</i> parameter value must be shown in either the <i>rtrv-gsms-opcode</i> or <i>rtrv-gsmmap-scrn</i> output.</li> <li>3. The <i>cgsr</i> and <i>cdsr</i> parameter values consist of 1 alphabetic character and up to 3 optional alphanumeric characters. If the <i>cdsr</i> parameter is not specified, a CGPA entry with a default wild card CDPA entry is created in the GSM MAP Screening table (see Note 1). If the <i>cdsr</i> parameter is specified, a CDPA entry is created in the GSM MAP Screening table.</li> <li>4. If a single entry is specified for the CGPA/CDPA (that is, the <i>eaddr</i> parameter is not specified) then the <i>saddr/npv/naiv/opname</i> parameter combination cannot exist in the GSM MAP Screening table.</li> <li>5. If a range of entries is specified for the CGPA/CDPA (that is, the <i>eaddr</i> parameter is specified) then the <i>saddr/eaddr/npv/naiv/opname</i> parameter combination cannot exist in the GSM MAP Screening table or overlap with another range entry in the GSM MAP Screening table.</li> <li>6. The <i>eaddr</i> parameter value must contain the same number of digits as the <i>saddr</i> parameter value. The <i>eaddr</i> parameter value must be greater than the <i>saddr</i> parameter value. The <i>saddr</i> parameter must be specified with the <i>eaddr</i> parameter.</li> <li>7. The <i>eaddr</i> parameter cannot be specified with the <i>saddr=*</i> parameter.</li> </ol>					

Entry Containing a Point Code and SSN (See Note 1) Enhanced GSM MAP Screening Feature Enabled and On	Entry Without a Point Code and SSN (See Note 1) Enhanced GSM MAP Screening Feature Enabled and On	Entry containing the Action ATIERR (See Note 1) Enhanced GSM MAP Screening Feature Enabled and On	Entry Containing a Point Code and SSN (See Note 1) GSM MAP Screening Feature Enabled and On Only	Entry Without a Point Code and SSN (See Note 1) GSM MAP Screening Feature Enabled and On Only	Entry containing the Action ATIERR (See Note 1) GSM MAP Screening Feature Enabled and On Only
<p>8. If the Enhanced GSM MAP Screening feature is not enabled or off, and either the <code>npv</code> or <code>naiv</code> parameters are specified, both the <code>npv</code> and <code>naiv</code> parameters must be specified. If the asterisk (*) is specified for either the <code>npv</code> or <code>naiv</code> parameters, the asterisk must be specified for both the <code>npv</code> and <code>naiv</code> parameters. If numbers are specified for either the <code>npv</code> or <code>naiv</code> parameters, numbers must be specified for both the <code>npv</code> and <code>naiv</code> parameters.</p> <p>9. If the <code>action</code> parameter values are either <code>forward</code>, <code>duplicate</code>, or <code>dupdisc</code>, the <code>point code</code> and <code>ssn</code> parameters must be specified with the <code>ent-gsmmap-scrn</code> command. A proxy point code cannot be assigned to this point code.</p> <p>10. The point code value must be the DPC of a route or a member of a cluster route. The <code>pc/pca</code> value must be a full point code, The <code>pc/pca</code> value can be a member of a cluster point code when that cluster point code is the DPC of a route. This can be verified with the <code>rtrv-rte</code> command. If the point code value is not shown in the <code>rtrv-rte</code> output as the DPC of a route, go to the "Adding a Route Containing an SS7 DPC" procedure in the <i>Database Administration Manual - SS7</i> and add a new route containing the point code value.</p> <p>11. The EAGLE 5 ISS can contain 14-bit ITU-N point codes or 24-bit ITU-N point codes, but not both at the same time.</p> <p>12. If either the point code or <code>ssn</code> parameters are specified, then both the point code and <code>ssn</code> parameters must be specified.</p> <p>13. If the Flexible GTT Load Sharing feature is not enabled:</p> <ul style="list-style-type: none"> <li>• The <code>mapset</code> parameter cannot be specified.</li> <li>• The point code and subsystem number values specified with the <code>ent-gsmmap-scrn</code> command must be shown in the <code>rtrv-map</code> output, or else the <code>force=yes</code> parameter must be specified. If the point code and subsystem number values are not shown in the <code>rtrv-map</code> output, and a new mated application is to be added, perform one of the "Provisioning a Mated Application" procedures in the <i>Database Administration Manual - Global Title Translation</i> and add the required mated application with the point code and subsystem number values.</li> </ul> <p>14. If the Flexible GTT Load Sharing feature is enabled:</p> <ul style="list-style-type: none"> <li>• The <code>mapset</code> parameter must be specified.</li> <li>• • The <code>force=yes</code> parameter can be used only if the default MAP set assigned to the GSM MAP screening entry.</li> <li>• If the MAP set assigned to the GSM MAP screening entry is a MAP set other than the default MAP set, the <code>force=yes</code> parameter cannot be used. The point code and subsystem contained</li> </ul>					

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
in the GSM MAP screening entry must be in the MAP set assigned to the GSM MAP screening entry.					
<ul style="list-style-type: none"> <li>If the default MAP set is assigned to the GSM MAP screening entry and the <code>force=yes</code> parameter is not specified, the point code and subsystem contained in the GSM MAP screening entry must be in the default MAP set.</li> </ul>					
15. If the <code>forbid=none</code> parameter is specified, then the <code>action=pass</code> parameter must be specified.					
16. If the <code>ri=ssn</code> parameter is specified, a numerical value must be specified for the <code>ssn</code> 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 [Table 29: Example CGPA GSM MAP Screening Configuration Table](#) and [Table 30: Example CDPA GSM MAP Screening Configuration Table](#).

**Table 29: Example CGPA GSM MAP Screening Configuration Table**

CGSR	SADDR	EADDR	NPV	NAIV	OPNAME	FORBID
cg01	9194600000	---	5	75	pass50	none
cg02	252555100000	252700000000	12	37	discard1	all
cg03	8284540000	8284600000	---	---	ati	state
cg04	2416546464	---	0	127	route25	none
cg05	854000000	857000000	3	99	dd93	all
cg06	154363000000	155000000000	8	86	sri	all
cg07	368900000	369000000	9	111	dup187	none
CGSR	ACTION	PC/PCA/PCI/	SSN	MAPSET		

CGSR	SADDR	EADDR	NPV	NAIV	OPNAME	FORBID
		PCN/PCN24				
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 30: Example CDPA GSM MAP Screening Configuration Table

CGSR	CDSR	SADDR	EADDR	OPNAME	NPV	NAIV	FORBID
cg01	cd01	---	---	pass50	6	15	all
cg02	cd15	---	---	discard1	10	15	all
cg07	cd10	---	---	dup187	11	57	all
CGSR	CDSR	ACTION	PC/PCA/ PCI/PCN/ PCN24	SSN	MAPSET		
cg01	cd01	pass	N/A	N/A	N/A		
cg02	cd15	discard	N/A	N/A	N/A		
cg07	cd10	dupdisc	5-97-2	135	30		

1. Display the 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  40

OPCODE  OPNAME  DFLTACT  PCI          SSN  RI  TT
   93    dd93    dupdc    5-25-3      200  ssn 10
  139    fwd139  fwd      3-159-7     128  ssn -

OPCODE  OPNAME  DFLTACT  PCN          SSN  RI  TT
```

```

187    dup187    dupl    11519    79    gt    50
OPCODE OPNAME    DFLTACT PCN24    SSN    RI    TT
OPCODE OPNAME    DFLTACT
22     sri      disc
25     route25 route
50     pass50  pass
71     ati     atiterr
150    discard1 disc
*      star   pass

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

```

If the Flexible GTT Load Sharing feature is enabled, this is an example of the possible output.

```

rlghncxa03w 08-09-10 11:43:04 GMT EAGLE5 39.2.0

OPCODE OPNAME    DFLTACT  PCA          SSN    MAPSET RI    TT
36     for1     fwd      002-002-002 10     25    gt   40

OPCODE OPNAME    DFLTACT  PCI          SSN    MAPSET RI    TT
93     dd93     dupdc    5-025-3     200   20    ssn 10
139    fwd139   fwd      3-159-7     128   DFLT  ssn -

OPCODE OPNAME    DFLTACT  PCN          SSN    MAPSET RI    TT
187    dup187   dupl     11519       79    10    gt   50

OPCODE OPNAME    DFLTACT  PCN24        SSN    MAPSET RI    TT

OPCODE OPNAME    DFLTACT
22     sri      disc
25     route25 route
50     pass50  pass
71     ati     atiterr
150    discard1 disc
*      star   pass

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

```

**Note:**

If the desired GSM MAP screening operation code entry is not shown in the `rtrv-gsms-opcode` output, go to the [Adding a GSM MAP Screening Operation Code](#) and add the required entry. Skip step 2 and go to step 3.

If either the `forbid=state`, `forbid=location`, or `action=atierr` parameters are to be assigned to the GSM MAP screening entry, the GSM MAP screening operation code table must contain an entry containing the operation code value 71.

2. Enter the `rtrv-gsmmap-scrn` command with an `opname` value shown in the `rtrv-gsms-opcode` command output in step 1 to display the GSM MAP screening entries in the database.

For this example, enter these commands.

```
rtrv-gsmmap-scrn:opname=pass50
```

```

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

```



```

Single CgPA Entries for OPNAME: pass50
-----
SADDR          NP NAI FORBD ACT      PCA          SSN CGSR RI  TT
SADDR          NP NAI FORBD ACT      PCI          SSN CGSR RI  TT
SADDR          NP NAI FORBD ACT      PCN          SSN CGSR RI  TT
SADDR          NP NAI FORBD ACT      PCN24        SSN CGSR RI  TT
SADDR          NP NAI FORBD ACT  CGSR

Range CgPA Entries for OPNAME: pass50
-----
SADDR          EADDR          NP NAI FORBD ACT      PCA          SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT      PCI          SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT      PCN          SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT      PCN24        SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT  CGSR

GSM Map Screening table is (1500 of 4000) 38% full
    
```

This is an example of the possible output.

```
rtrv-gsmmap-scrn:opname=discard1
```

This is an example of the possible output.

```

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

Single CgPA Entries for OPNAME: discard1
-----
SADDR          NP NAI FORBD ACT      PCA          SSN CGSR RI  TT
SADDR          NP NAI FORBD ACT      PCI          SSN CGSR RI  TT
SADDR          NP NAI FORBD ACT      PCN          SSN CGSR RI  TT
SADDR          NP NAI FORBD ACT      PCN24        SSN CGSR RI  TT
SADDR          NP NAI FORBD ACT  CGSR

Range CgPA Entries for OPNAME: discard1
-----
SADDR          EADDR          NP NAI FORBD ACT      PCA          SSN CGSR
SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT      PCI          SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT      PCN          SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT      PCN24        SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT  CGSR

GSM Map Screening table is (1500 of 4000) 38% full

rtrv-gsmmap-scrn:opname=ati
    
```

This is an example of the possible output.

```

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

Single CgPA Entries for OPNAME: ati
-----
SADDR          NP NAI FORBD ACT      PCA          SSN CGSR RI  TT
SADDR          NP NAI FORBD ACT      PCI          SSN CGSR RI  TT
SADDR          NP NAI FORBD ACT      PCN          SSN CGSR RI  TT
SADDR          NP NAI FORBD ACT      PCN24        SSN CGSR RI  TT

SADDR          NP NAI FORBD ACT  CGSR
919462000000005 1 0  locat atier atil

Range CgPA Entries for OPNAME: ati
-----
SADDR          EADDR          NP NAI FORBD ACT      PCA
SSN CGSR

SADDR          EADDR          NP NAI FORBD ACT      PCI          SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT      PCN          SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT      PCN24        SSN CGSR

SADDR          EADDR          NP NAI FORBD ACT  CGSR
919461888888888 919461900000000 4 1  locat atier ati2
919462000000000 919463000000000 * *  locat atier ati3

GSM Map Screening table is (1500 of 4000) 38% full
    
```

```
rtrv-gsmmap-scrn:opname=route25
```

This is an example of the possible output.

```
rtrv-gsmmap-scrn:opname=dd93
```

This is an example of the possible output.

```

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

Single CgPA Entries for OPNAME: dd93
-----
SADDR          NP NAI FORBD ACT      PCA          SSN CGSR RI  TT
SADDR          NP NAI FORBD ACT      PCI          SSN CGSR RI  TT
SADDR          NP NAI FORBD ACT      PCN          SSN CGSR RI  TT
SADDR          NP NAI FORBD ACT      PCN24        SSN CGSR RI  TT

SADDR          NP NAI FORBD ACT  CGSR

Range CgPA Entries for OPNAME: dd93
-----
SADDR          EADDR          NP NAI FORBD ACT      PCA
SSN CGSR
    
```

```

SADDR          EADDR          NP NAI FORBD ACT      PCI          SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT      PCN          SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT      PCN24        SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT      CGSR
GSM Map Screening table is (1500 of 4000) 38% full
    
```

rtrv-gsmmap-scrn:opname=sri

This is an example of the possible output.

```

rlghncxa03w 08-09-20 09:07:58 GMT  EAGLE5 39.2.0
Single CgPA Entries for OPNAME: sri
-----
SADDR          NP NAI FORBD ACT      PCA          SSN CGSR RI  TT
SADDR          NP NAI FORBD ACT      PCI          SSN CGSR RI  TT
SADDR          NP NAI FORBD ACT      PCN          SSN CGSR RI  TT
SADDR          NP NAI FORBD ACT      PCN24        SSN CGSR RI  TT
SADDR          NP NAI FORBD ACT      CGSR
Range CgPA Entries for OPNAME: sri
-----
SADDR          EADDR          NP NAI FORBD ACT      PCA
SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT      PCI          SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT      PCN          SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT      PCN24        SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT      CGSR
GSM Map Screening table is (1500 of 4000) 38% full
    
```

rtrv-gsmmap-scrn:opname=dup187

This is an example of the possible output.

```

rlghncxa03w 08-09-20 09:07:58 GMT  EAGLE5 39.2.0
Single CgPA Entries for OPNAME: dup187
-----
SADDR          NP NAI FORBD ACT      PCA          SSN CGSR RI  TT
SADDR          NP NAI FORBD ACT      PCI          SSN CGSR RI  TT
SADDR          NP NAI FORBD ACT      PCN          SSN CGSR RI  TT
SADDR          NP NAI FORBD ACT      PCN24        SSN CGSR RI  TT
SADDR          NP NAI FORBD ACT      CGSR
    
```

```

Range CgPA Entries for OPNAME: dup187
-----
SADDR          EADDR          NP NAI FORBD ACT      PCA
SSN CGSR

SADDR          EADDR          NP NAI FORBD ACT      PCI          SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT      PCN          SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT      PCN24        SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT      CGSR

GSM Map Screening table is (1500 of 4000) 38% full

```

If the Flexible GTT Load Sharing feature is enabled, the MAPSET field is shown in the `rtrv-gsmmap-scrn` output as shown in the following output example.

```

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

Single CgPA Entries for OPNAME: dup187
-----
SADDR          NP NAI FORBD ACT      PCA          SSN CGSR MAPSET RI  TT
SADDR          NP NAI FORBD ACT      PCI          SSN CGSR MAPSET RI  TT
SADDR          NP NAI FORBD ACT      PCN          SSN CGSR MAPSET RI  TT
SADDR          NP NAI FORBD ACT      PCN24        SSN CGSR MAPSET RI  TT
SADDR          NP NAI FORBD ACT      CGSR

Range CgPA Entries for OPNAME: dup187
-----
SADDR          EADDR          NP NAI FORBD ACT      PCA          SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT      PCI          SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT      PCN          SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT      PCN24        SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT      CGSR

GSM Map Screening table is (1500 of 4000) 38% full

```

**Note:**

If any of the following parameters or values are not being used in this procedure, skip step 3 and go to step 4.

- `saddr=*`
- `cdsr`
- `pc/pca`
- The `saddr` or `eaddr` parameter values containing hex digits.

If the `rtrv-gsmmap-scrn` output in this step shows any of the parameters or values listed above, skip step 3, and go to step 4.

- Verify that the Enhanced GSM MAP Screening feature is enabled and on by entering the `rtrv-ctrl-feat` command with the part number of the Enhanced GSM MAP Screening feature. Enter this command.

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

The following is an example of the possible output.

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

Feature Name          Partnum    Status    Quantity
Enhanced GMS (EGMS)  893012401  on       ----

The following features have been temporarily enabled:

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

The following features have expired temporary keys:

Feature Name          Partnum
Zero entries found.
```

If the Enhanced GSM MAP screening feature is not enabled or off, go to the [Activating the GSM MAP Screening Feature](#) to enable and turn on the Enhanced GSM MAP screening feature.

- 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 the *Database Administration Manual - Global Title Translation* 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 the *Database Administration Manual - SS7* to add the required point code. A proxy point code cannot be assigned to the point code.

After the new point code has been added, skip steps 6 through 8 and perform the "Adding a Route Containing an SS7 DPC" procedure in the *Database Administration Manual - SS7* and add the required route to the database. After the route has been added, continue the procedure with step 9.

6. Display the point code that will be assigned to the mated application by using the `rtrv-dstn` command and specifying the point code. For this example, enter this command.

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

This is an example of the possible output.

```
rlghncxa03w 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 the *Database Administration Manual - SS7* and add the adjacent point code to the destination point code table.

After the new point code has been added, skip steps 7 and 8 and perform the "Adding a Route Containing an SS7 DPC" procedure in the *Database Administration Manual - SS7* and add the required route to the database. After the route has been added, continue the procedure with step 9.

- The point code and subsystem number being assigned to the GSM MAP screening entry must be in the mated application table.

Enter the `rtrv-map` command with the `pci/pcn/pcn24` and `ssn` values that will be specified with the `ent-gsmmap-scrn` command in step 9.

If the Flexible GTT Load Sharing feature is not enabled, for this example, enter these commands.

```
rtrv-map:pci=3-201-7:ssn=100
```

This is an example of the possible output.

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

PCI          Mate PCI      SSN RC MULT SRM MRC GRP NAME SSO
3-201-5      100 10 SOL *N *N GRP01  ON

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

```
rtrv-map:pcn=9384:ssn=30
```

This is an example of the possible output.

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

PCN          Mate PCN      SSN RC MULT SRM MRC GRP NAME SSO
9384        30 10 SOL *N *N GRP01  ON

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

```
rtrv-map:pci=4-102-6:ssn=150
```

This is an example of the possible output.

```
rlghncxa03w 09-07-25 09:42:31 GMT EAGLE5 41.1.0
PCI          Mate PCI          SSN RC MULT SRM MRC GRP NAME SSO
4-102-6      150 10 SOL *N *N GRP01 ON
MAP TABLE IS (20 of 1024) 2 % FULL
```

If the Flexible GTT Load Sharing feature is enabled:

- The `mapset` parameter must be specified with the `ent-gsmmap-scrn` command in step 9.
- The point code and subsystem contained in the GSM MAP screening entry must be in the MAP set assigned to the GSM MAP screening entry.

For this example, enter these commands.

```
rtrv-map:pci=3-201-7:ssn=100
```

This is an example of the possible output.

```
rlghncxa03w 09-07-25 09:42:31 GMT EAGLE5 41.1.0
MAPSET ID=DFLT
PCI          Mate PCI          SSN RC MULT SRM MRC GRP NAME SSO
3-201-5      100 10 SOL *N *N GRP01 ON
MAP TABLE IS (20 of 1024) 2 % FULL
```

```
rtrv-map:pcn=9384:ssn=30
```

This is an example of the possible output.

```
rlghncxa03w 09-07-25 09:42:31 GMT EAGLE5 41.1.0
MAPSET ID=10
PCN          Mate PCN          SSN RC MULT SRM MRC GRP NAME SSO
9384         30 10 SOL *N *N GRP01 ON
MAP TABLE IS (20 of 1024) 2 % FULL
```

```
rtrv-map:pci=4-102-6:ssn=150
```

This is an example of the possible output.

```
rlghncxa03w 09-07-25 09:42:31 GMT EAGLE5 41.1.0
MAPSET ID=20
PCI          Mate PCI          SSN RC MULT SRM MRC GRP NAME SSO
4-102-6      150 10 SOL *N *N GRP01 ON
MAP TABLE IS (20 of 1024) 2 % FULL
```

If the point code and subsystem number is not shown in the `rtrv-map` output, perform one of the "Provisioning a Mated Application" procedures in the *Databa*



*e Administration Manual* - Global Title Translation and add the required point code and subsystem number to the mated application table.

8. The point code specified with the `ent-gsmmap-scrn` command must be the DPC of a route. If the point code specified with the `ent-gsmmap-scrn` command is an ANSI point code, the point code can be a member of a cluster point code when that cluster point code is the DPC of a route. Enter the `rtrv-rte` command with the `dpc` parameter specifying the point code to be used with the `ent-gsmmap-scrn` command to verify whether or not the point code is the DPC of a route. For this example, enter these commands.

```
rtrv-rte:dpci=3-201-7
```

This is an example of the possible output.

```
rlghncxa03w 06-10-07 11:43:04 GMT EAGLE5 36.0.0
DPCI          ALIASN/N24          ALIASA          LSN           RC           APC
3-201-7       12111                    240-111-111    ls100001      10           1-234-5
                                   ls100002      10           1-234-6
                                   ls100003      20           1-234-7
                                   ls100004      30           1-234-1
                                   ls100005      40           1-234-2
                                   ls100006      50           1-234-3
RTX:No       CLLI=idp1
```

```
rtrv-rte:dpcn=9384
```

This is an example of the possible output.

```
rlghncxa03w 06-10-07 11:43:04 GMT EAGLE5 36.0.0
DPCN          ALIASA          ALIASI          LSN           RC           APC
9384          011-222-111    0-001-1         ls200001      10           11111
                                   ls200002      10           11112
                                   ls200003      20           11113
                                   ls200004      30           11114
                                   ls200005      40           11115
                                   ls200006      50           11116
RTX:No       CLLI=ndp1
```

```
rtrv-rte:dpci=4-102-6
```

This is an example of the possible output.

```
DPCI          ALIASN/N24          ALIASA          LSN           RC           APC
4-102-6       7659                240-039-150    ls100001      10           5-25-3
                                   ls100002      10           3-250-6
                                   ls100003      20           7-34-7
                                   ls100004      30           6-98-1
                                   ls100005      40           3-142-2
                                   ls100006      50           1-178-3
RTX:No       CLLI=idp1
```

If the point code is not shown in the `rtrv-rte` output, if the point code is an ANSI point code, the point code is not a member of a cluster point code when that cluster point code is the DPC of a route, go to the "Adding a Route Containing an SS7 DPC" procedure in the *Database Administration Manual* - SS7 and add the required route to the database.

9. Add the new CGPAGSM MAP screening entries to the database with the `ent-gsmmap-scrn` command.

**Note:** If a CDPA entry is being added to an existing CGPA entry, skip steps 9 and 10, and go to step 11.

See [Table 28: Add GSM MAP Screening Entry Parameter Combinations](#) for the parameter combinations that can be used with the `ent-gsmmap-scrn` command.

For this example, enter these commands:

```
ent-gsmmap-scrn:saddr=9194600000:npv=5:naiv=75:opname=pass50
:forbid=none:action=pass:cgsr=cg01

ent-gsmmap-scrn:saddr=252555100000:eaddr=252700000000:npv=12:naiv=37
:opname=discard1:forbid=all :action=discard:cgsr=cg02

ent-gsmmap-scrn:saddr=8284540000:eaddr=8284600000:opname=ati
:forbid=state:action=atierr:cgsr=cg03

ent-gsmmap-scrn:saddr=2416546464:opname=route25:forbid=all
:action=route:npv=0:naiv=127:cgsr=cg04

ent-gsmmap-scrn:saddr=854000000:eaddr=857000000:opname=dd93
:forbid=all:action=forward:npv=3:naiv=99:pci=3-201-7:ssn=100:cgsr=cg05
:mapset=dflt

ent-gsmmap-scrn:saddr=154363000000:eaddr=155000000000:opname=sri
:forbid=all:action=duplicate:npv=8:naiv=86:pcn=9384:ssn=30:cgsr=cg06
:mapset=10

ent-gsmmap-scrn:saddr=368900000:eaddr=369000000:opname=dup187
:forbid=all:action=dupdisc:npv=9:naiv=111:pci=4-102-6:ssn=150:cgsr=cg07
:mapset=20
```

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

```
rlghncxa03w 06-10-20 09:07:58 GMT EAGLE5 36.0.0
GSM Map Screening table is (1512 of 4000) 38% full
ENT-GSM MAP-SCRN: MASP A - COMPLTD
```

10. Verify the changes using the `rtrv-gsmmap-scrn` command and specifying the `opname` and `cgsr` parameter values specified in step 9.

For this example, enter these commands:

```
rtrv-gsmmap-scrn:opname=pass50
```

This is an example of the possible output.

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

Single CgPA Entries for OPNAME: pass50
-----
SADDR          NP NAI FORBD ACT      PCA          SSN CGSR  MAPSET RI  TT
SADDR          NP NAI FORBD ACT      PCI          SSN CGSR  MAPSET RI  TT
```

```

SADDR      NP NAI FORBD ACT      PCN      SSN CGSR  MAPSET RI  TT
SADDR      NP NAI FORBD ACT      PCN24    SSN CGSR  MAPSET RI  TT
SADDR      NP NAI FORBD ACT  CGSR
9194600000  5 75 none pass cg01
Range CgPA Entries for OPNAME: pass50
-----
SADDR      EADDR      NP NAI FORBD ACT      PCA
SSN CGSR
SADDR      EADDR      NP NAI FORBD ACT      PCI      SSN CGSR
SADDR      EADDR      NP NAI FORBD ACT      PCN      SSN CGSR
SADDR      EADDR      NP NAI FORBD ACT      PCN24    SSN CGSR
SADDR      EADDR      NP NAI FORBD ACT  CGSR
GSM Map Screening table is (1512 of 4000) 38% full
    
```

rtrv-gsmmap-scrn:opname=discard1

This is an example of the possible output.

```

rlghncxa03w 08-09-20 09:07:58 GMT  EAGLE5 39.2.0
Single CgPA Entries for OPNAME: discard1
-----
SADDR      NP NAI FORBD ACT      PCA      SSN CGSR  MAPSET RI  TT
SADDR      NP NAI FORBD ACT      PCI      SSN CGSR  MAPSET RI  TT
SADDR      NP NAI FORBD ACT      PCN      SSN CGSR  MAPSET RI  TT
SADDR      NP NAI FORBD ACT      PCN24    SSN CGSR  MAPSET RI  TT
SADDR      NP NAI FORBD ACT  CGSR
Range CgPA Entries for OPNAME: discard1
-----
SADDR      EADDR      NP NAI FORBD ACT      PCA      SSN CGSR
SADDR      EADDR      NP NAI FORBD ACT      PCI      SSN CGSR
SADDR      EADDR      NP NAI FORBD ACT      PCN      SSN CGSR
SADDR      EADDR      NP NAI FORBD ACT      PCN24    SSN CGSR
SADDR      EADDR      NP NAI FORBD ACT  CGSR
252555100000  252700000000  12 37 all disc cg02
GSM Map Screening table is (1512 of 4000) 38% full
    
```

rtrv-gsmmap-scrn:opname=ati

This is an example of the possible output.

```

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

```

Single CgPA Entries for OPNAME: ati
-----
SADDR          NP NAI FORBD ACT      PCA          SSN CGSR  MAPSET RI  TT
SADDR          NP NAI FORBD ACT      PCI          SSN CGSR  MAPSET RI  TT
SADDR          NP NAI FORBD ACT      PCN          SSN CGSR  MAPSET RI  TT
SADDR          NP NAI FORBD ACT      PCN24        SSN CGSR  MAPSET RI  TT
SADDR          NP NAI FORBD ACT  CGSR

Range CgPA Entries for OPNAME: ati
-----
SADDR          EADDR          NP NAI FORBD ACT      PCA          SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT      PCI          SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT      PCN          SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT      PCN24        SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT  CGSR
8284540000     8284600000     * * state atier cg03
GSM Map Screening table is (1512 of 4000) 38% full
    
```

rtrv-gsmmap-scrn:opname=route25

This is an example of the possible output.

```

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

Single CgPA Entries for OPNAME: route25
-----
SADDR          NP NAI FORBD ACT      PCA          SSN CGSR  MAPSET RI  TT
SADDR          NP NAI FORBD ACT      PCI          SSN CGSR  MAPSET RI  TT
SADDR          NP NAI FORBD ACT      PCN          SSN CGSR  MAPSET RI  TT
SADDR          NP NAI FORBD ACT      PCN24        SSN CGSR  MAPSET RI  TT
SADDR          NP NAI FORBD ACT  CGSR

2416546464     0 127 all route cg04

Range CgPA Entries for OPNAME: ati
-----
SADDR          EADDR          NP NAI FORBD ACT      PCA          SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT      PCI          SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT      PCN          SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT      PCN24        SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT  CGSR

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

rtrv-gsmmap-scrn:opname=dd93

This is an example of the possible output.

```

rlghncxa03w 08-09-20 09:07:58 GMT EAGLE5 39.2.0
Single CgPA Entries for OPNAME: dd93
-----
SADDR          NP NAI FORBD ACT      PCA          SSN CGSR  MAPSET RI  TT
SADDR          NP NAI FORBD ACT      PCI          SSN CGSR  MAPSET RI  TT
SADDR          NP NAI FORBD ACT      PCN          SSN CGSR  MAPSET RI  TT
SADDR          NP NAI FORBD ACT      PCN24        SSN CGSR  MAPSET RI  TT
SADDR          NP NAI FORBD ACT  CGSR

Range CgPA Entries for OPNAME: dd93
-----
SADDR          EADDR          NP NAI FORBD ACT      PCA          SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT      PCI          SSN CGSR
854000000      857000000      3 99 all fwd          3-201-7      100 cg05
MAPSET = DFLT RI=ssn TT=-
SADDR          EADDR          NP NAI FORBD ACT      PCN          SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT      PCN24        SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT      CGSR

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

rtrv-gsmmap-scrn:opname=sri

This is an example of the possible output.

```

rlghncxa03w 08-09-20 09:07:58 GMT EAGLE5 39.2.0
Single CgPA Entries for OPNAME: sri
-----
SADDR          NP NAI FORBD ACT      PCA          SSN CGSR  MAPSET RI  TT
SADDR          NP NAI FORBD ACT      PCI          SSN CGSR  MAPSET RI  TT
SADDR          NP NAI FORBD ACT      PCN          SSN CGSR  MAPSET RI  TT
SADDR          NP NAI FORBD ACT      PCN24        SSN CGSR  MAPSET RI  TT
SADDR          NP NAI FORBD ACT  CGSR

Range CgPA Entries for OPNAME: sri
-----
SADDR          EADDR          NP NAI FORBD ACT      PCA          SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT      PCI          SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT      PCN          SSN CGSR
1534363000000  1550000000000  8 86 all dup1        9384          30 cg06
MAPSET = 10 RI=ssn TT=-
SADDR          EADDR          NP NAI FORBD ACT      PCN24        SSN CGSR
    
```

```
SADDR          EADDR          NP NAI FORBD ACT    CGSR
```

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

```
rtrv-gsmmap-scrn:opname=dup187
```

This is an example of the possible output.

```
rlghncxa03w 08-09-20 09:07:58 GMT  EAGLE5 39.2.0
Single CgPA Entries for OPNAME: dup187
-----
SADDR          NP NAI FORBD ACT    PCA          SSN CGSR  MAPSET RI  TT
SADDR          NP NAI FORBD ACT    PCI          SSN CGSR  MAPSET RI  TT
SADDR          NP NAI FORBD ACT    PCN          SSN CGSR  MAPSET RI  TT
SADDR          NP NAI FORBD ACT    PCN24       SSN CGSR  MAPSET RI  TT
SADDR          NP NAI FORBD ACT    CGSR
Range CgPA Entries for OPNAME: dup187
-----
SADDR          EADDR          NP NAI FORBD ACT    PCA          SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT    PCI          SSN CGSR
368900000      369000000      9 111 all  dupdc    4-102-6     150 cg07
MAPSET = 20 RI=ssn  TT=-
SADDR          EADDR          NP NAI FORBD ACT    PCN          SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT    PCN24       SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT    CGSR
GSM Map Screening table is (1512 of 4000) 38% full
```

11. Add the new CDPAGSM MAP screening entries to the database with the `ent-gsmmap-scrn` command.

**Note:** If a CDPA entry is not being added, or if the Enhanced GSM MAP Screening feature is not enabled or off (see the `rtrv-ctrl-feat` output in step 3), skip steps 11 and 12, and go to step 13.

See [Table 28: Add GSM MAP Screening Entry Parameter Combinations](#) for the parameter combinations that can be used with the `ent-gsmmap-scrn` command.

For this example, enter these commands:

```
ent-gsmmap-scrn:opname=pass50:npv=6:naiv=15:forbid=all:action=pass
:cgsr=cg01:cdsr=cd01
```

```
ent-gsmmap-scrn:opname=discard1:npv=10:naiv=15:forbid=all:action=discard
:cgsr=cg02:cdsr=cd15
```

```
ent-gsmmap-scrn:opname=dup187:npv=11:naiv=57:forbid=all:pci=5-97-2
:ssn=135:action=dupdisc:cgsr=cg07:cdsr=cd10:mapset=30
```

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

```
rlghncxa03w 06-10-20 09:07:58 GMT EAGLE5 36.0.0
GSM Map Screening table is (1512 of 4000) 38% full
ENT-GSMMAP-SCRN: MASP A - COMPLTD
```

- 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
```

- 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.
```

## Removing a GSM MAP Screening Entry

Use this procedure to remove the GSM MAP screening entries that filter or allow TCAP messages containing MAP operation codes, origination addresses, and forbidden parameters using the `dlt-gsmmap-scrn` command. The `dlt-gsmmap-scrn` command uses these parameters:

:opname – The user-defined name for the operation code. The opname value references the operation code (opcode) shown in the `rtrv-gsms-opcode` command output.

:cgsr – The CGPA screening reference name

:cdsr – The CDPA screening reference name

If the GSM MAP Screening entry contains CDPA entries, the individual CDPA entries can be removed without removing the CGPA entry. However, if you wish to remove the CGPA entry, all CDPA entries assigned to the CGPA entry must be removed before the CGPA entry can be removed.

To remove CDPA entries, the opname, cgsr, and cdsr parameters must be specified with the `dlt-gsmmap-scrn` command. To remove CGPA entries, the opname and cgsr parameters must be specified with the `dlt-gsmmap-scrn` command.

Unlike GTT (Global Title Translation) entries, the GSM MAP screening commands do not support splits of ranges during removing or changing entries.

1. Display the GSM MAP screening operation codes in the database using the `rtrv-gsms-opcode` command.

This is an example of the possible output.

```
rlghncxa03w 08-09-10 11:43:04 GMT EAGLE5 39.2.0

OPCODE  OPNAME    DFLTACT    PCA          SSN  RI  TT
 36      for1      fwd        002-002-002  10  gt  10

OPCODE  OPNAME    DFLTACT    PCI          SSN  RI  TT
 93      dd93      dupdc      5-25-3       200 ssn 30
139     fwd139    fwd        3-159-7      128 ssn -

OPCODE  OPNAME    DFLTACT    PCN          SSN  RT  TT
187     dup187    dupl       11519        79  gt  50

OPCODE  OPNAME    DFLTACT    PCN24        SSN

OPCODE  OPNAME    DFLTACT
 22     sri      disc
 25     route25  route
 50     pass50   pass
 71     ati      atierr
150     discard1 disc
*      star     pass

GSMMS_OPCODE Table (10 of 257) is 4% full
```

2. Enter the `rtrv-gsmmap-scrn` command with an opname value shown in the `rtrv-gsms-opcode` command output in step 1 to display the CGPAGSM MAP screening entries. For this example, enter these commands.



```
rtrv-gsmmap-scrn:opname=pass50
```

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

```
Single CgPA Entries for OPNAME: pass50
```

```
-----
SADDR          NP NAI FORBD ACT      PCA          SSN CGSR RI  TT
SADDR          NP NAI FORBD ACT      PCI          SSN CGSR RI  TT
SADDR          NP NAI FORBD ACT      PCN          SSN CGSR RI  TT
SADDR          NP NAI FORBD ACT      PCN24        SSN CGSR RI  TT
SADDR          NP NAI FORBD ACT  CGSR
9194600000    5 75 none pass  cg01
```

```
Range CgPA Entries for OPNAME: pass50
```

```
-----
SADDR          EADDR          NP NAI FORBD ACT      PCA          SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT      PCI          SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT      PCN          SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT      PCN24        SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT  CGSR
```

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

```
rtrv-gsmmap-scrn:opname=ati
```

This is an example of the possible output.

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

```
Single CgPA Entries for OPNAME: ati
```

```
-----
SADDR          NP NAI FORBD ACT      PCA          SSN CGSR RI  TT
SADDR          NP NAI FORBD ACT      PCI          SSN CGSR RI  TT
SADDR          NP NAI FORBD ACT      PCN          SSN CGSR RI  TT
SADDR          NP NAI FORBD ACT      PCN24        SSN CGSR RI  TT
SADDR          NP NAI FORBD ACT  CGSR
919462000000005 1 0 locat atier atil
```

```
Range CgPA Entries for OPNAME: ati
```

```
-----
SADDR          EADDR          NP NAI FORBD ACT      PCA          SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT      PCI
SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT      PCN
SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT      PCN24        SSN CGSR
```

```

SADDR          EADDR          NP NAI FORBD ACT  CGSR
8284540000     8284600000         * *   state atier cg03
91946188888888 9194619000000000 4 1   locat atier ati2
91946200000000 9194630000000000 * *   locat atier ati3

```

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

```
rtrv-gsmmap-scrn:opname=sri
```

This is an example of the possible output.

```

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

Single CgPA Entries for OPNAME: sri
-----
SADDR          NP NAI FORBD ACT      PCA          SSN CGSR RI  TT
SADDR          NP NAI FORBD ACT      PCI          SSN CGSR RI  TT
SADDR          NP NAI FORBD ACT      PCN          SSN CGSR RI  TT
SADDR          NP NAI FORBD ACT      PCN24        SSN CGSR RI  TT
SADDR          NP NAI FORBD ACT  CGSR

Range CgPA Entries for OPNAME: sri
-----
SADDR          EADDR          NP NAI FORBD ACT      PCA          SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT      PCI          SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT      PCN          SSN CGSR
1534363000000 1550000000000 8 86 all dupl          9384          30 cg06
RI=ssn TT=-
SADDR          EADDR          NP NAI FORBD ACT      PCN24        SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT  CGSR

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

```

**Note:** The `rtrv-gsmmap-scrn` output in step 2 shows only the CGPA entries in the MAP screening table for the specified OPNAME. The CGPA entries in step 2 could contain CDPA entries that would have to be removed before the CGPA entry could be removed. CDPA entries can be in the MAP screening table only if the Enhanced GSM MAP Screening feature is enabled and on.

If any of the following parameters or values are shown in the `rtrv-gsmmap-scrn` output in step 2, the Enhanced GSM MAP Screening feature is enabled and on. Skip step 3 and go to step 4.

- `saddr=*`
- `pc/pca`
- The `saddr` or `eaddr` parameter values containing hex digits.

If the `rtrv-gsmmap-scrn` output in step 2 does not show any of these parameters or values, it is possible that the Enhanced GSM MAP Screening feature is enabled and on. Perform step 3 to verify the status of the Enhanced GSM MAP Screening feature.

3. Enter the `rtrv-ctrl-feat` command with the part number of the Enhanced GSM MAP Screening feature.

Enter this command.

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

The following is an example of the possible output.

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

Feature Name          Partnum    Status    Quantity
Enhanced GMS (EGMS)  893012401  on       ----

The following features have been temporarily enabled:

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

The following features have expired temporary keys:

Feature Name          Partnum
Zero entries found.
```

**Note:** If step 3 shows that the Enhanced GSM MAP Screening feature is not enabled or off, CDPA entries cannot be in the MAP screening table. Skip step 4 and go to step 5.

4. To display the CDPA entries assigned to the CGPA entry shown in step 2, enter the `rtrv-gsmmap-scrn` command with the `opname` and `cgsr` parameter values specified shown in step 2.

For this example, enter these commands.

```
rtrv-gsmmap-scrn:opname=pass50:cgsr=cg01
```

```
rlghncxa03w 08-09-20 09:07:58 GMT EAGLE5 39.2.0
Single CdPA Entries for OPNAME: pass50 and CGSR: cg01
-----
SADDR          NP NAI FORBD ACT      PCA          SSN CDSR RI  TT
SADDR          NP NAI FORBD ACT      PCI          SSN CDSR RI  TT
SADDR          NP NAI FORBD ACT      PCN          SSN CDSR RI  TT
SADDR          NP NAI FORBD ACT      PCN24       SSN CDSR RI  TT
SADDR          NP NAI FORBD ACT      CDSR
*              6 15 all pass cd01

Range CdPA Entries for OPNAME: pass50 and CGSR: cg01
-----
SADDR          EADDR          NP NAI FORBD ACT      PCA          SSN CDSR
SADDR          EADDR          NP NAI FORBD ACT      PCI          SSN CDSR
SADDR          EADDR          NP NAI FORBD ACT      PCN          SSN CDSR
SADDR          EADDR          NP NAI FORBD ACT      PCN24       SSN CDSR
```

```
SADDR          EADDR          NP NAI FORBD ACT    CDSR
GSM Map Screening table is (1512 of 4000) 38% full
```

rtrv-gsmmap-scrn:opname=ati:cgsr=cg03

This is an example of the possible output.

```
rlghncxa03w 08-09-20 09:07:58 GMT  EAGLE5 39.2.0
Single CdPA Entries for OPNAME: ati and CGSR: cg03
-----
SADDR          NP NAI FORBD ACT    PCA          SSN CDSR RI  TT
SADDR          NP NAI FORBD ACT    PCI          SSN CDSR RI  TT
SADDR          NP NAI FORBD ACT    PCN          SSN CDSR RI  TT
SADDR          NP NAI FORBD ACT    PCN24        SSN CDSR RI  TT
SADDR          NP NAI FORBD ACT    CDSR
919461000000130 2 16  locat atier ati5
Range CdPA Entries for OPNAME: ati and CGSR: cg03
-----
SADDR          EADDR          NP NAI FORBD ACT    PCA          SSN CDSR
SADDR          EADDR          NP NAI FORBD ACT    PCI          SSN CDSR
SSN CDSR
SADDR          EADDR          NP NAI FORBD ACT    PCN          SSN CDSR
SADDR          EADDR          NP NAI FORBD ACT    PCN24        SSN CDSR
SADDR          EADDR          NP NAI FORBD ACT    CDSR
4329290000    5450000000    * *  state atier cd15
9194630000000000 9194640000000000 11 95  locat atier ati7
8035490000000000 8036500000000000 * *  locat atier ati9
GSM Map Screening table is (1512 of 4000) 38% full
```

rtrv-gsmmap-scrn:opname=sri:cgsr=cg06

This is an example of the possible output.

```
rlghncxa03w 08-09-20 09:07:58 GMT  EAGLE5 39.2.0
Single CgPA Entries for OPNAME: sri and CGSR: cg06
-----
SADDR          NP NAI FORBD ACT    PCA          SSN CDSR
SADDR          NP NAI FORBD ACT    PCI          SSN CDSR
SADDR          NP NAI FORBD ACT    PCN          SSN CDSR
SADDR          NP NAI FORBD ACT    PCN24        SSN CDSR
SADDR          NP NAI FORBD ACT    CDSR
```

```

Range CgPA Entries for OPNAME: sri and CGSR: cg06
-----
SADDR          EADDR          NP NAI FORBD ACT      PCA          SSN CDSR
SADDR          EADDR          NP NAI FORBD ACT      PCI          SSN CDSR
SADDR          EADDR          NP NAI FORBD ACT      PCN          SSN CDSR
SADDR          EADDR          NP NAI FORBD ACT      PCN24       SSN CDSR
SADDR          EADDR          NP NAI FORBD ACT      CDSR
GSM Map Screening table is (1512 of 4000) 38% full

```

- Remove the 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-GSM MAP-SCRN: MASP A - COMPLTD

```

- Verify the changes using the `rtrv-gsmmap-scrn` command with the `opname` parameter value used in step 5.

If CDPA entries were removed from CGPA entries without removing the CGPA entry, specify the `opname` and `cgsr` parameter values used in step 5 with the `rtrv-gsmmap-scrn` command.

For this example, enter these commands:

```
rtrv-gsmmap-scrn:opname=pass50
```

This is an example of the possible output.

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

```

Single CgPA Entries for OPNAME: pass50
-----
SADDR          NP NAI FORBD ACT      PCA          SSN CGSR RI  TT
SADDR          NP NAI FORBD ACT      PCI          SSN CGSR RI  TT
SADDR          NP NAI FORBD ACT      PCN          SSN CGSR RI  TT
SADDR          NP NAI FORBD ACT      PCN24        SSN CGSR RI  TT
SADDR          NP NAI FORBD ACT  CGSR

Range CgPA Entries for OPNAME: pass50
-----
SADDR          EADDR          NP NAI FORBD ACT      PCA          SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT      PCI          SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT      PCN          SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT      PCN24        SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT  CGSR

GSM Map Screening table is (1508 of 4000) 38% full
    
```

rtrv-gsmmap-scrn:opname=ati:cgsr=cg03

This is an example of the possible output.

```

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

Single CdPA Entries for OPNAME: ati and CGSR: cg03
-----
SADDR          NP NAI FORBD ACT      PCA          SSN CDSR RI  TT
SADDR          NP NAI FORBD ACT      PCI          SSN CDSR RI  TT
SADDR          NP NAI FORBD ACT      PCN          SSN CDSR RI  TT
SADDR          NP NAI FORBD ACT      PCN24        SSN CDSR RI  TT

SADDR          NP NAI FORBD ACT  CDSR
919461000000130 2 16  locat atier ati5

Range CdPA Entries for OPNAME: ati and CGSR: cg03
-----
SADDR          EADDR          NP NAI FORBD ACT      PCA          SSN CDSR
SADDR          EADDR          NP NAI FORBD ACT      PCI          SSN CDSR
SADDR          EADDR          NP NAI FORBD ACT      PCN          SSN CDSR
SADDR          EADDR          NP NAI FORBD ACT      PCN24        SSN CDSR

SADDR          EADDR          NP NAI FORBD ACT  CDSR
919463000000000 919464000000000 11 95  locat atier ati7
803549000000000 803650000000000 *  *  locat atier ati9

GSM Map Screening table is (1508 of 4000) 38% full
    
```

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

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

## 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 5 ISS can contain 14-bit ITU-N point codes or 24-bit ITU-N point codes, but not both.

`:nssn` – The new subsystem number of the node that the MSU is routed to by the `forward`, `duplicate`, or `dupdisc` screening actions

`:force` – The mated application override. Is the GSM MAP screening operation code to be entered without a mated application in the database (`yes` or `no`)?

`:nforbid` – The new forbidden parameter value. If a forbidden parameter is detected, the message is rejected by the action defined by the `action` parameter value. One of four forbidden parameter values can be specified.

- `all` – All parameters are forbidden. Take the specified screening action defined by the `naction` parameter for incoming messages that contain the entered address and operation code combination.
- `none` – No parameters are forbidden. Take the specified screening action defined by the `naction` parameter for incoming messages that contain the entered address and operation code combination.
- `state` – Take the specified screening action defined by the `naction` parameter for incoming messages that contain `state` as the forbidden parameter for the entered address and operation code combination.
- `location` – Take the specified screening action defined by the `naction` parameter for incoming messages that contain `location` as the forbidden parameter for the entered address and operation code combination.

`:cgsrc` – The current CGPA screening reference name.

`:cdsrc` – The current CDPA screening reference name.

`:ncgsrc` – The new CGPA screening reference name consisting of 1 alphabetic character and 3 optional alphanumeric characters.

`:ncdsrc` – The new CDPA screening reference name consisting of 1 alphabetic character and 3 optional alphanumeric characters.

`:nmapset` – The new MAP set ID, shown in the `rtrv-map` command. This parameter can be specified only if the Flexible GTT Load Sharing feature is enabled. The status of the Flexible GTT Load Sharing feature is shown in the `rtrv-ctrl-feat` output. To enable the Flexible GTT Load Sharing feature, perform the “Activating the Flexible GTT Load Sharing Feature” procedure in the *Database Administration Manual - Global Title Translation*.

`:nri` – The new routing indicator parameter. This parameter specifies whether a subsequent global title translation is required. This parameter has two values.

- `gt` – subsequent global title translation is required.
- `ssn` – subsequent global title translation is not required.

`:ntt` – the new translation type that will be assigned to the GSM MAP screening entry. This parameter specifies the value that the translation type for the CdPA is set to as a result of GSM MAP screening. The values for this parameter are 0 to 255, or the value `none` which specifies removes the existing translation type from to the GSM MAP screening entry.

If a message is screened and does not contain matching `npv` and `naiv` values, the message is rejected. The message is rejected with the default action defined by the `chg-gsms-opcode` command for the operation code (`opcode`) parameter entry referenced by the operation name (`opname`) parameter.

[Table 31: Change GSM MAP Screening Entry Parameter Combinations](#) shows the parameter combinations that can be used in this procedure.



Table 31: 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
<b>Mandatory Parameters</b>					
: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
<b>Optional Parameters (See Note 1)</b>					
:cdsr = current CDSR value (See Notes 3 and 4)	:cdsr = current CDSR value (See Notes 3 and 4)	:cdsr = current CDSR value (See Notes 3 and 4)	:nforbid = all	:nforbid = all, none (See Note 13)	:nforbid = state, location
:nforbid = all	:nforbid = all, none (See Note 13)	:nforbid = state, location	:naction = forward, duplicate, dupdisc (See Note 6)	:naction = pass, discard, route (See Note 13)	:naction = atierr
:naction = forward, duplicate, dupdisc (See Note 6)	:naction = pass, discard, route (See Note 13)	:naction = atierr	:ncgsr = new CGSR value	:ncgsr = new CGSR value	:ncgsr = new CGSR value
:ncgsr = new CGSR value (See Notes 4 and 5)	:ncgsr = new CGSR value (See Notes 4 and 5)	:ncgsr = new CGSR value (See Notes 4 and 5)	:npci/npcn/ npcn24 =point code value (See Notes 7, 8, 9, 10, 11, and 12)		

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
:ncdsr = new CDSR value (See Notes 3 and 5)	:ncdsr = new CDSR value (See Notes 3 and 5)	:ncdsr = new CDSR value (See Notes 3 and 5)	:nssn = 0 - 255, none (See Notes 7, 8, 9, 10, 11, 12, and 14)		
:npc/npca/npci/npcn/npcn24 = point code value (See Notes 7, 8, 9, 10, 11, and 12)			:force=yes (See Notes 11 and 12)		
:nssn = 0 - 255, none (See Notes 7, 8, 9, 10, 11, 12, and 14)			:nmapset = dflt or numbered MAP set ID (See Notes 11 and 12)		
:force=yes (See Notes 11 and 12)			:nri = gt, ssn (See Note 14)		
:nmapset = dflt or numbered MAP set ID (See Notes 11 and 12)			:ntt = 0 - 255, none (See Note 15)		
:nri = gt, ssn (See Note 14)					
:ntt = 0 - 255, none (See Note 15)					
Notes:					

Entry Containing a Point Code and SSN Enhanced GSM MAP Screening Feature Enabled and On	Entry Without a Point Code and SSN Enhanced GSM MAP Screening Feature Enabled and On	Entry containing the Action ATIERR Enhanced GSM MAP Screening Feature Enabled and On	Entry Containing a Point Code and SSN GSM MAP Screening Feature Enabled and On Only	Entry Without a Point Code and SSN GSM MAP Screening Feature Enabled and On Only	Entry containing the Action ATIERR GSM MAP Screening Feature Enabled and On Only
<p>1. At least one optional parameter must be specified with the <code>chg-gsmmap-scrn</code> command. If the <code>cdsr</code> parameter is specified, at least one other optional parameter must be specified with the <code>chg-gsmmap-scrn</code> command.</p> <p>2. The <code>opname</code> parameter value must be shown in the <code>rtrv-gsms-opcode</code> output.</p> <p>3. The <code>cdsr</code> parameter must be specified when the <code>ncdsr</code> parameter is specified.</p> <p>4. The <code>ncgsr</code> parameter should not be specified when the <code>cdsr</code> parameter is specified.</p> <p>5. The <code>ncgsr</code> and <code>ncdsr</code> parameters cannot be specified together.</p> <p>6. The point code value must be the DPC of a route or a member of a cluster route. The <code>npc/npca</code> value must be a full point code, The <code>npc/npca</code> value can be a member of a cluster point code when that cluster point code is the DPC of a route. This can be verified with the <code>rtrv-rte</code> command. If the point code value is not shown in the <code>rtrv-rte</code> output as the DPC of a route, go to the "Adding a Route Containing an SS7 DPC" procedure in the <i>Database Administration Manual - SS7</i> and add a new route containing the point code value. A proxy point code cannot be assigned to the point code.</p> <p>7. The EAGLE 5 ISS can contain 14-bit ITU-N point codes or 24-bit ITU-N point codes, but not both at the same time.</p> <p>8. If the new or current (if unchanged) action parameter values are either <code>forward</code>, <code>duplicate</code>, or <code>dupdisc</code>, the point code and <code>nssn</code> parameters must be specified with the <code>chg-gsmmap-scrn</code> command. If the point code or subsystem number values are not being changed, the point code and subsystem number parameters must be specified with the current values for these parameters.</p> <p>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 <code>naction</code> parameter does not have to be specified. For example, if the current point code is <code>pca=002-002-002</code> and the subsystem number is 50, and the point code is being changed to <code>pca=003-003-003</code> and the subsystem number is not changing, the <code>npca</code> parameter value would be the new point code value (003-003-003) and the <code>nssn</code> parameter value would be the current value (50).</p> <p>10. To specify the <code>npc/npca</code> parameters, the Enhanced GSM MAP Screening feature must be enabled and turned on.</p> <p>11. If the Flexible GTT Load Sharing feature is not enabled:</p> <ul style="list-style-type: none"> <li>• The <code>nmapset</code> parameter cannot be specified.</li> <li>• The point code and subsystem number values specified with the <code>chg-gsmmap-scrn</code> command must be shown in the <code>rtrv-map</code> output, or else the <code>force=yes</code> parameter must be specified. If the point code and subsystem number values are not shown in the <code>rtrv-map</code> output, and a new</li> </ul>					

Entry Containing a Point Code and SSN Enhanced GSM MAP Screening Feature Enabled and On	Entry Without a Point Code and SSN Enhanced GSM MAP Screening Feature Enabled and On	Entry containing the Action ATIERR Enhanced GSM MAP Screening Feature Enabled and On	Entry Containing a Point Code and SSN GSM MAP Screening Feature Enabled and On Only	Entry Without a Point Code and SSN GSM MAP Screening Feature Enabled and On Only	Entry containing the Action ATIERR GSM MAP Screening Feature Enabled and On Only
<p>mated application is to be added, perform one of the "Provisioning a Mated Application" procedures in the <i>Database Administration Manual - Global Title Translation</i> and add the required mated application with the point code and subsystem number values.</p> <p>12. If the Flexible GTT Load Sharing feature is enabled:</p> <ul style="list-style-type: none"> <li>• If the current action parameter value is either <code>pass</code>, <code>route</code>, <code>discard</code>, or <code>atierr</code>, and the action parameter value is changed to either <code>forward</code>, <code>duplicate</code>, or <code>dupdisc</code>, the GSM MAP screening entry must be assigned to a MAP set with the <code>nmapset=dflt</code> parameter (to assign the GSM MAP screening entry to the default MAP set), or with the <code>nmapset=&lt;numbered MAP set ID&gt;</code> parameter (to assign the GSM MAP screening entry to a MAP set other the default MAP set).</li> <li>• If the default MAP set will be assigned to the GSM MAP screening entry, the <code>npc/npca/npci/npcn/npcn24</code> and <code>nssn</code> values must be shown in the default MAP set in the <code>rtrv-map</code> output. If the <code>npc/npca/npci/npcn/npcn24</code> or <code>nssn</code> values are not shown in the default MAP set in the <code>rtrv-map</code> output, the <code>force=yes</code> parameter must be specified.</li> <li>• If a MAP set other than the default MAP set will be assigned to the GSM MAP screening entry, the <code>npc/npca/npci/npcn/npcn24</code> and <code>nssn</code> values must be shown in that MAP set in the <code>rtrv-map</code> output.</li> <li>• If the point code and subsystem values are not being changed, the <code>nmapset</code> parameter does not have to be specified unless the MAP set ID assigned to the GSM MAP screening entry is being changed. The new MAP set must contain the point code and subsystem values in the GSM MAP screening entry.</li> </ul> <p>13. If the value of the <code>forbid</code> parameter is being changed to <code>none</code>, and the current value of the action parameter is not <code>pass</code>, the <code>naction=pass</code> parameter must be specified. If the current value of the <code>forbid</code> parameter is <code>none</code> and will not be changed, the value of the action parameter must be <code>pass</code> and cannot be changed.</p> <p>14. If, when the <code>chg-gsmmap-scrn</code> command is completed, the <code>ri</code> parameter value is <code>ssn</code>, then a numerical value must be assigned to the <code>ssn</code> parameter.</p> <p>15. The value <code>none</code> for the <code>tt</code> parameter removes the existing <code>tt</code> parameter value that is assigned to the GSM MAP screening entry. A dash is shown in the <code>TT</code> column of the <code>rtrv-gsmmap-scrn</code> output when the <code>tt</code> value is removed.</p>					

1. Display the GSM MAP screening operation codes in the database using the `rtrv-gsms-opcode` command.

If the Flexible GTT Load Sharing feature is not enabled, this is an example of the possible output.

```
rlghncxa03w 08-09-10 11:43:04 GMT EAGLE5 39.2.0

OPCODE  OPNAME    DFLTACT  PCA          SSN  RI  TT
 36     for1      fwd      002-002-002  10  gt  10

OPCODE  OPNAME    DFLTACT  PCI          SSN  RI  TT
 93     dd93     dupdc    5-025-3     200 ssn 40
139     fwd139   fwd      3-159-7     128 ssn -

OPCODE  OPNAME    DFLTACT  PCN          SSN  RI  TT
187     dup187   dupl     11519       79  gt  50

OPCODE  OPNAME    DFLTACT  PCN24        SSN

OPCODE  OPNAME    DFLTACT
 22     sri      disc
 25     route25 route
 50     pass50   pass
 71     ati      atierr
150     discard1 disc
*      star    pass
```

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

If the Flexible GTT Load Sharing feature is enabled, this is an example of the possible output.

```
rlghncxa03w 08-09-10 11:43:04 GMT EAGLE5 39.2.0

OPCODE  OPNAME    DFLTACT  PCA          SSN  MAPSET RI  TT
 36     for1      fwd      002-002-002  10  25   gt  10

OPCODE  OPNAME    DFLTACT  PCI          SSN  MAPSET RI  TT
 93     dd93     dupdc    5-025-3     200  20   ssn 40
139     fwd139   fwd      3-159-7     128  DFLT ssn -

OPCODE  OPNAME    DFLTACT  PCN          SSN  MAPSET RI  TT
187     dup187   dupl     11519       79  10   gt  50

OPCODE  OPNAME    DFLTACT  PCN24        SSN  MAPSET RI  TT

OPCODE  OPNAME    DFLTACT
 22     sri      disc
 25     route25 route
 50     pass50   pass
 71     ati      atierr
150     discard1 disc
*      star    pass
```

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

If the default action for the GSM MAP screening entry will be `atierr`, or the `forbid` parameter value will be `location` or `state`, the `opname` value must contain an `opcode` value of 71.

2. Enter the `rtrv-gsmmap-scrn` command with an `opname` value shown in the `rtrv-gsms-opcode` command output in step 1 to display the CGPA GSM MAP screening entries to change.

For this example, enter this command.

```
rtrv-gsmmap-scrn:opname=ati
```

This is an example of the possible output.

```

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

Single CgPA Entries for OPNAME: ati
-----
SADDR          NP NAI FORBD ACT      PCA          SSN CGSR RI  TT
SADDR          NP NAI FORBD ACT      PCI          SSN CGSR RI  TT
SADDR          NP NAI FORBD ACT      PCN          SSN CGSR RI  TT
SADDR          NP NAI FORBD ACT      PCN24        SSN CGSR RI  TT

SADDR          NP NAI FORBD ACT  CGSR
919462000000005 1 0  locat atier atil

Range CgPA Entries for OPNAME: ati
-----
SADDR          EADDR          NP NAI FORBD ACT      PCA
SSN CGSR

SADDR          EADDR          NP NAI FORBD ACT      PCI          SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT      PCN          SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT      PCN24        SSN CGSR

SADDR          EADDR          NP NAI FORBD ACT  CGSR
8284540000      8284600000      * *  state atier cg03
919461888888888 919461900000000 4 1  locat atier ati2
919462000000000 919463000000000 * *  locat atier ati3

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

rtrv-gsmmap-scrn:opname=dd93

This is an example of the possible output.

```

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

Single CgPA Entries for OPNAME: dd93
-----
SADDR          NP NAI FORBD ACT      PCA          SSN CGSR RI  TT
SADDR          NP NAI FORBD ACT      PCI          SSN CGSR RI  TT
SADDR          NP NAI FORBD ACT      PCN          SSN CGSR RI  TT
SADDR          NP NAI FORBD ACT      PCN24        SSN CGSR RI  TT

SADDR          NP NAI FORBD ACT  CGSR

Range CgPA Entries for OPNAME: dd93
-----
SADDR          EADDR          NP NAI FORBD ACT      PCA          SSN CGSR

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

```

SADDR          EADDR          NP NAI FORBD ACT      PCN          SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT      PCN24        SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT      CGSR

```

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

If the Flexible GTTLoad Sharing feature is enabled, the MAPSET field is shown in the `rtrv-gsmmap-scrn` output as shown in the following output example.

```

rlghncxa03w 08-09-20 09:07:58 GMT  EAGLE5 39.2.0
Single CgPA Entries for OPNAME: dd93
-----
SADDR          NP NAI FORBD ACT      PCA          SSN CGSR  MAPSET  RI
SADDR          NP NAI FORBD ACT      PCI          SSN CGSR  MAPSET  RI
SADDR          NP NAI FORBD ACT      PCN          SSN CGSR  MAPSET  RI
SADDR          NP NAI FORBD ACT      PCN24        SSN CGSR  MAPSET  RI
SADDR          NP NAI FORBD ACT      CGSR
Range CgPA Entries for OPNAME: dd93
-----
SADDR          EADDR          NP NAI FORBD ACT      PCA          SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT      PCI
SSN CGSR
854000000      857000000      3 99  all  fwd      3-201-7      100 cg05
MAPSET = DFLT RI=ssn TT=-
SADDR          EADDR          NP NAI FORBD ACT      PCN          SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT      PCN24        SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT      CGSR
GSM Map Screening table is (1512 of 4000) 38% full

```

**Note:** If the `npc/npca` or `ncdsr` parameters are being specified in this procedure, the Enhanced GSM MAP Screening feature must be enabled and on. If these parameters are not being specified in this procedure, skip step 3 and go to step 4.

If any of the following parameters or values are shown in the `rtrv-gsmmap-scrn` output in this step, the Enhanced GSM MAP Screening feature is enabled and on. Skip step 3 and go to step 4.

- `saddr=*`
- `pc/npca`
- 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 GSM MAP Screening feature is enabled and on by entering the `rtrv-ctrl-feat` command with the part number of the Enhanced GSM MAP Screening feature. Enter this command.

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

The following is an example of the possible output.

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

Feature Name          Partnum   Status   Quantity
Enhanced GMS (EGMS)  893012401 on       ----

The following features have been temporarily enabled:

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

The following features have expired temporary keys:

Feature Name          Partnum
Zero entries found.
```

- If the Enhanced GSM MAP screening feature is not enabled or is turned off, and you wish to use the `npc`/`npca` or `ncdsr` parameters, perform the [Activating the GSM MAP Screening Feature](#) procedure to enable and turn on the Enhanced GSM MAP Screening feature. After the Enhanced GSM MAP Screening feature has been enabled and turned on, continue the procedure with step 4.
  - Skip step 4 and continue the procedure with step 5 if:
    - The Enhanced GSM MAP Screening feature will not be enabled and turned on in this step.
    - The `npc`/`npca` or `ncdsr` parameters will not be specified in this procedure and the Enhanced GSM MAP Screening feature is enabled and turned on.
- 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 CDPAGSM MAP screening entries to change.

For this example, enter this command.

```
rtrv-gsmmap-scrn:opname=ati:cgsr=cg03
```

This is an example of the possible output.

```
rlghncxa03w 08-09-20 09:07:58 GMT EAGLE5 39.2.0
Single CdPA Entries for OPNAME: ati and CGSR: cg03
-----
SADDR          NP NAI FORBD ACT      PCA          SSN CDSR RI  TT
SADDR          NP NAI FORBD ACT      PCI          SSN CDSR RI  TT
SADDR          NP NAI FORBD ACT      PCN          SSN CDSR RI  TT
SADDR          NP NAI FORBD ACT      PCN24       SSN CDSR RI  TT
```



```

SADDR          NP NAI FORBD ACT   CDSR
919461000000130 2 16 locat atier ati5

Range CdPA Entries for OPNAME: ati and CGSR: cg03
-----
SADDR          EADDR          NP NAI FORBD ACT   PCA          SSN CDSR
SADDR          EADDR          NP NAI FORBD ACT   PCI          SSN CDSR
SADDR          EADDR          NP NAI FORBD ACT   PCN
SSN CDSR
SADDR          EADDR          NP NAI FORBD ACT   PCN24        SSN CDSR
SADDR          EADDR          NP NAI FORBD ACT   CDSR
4329290000    5450000000    * * state atier cd15
919463000000000 919464000000000 11 95 locat atier ati7
803549000000000 803650000000000 * * locat atier ati9

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

```

```
rtrv-gsmmap-scrn:opname=dd93:cg05
```

This is an example of the possible output.

```

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

Single CdPA Entries for OPNAME: dd93 and CGSR: cg05
-----
SADDR          NP NAI FORBD ACT   PCA          SSN CDSR RI  TT
SADDR          NP NAI FORBD ACT   PCI          SSN CDSR RI  TT
SADDR          NP NAI FORBD ACT   PCN          SSN CDSR RI  TT
SADDR          NP NAI FORBD ACT   PCN24        SSN CDSR RI  TT
SADDR          NP NAI FORBD ACT   CDSR

Range CgPA Entries for OPNAME: dd93 and CGSR: cg05
-----
SADDR          EADDR          NP NAI FORBD ACT   PCA          SSN CDSR
SADDR          EADDR          NP NAI FORBD ACT   PCI          SSN CDSR
SADDR          EADDR          NP NAI FORBD ACT   PCN          SSN CDSR
SADDR          EADDR          NP NAI FORBD ACT   PCN24        SSN CDSR
SADDR          EADDR          NP NAI FORBD ACT   CDSR

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

```

**Note:** If the Flexible GTTLoad Sharing feature is enabled, the MAPSET field is shown in the `rtrv-gsmmap-scrn` output if the action parameter value for the GSM MAP screening entry is either forward, duplicate, or dupdisc.

5. Perform one of these actions.

- If the naction parameter value will be either pass, discard, route, or atierr, skip steps 6 through 9, and continue the procedure with step 10.

- If the point code is not being changed, skip steps 6 through 9, and continue the procedure with step 10. If the point code and subsystem values are not being changed, and the Flexible GTT Load Sharing feature is enabled, the `nmapset` parameter does not have to be specified unless the MAP set ID assigned to the GSM MAP screening entry is being changed. The new MAP set must contain the point code and subsystem values in the GSM MAP screening entry.
  - If the `naction` parameter value will be either `forward`, `duplicate`, or `dupdisc`, perform one of these actions.
    - To use a point code and a MAP set from the mated application table, and MAP sets are not shown in the `rtrv-gsmmap-scrn` output in step 4, the Flexible GTT Load Sharing Feature must be enabled. Perform the “Activating the Flexible GTTLoad Sharing Feature” procedure in the *Database Administration Manual - Global Title Translation* 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 the *Database Administration Manual - SS7* to add the required point code. A proxy point code cannot be assigned to the point code.

After the new point code has been added, skip steps 7 through 9 and perform the "Adding a Route Containing an SS7 DPC" procedure in the *Database Administration Manual - SS7* and add the required route to the database. After the route has been added, continue the procedure with step 10.

7. Display the point code that will be assigned to the mated application by using the `rtrv-dstn` command and specifying the point code. For this example, enter this command.

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

This is an example of the possible output.

```
rlghncxa03w 10-12-10 11:43:04 GMT EAGLE5 43.0.0

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

  PPCA          NCAI PRX      RCAUSE NPRST SPLITIAM HMSMSC HMSCP  SCCPMMSGCNV
  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 the *Database Administration Manual - SS7* and add the adjacent point code to the destination point code table.

After the new point code has been added, skip steps 8 and 9, and perform the "Adding a Route Containing an SS7 DPC" procedure in the *Database Administration Manual - SS7* and add the required route to the database. After the route has been added, continue the procedure with step 10.

8. The point code and subsystem number being assigned to the GSMMAP screening entry must be in the mated application table.

Enter the `rtrv-map` command with the `npc/npca/npci/npcn/npcn24` and `nssn` values that will be specified with the `chg-gsmmap-scrn` command in step 10.

If the Flexible GTTLoad Sharing feature is not enabled, for this example, enter these commands.

```
rtrv-map:pci=5-79-2:ssn=89
```

This is an example of the possible output.

```
rlghncxa03w 09-07-25 09:42:31 GMT EAGLE5 41.1.0
PCI          Mate PCI          SSN RC MULT SRM MRC GRP NAME SSO
5-079-2      1501          89 10 SOL *N *N GRP01  ON
MAP TABLE IS (20 of 1024) 2 % FULL
```

**Note:** If the point code and subsystem number is not shown in the `rtrv-map` output, and is not added to the database in one of these procedures, the `force=yes` parameter must be specified with the `chg-gsmmap-scrn` command in step 10.

If the Flexible GTT Load Sharing feature is enabled and the current `action` parameter value is either `pass`, `route`, `discard`, or `atierr`, and the `action` parameter value is changed to either `forward`, `duplicate`, or `dupdisc`, the GSM MAP screening entry must be assigned to a MAP set with the `nmapset=dflt` parameter (to assign the GSM MAP screening entry to the default MAP set), or with the `nmapset=<numbered MAP set ID>` parameter (to assign the GSM MAP screening entry to a MAP set other the default MAP set).

For this example, enter these commands.

```
rtrv-map:pci=5-79-2:ssn=89
```

This is an example of the possible output.

```
rlghncxa03w 09-07-25 09:42:31 GMT EAGLE5 41.1.0
MAPSET ID=DFLT
PCI          Mate PCI          SSN RC MULT SRM MRC GRP NAME SSO
5-079-2      1501          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 the *Database Administration Manual - Global Title Translation* and add the required point code and subsystem number to the mated application table.

9. The point code specified with the `chg-gsmmap-scrn` command must be the DPC of a route.

Enter the `rtrv-rte` command with the `dpci` parameter specifying the point code to be used with the `chg-gsmmap-scrn` command to verify whether or not the point code is the DPC of a route. For this example, enter these commands.

```
rtrv-rte:dpci=5-79-2
```

This is an example of the possible output.

```
rlghncxa03w 06-10-07 11:43:04 GMT EAGLE5 36.0.0
DPCI        ALIASN/N24        ALIASA        LSN        RC        APC
5-79-2      1501              230-101-191  ls100001   10        1-234-5
                                     ls100002   10        3-65-4
                                     RTX:No    CLLI=idp9
```

If the point code is not shown in the `rtrv-rte` output, go to the "Adding a Route Containing an SS7 DPC" procedure in the *Database Administration Manual - SS7* and add the required route to the database.

10. Change the GSMMAP screening entry with the `chg-gsmmap-scrn` command.

[Table 31: Change GSM MAP Screening Entry Parameter Combinations](#) shows the parameter combinations that can be used with the `chg-gsmmap-scrn` command.

For this example, the Enhanced GSM MAP Screening feature is enabled and on. Enter these commands:

```
chg-gsmmap-scrn:opname=ati:cgsr=cg03:cdsr=cd15:nforbid=none :naction=pass
chg-gsmmap-scrn:opname=dd93:cgsr=cg05:nforbid=none:naction=pass
:npci=5-79-2:nssn=89:nmapset=20
```

When this command has successfully completed, this message appears.

```
rlghncxa03w 06-10-20 09:07:58 GMT EAGLE5 36.0.0
GSM Map Screening table is (1512 of 4000) 38% full
CHG-GSMMAP-SCRN: MASP A - COMPLTD
```

11. Verify the changes using the `rtrv-gsmmap-scrn` command, specifying the `opname` parameter value used in step 10.

If the `cdsr` parameter was specified in step 10, specify the `cgsr`, and `cdsr` parameter values used in step 10 with the `opname` parameter value. For this example, the Enhanced GSMMAP Screening feature is enabled and on. Enter these commands:

```
rtrv-gsmmap-scrn:opname=ati:cgsr=cg03:cdsr=cd15
```

This is an example of the possible output.

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

SADDR          EADDR          NP NAI FORBD ACT   CDSR  MAPSET RI
8284540000     8284600000     *  *   none  pass  cd15  DFLT  ssn
TT=-

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

```
rtrv-gsmmap-scrn:opname=dd93
```

This is an example of the possible output.

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

Single CgPA Entries for OPNAME: dd93
-----
SADDR          NP NAI FORBD ACT   PCA          SSN CGSR  MAPSET  RI
SADDR          NP NAI FORBD ACT   PCI          SSN CGSR  MAPSET  RI
SADDR          NP NAI FORBD ACT   PCN          SSN CGSR  MAPSET  RI
SADDR          NP NAI FORBD ACT   PCN24       SSN CGSR  MAPSET  RI
```

```

SADDR          NP NAI FORBD ACT  CGSR
Range CgPA Entries for OPNAME: dd93
-----
SADDR          EADDR          NP NAI FORBD ACT    PCA          SSN CGSR
854000000     860000000     3 99 none pass     5-79-2      89 cg05
MAPSET = 20 RI=ssn TT=-

SADDR          EADDR          NP NAI FORBD ACT    PCN          SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT    PCN24       SSN CGSR
SADDR          EADDR          NP NAI FORBD ACT    CGSR

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

```

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

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

```

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

```

## Changing the GSM MAP Screening TCAP Continue and End Message Processing Option

The option for enabling or disabling the processing of GSM MAP screening TCAP Continue and TCAP End messages can be changed with the `chg-sccpopts` command and with the following parameter:

`:gmstcapce` – This parameter has two values:

- `on` – enables the processing of TCAP Continue and TCAP End messages.
- `off` – disables the processing of TCAP Continue and TCAP End messages.

The system default value for this parameter is `off`.

The value of the `gmstcapce` parameter is shown in the `GMSTCAPCE` field of the `rtrv-sccpopts` output. The `GMSTCAPCE` field of the `rtrv-sccpopts` output is shown only when the GSM MAP Screening feature is enabled and turned on. If the `GMSTCAPCE` field is not shown in the `rtrv-sccpopts` output, perform the [Activating the GSM MAP Screening Feature](#) to enable and turn on the GSM MAP screening feature.

1. Display the existing value for the `gmstcapce` parameter by entering the `rtrv-sccpopts` command.

The value for the `gsmtcapce` parameter is shown in the `GSMTCAPCE` field. This is an example of the possible output.

```
rlghncxa03w 06-10-17 16:02:05 GMT EAGLE5 36.0.0

SCCP OPTIONS
-----
GSMTCAPCE                off
```

**Note:**

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

If the `GSMTCAPCE` field is not shown in the `rtrv-sccpopts` output, perform the [Activating the GSM MAP Screening Feature](#) to enable and turn on the GSMMAP screening feature. After the GSMMAP Screening feature is enabled and turned on, go to step 2.

If the `GSMTCAPCE` field is shown in the `rtrv-sccpopts` output, go to step 2.

2. Change the `gsmtcapce` parameter value by entering one of the following commands.

If the current value of the `gsmtcapce` parameter is `off`, or if the GSMMAP Screening feature was enabled and turned on in step 1, enter the following command to enable the processing of TCAP Continue and TCAP End messages.

```
chg-sccpopts:gsmtcapce=on
```

If the current value of the `gsmtcapce` parameter is `on`, enter the following command to disable the processing of TCAP Continue and TCAP End messages.

```
chg-sccpopts:gsmtcapce=off
```

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

```
rlghncxa03w 06-10-07 00:22:57 GMT EAGLE5 36.0.0
CHG-SCCPOPTS: MASP A - COMPLTD
```

3. Verify the changes using the `rtrv-sccpopts` command.

This is an example of the possible output.

```
rlghncxa03w 06-10-17 16:02:05 GMT EAGLE5 36.0.0

SCCP OPTIONS
-----
GSMTCAPCE                on
```

**Note:**

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

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

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

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



## EAGLE Integrated Monitoring Support Configuration

---

**Topics:**

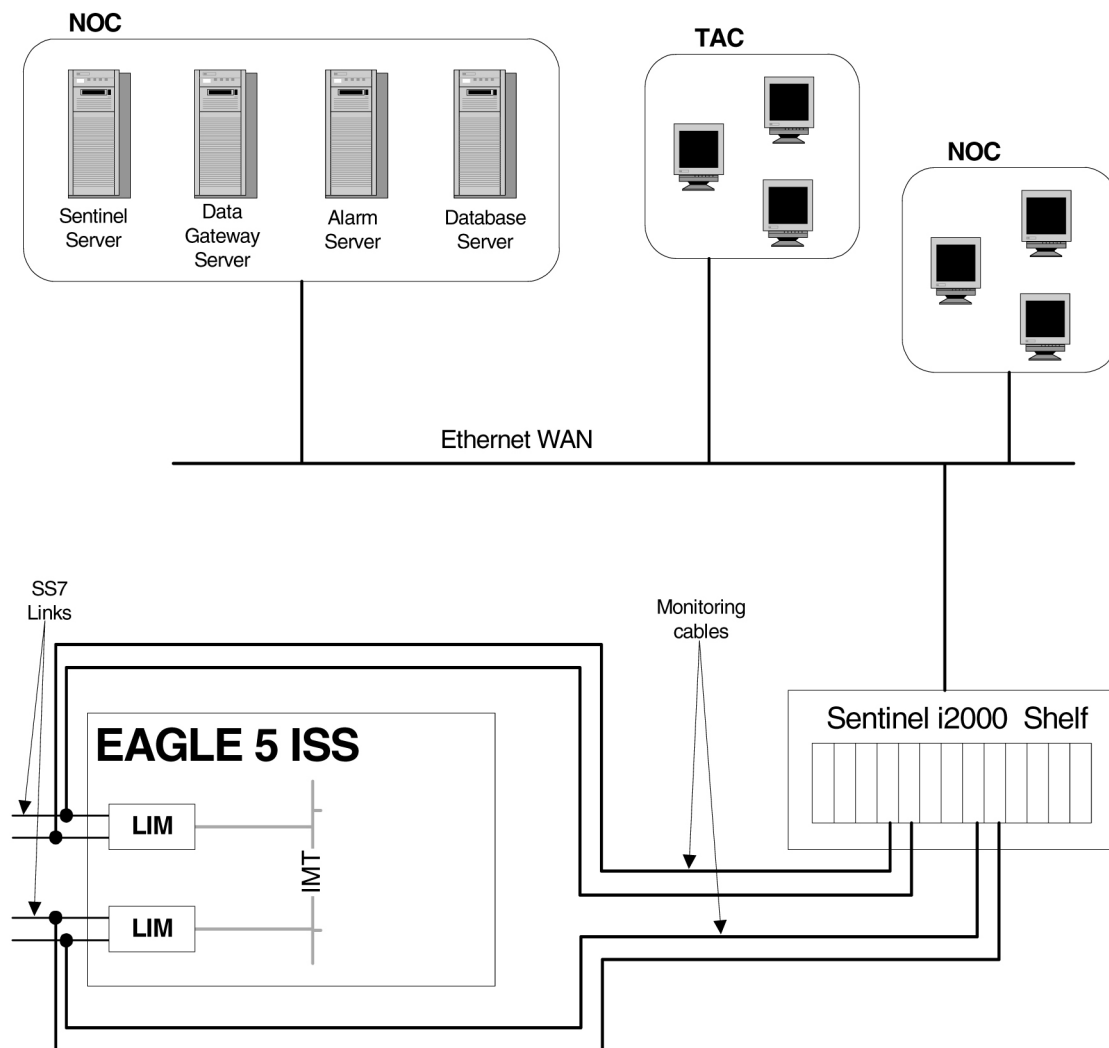
- *Introduction.....250*
- *TCP/IP Link Provisioning.....252*
- *Time Stamping.....256*
- *EAGLE Provisioning.....256*
- *Network Considerations.....258*
- *Enabling the Time Slot Counter Synchronization (TSCSYNC) and EAGLE 5 Integrated Monitoring Support (E5IS) Features.....259*
- *Configuring the EISCOPY Option for the EAGLE 5 Integrated Monitoring Support Feature.....261*
- *Configuring the FCMODE Option for the EAGLE 5 Integrated Monitoring Support Feature.....265*
- *Configuring the IP Addresses for the EAGLE 5 Integrated Monitoring Support Feature.....271*
- *Adding a Signaling Transport Card (STC).....276*
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Chapter 7, EAGLE 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 Integrated Monitoring Support feature allows the network traffic on the EAGLE's signaling links to be monitored by an ESP (extended services platform) or IMF (integrated message feeder) without additional intrusive cabling.

To monitor the network traffic on the EAGLE's signaling links without this feature requires physical, clamp-on connections to the EAGLE's SS7 signaling links (see [Figure 23: Monitoring via Hardware Connection](#)). This monitoring method involves costs for cable installation and maintenance for each SS7 link that is to be monitored.



**Figure 23: Monitoring via Hardware Connection**

This feature eliminates the need to have intrusive hardware for each link that is to be monitored. The monitoring is performed by an Ethernet connection from an STC (Signaling Transport Card) or an FC-capable card to the ESP/IMF (see [Figure 24: EAGLE Integrated Monitoring Support Network](#)

*Connectivity* ). 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 IPSC GPLs are the only supported FC-capable cards. Message Signaling Units (MSUs), alarms, and events may be copied to the ESP/IMF subsystem over the Ethernet link to provide the network traffic monitoring.

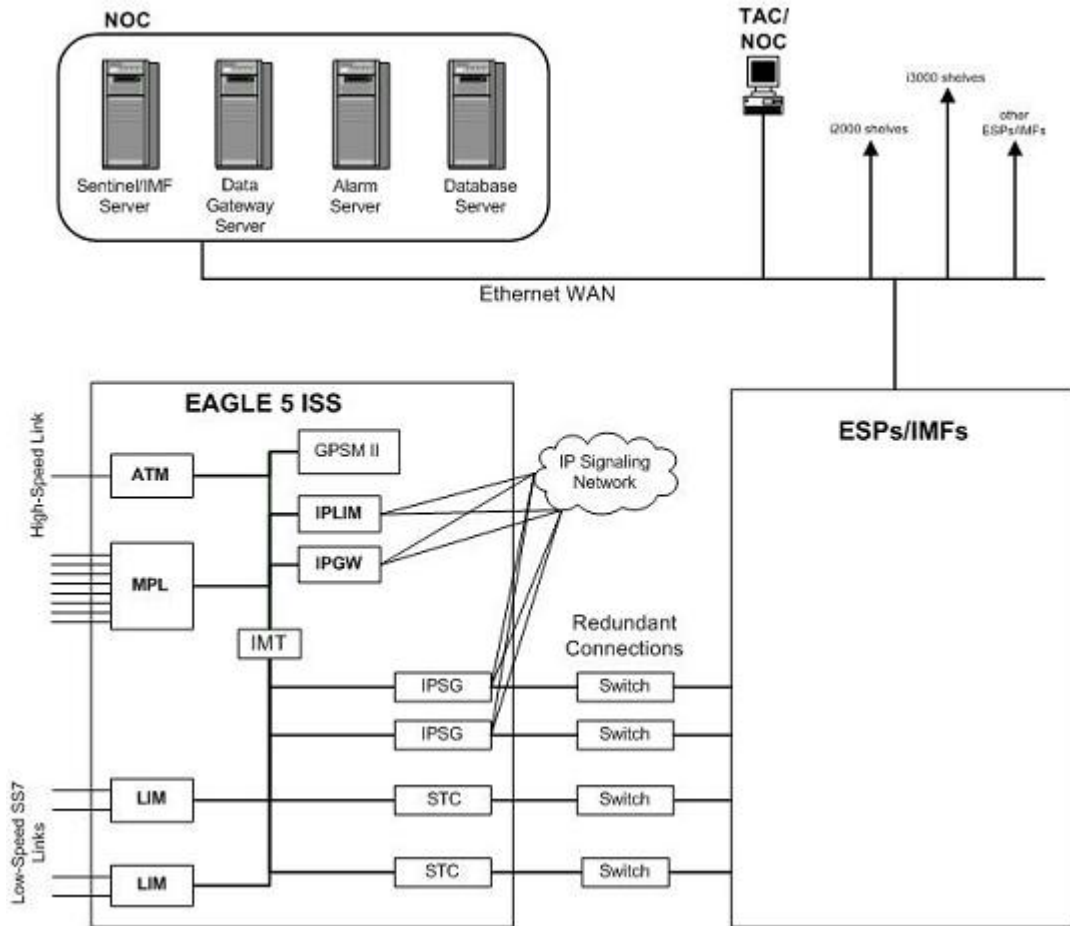
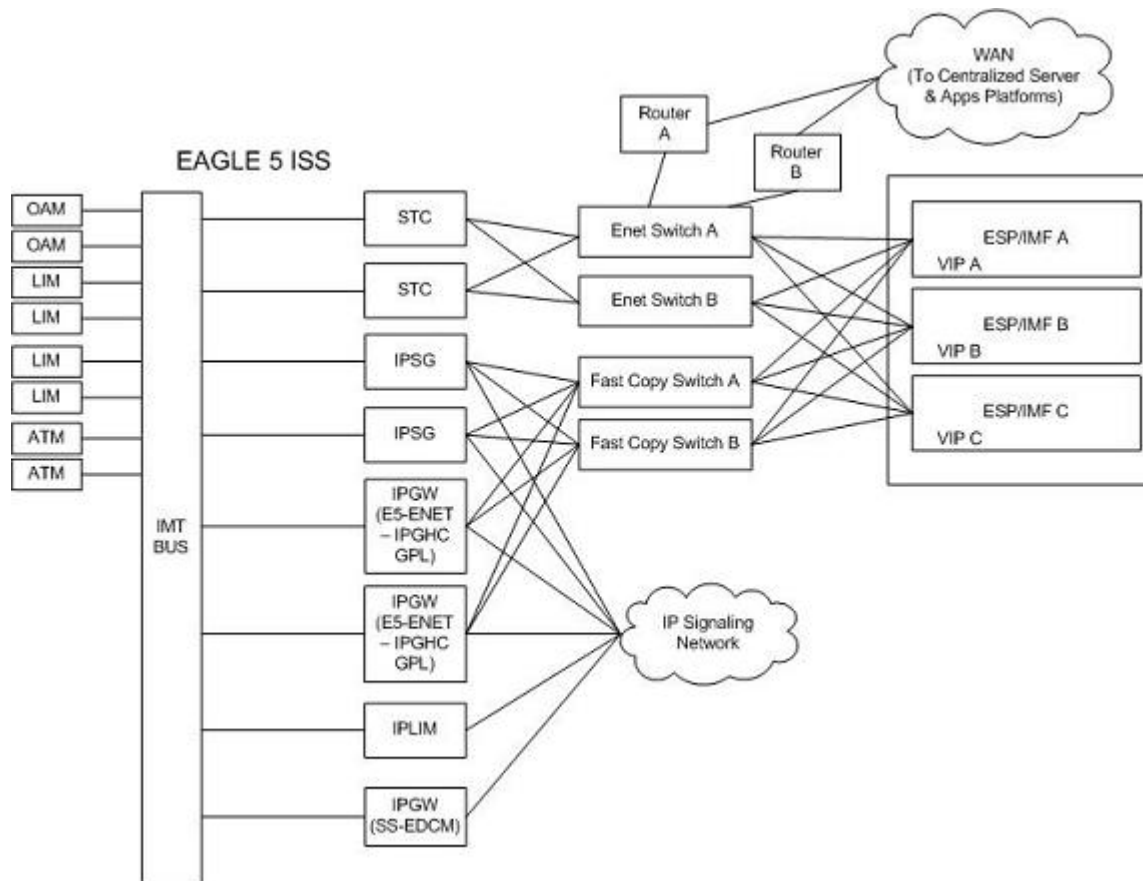


Figure 24: EAGLE Integrated Monitoring Support Network Connectivity

As can be seen in *Figure 24: EAGLE Integrated Monitoring Support Network Connectivity* , 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 25: ESP/IMF/EAGLE 5 ISS Network* shows the logical communications pathway.



**Figure 25: ESP/IMF/EAGLE 5 ISS Network**

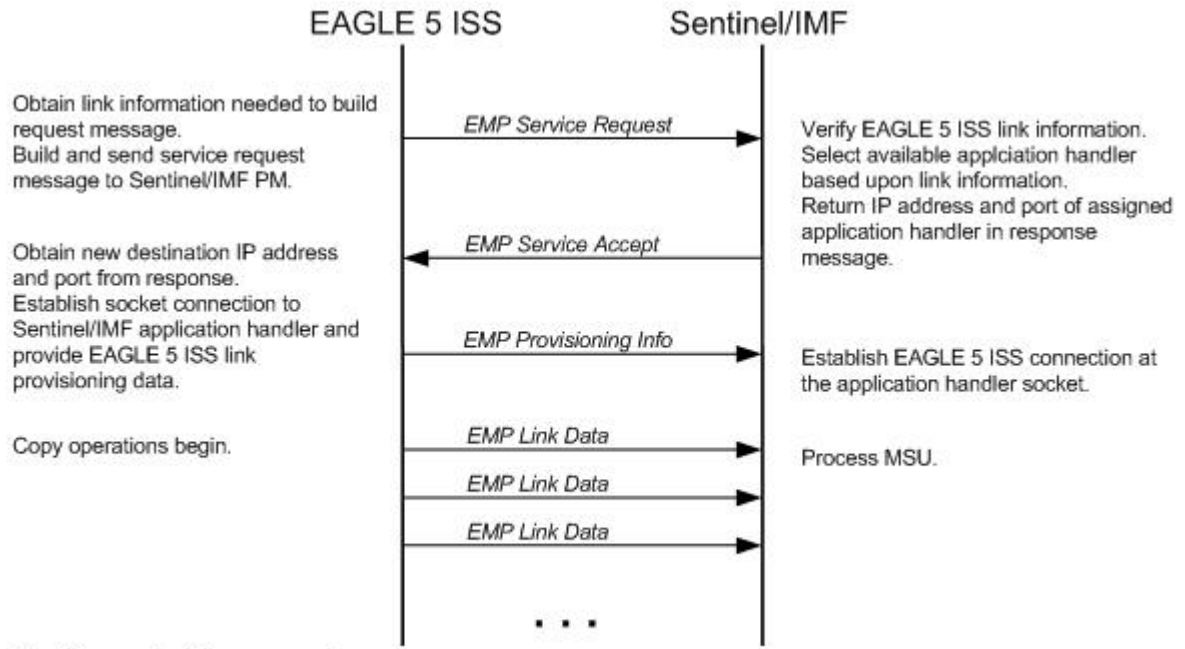
The STC communicates to the LIM by the IMT bus; the IP messages are simply encapsulated in an IMT wrapper between the cards. The STCs are provisioned in an  $n+1$  configuration for redundancy. Each STC Ethernet port has a separate connection path to each Ethernet switch in order to provide an alternate path in the event of an Ethernet link failure. Note that the figure depicts a redundant network; this assures that a single network failure will not halt EAGLE or ESP/IMF operations. As shown in [Figure 25: ESP/IMF/EAGLE 5 ISS Network](#), 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

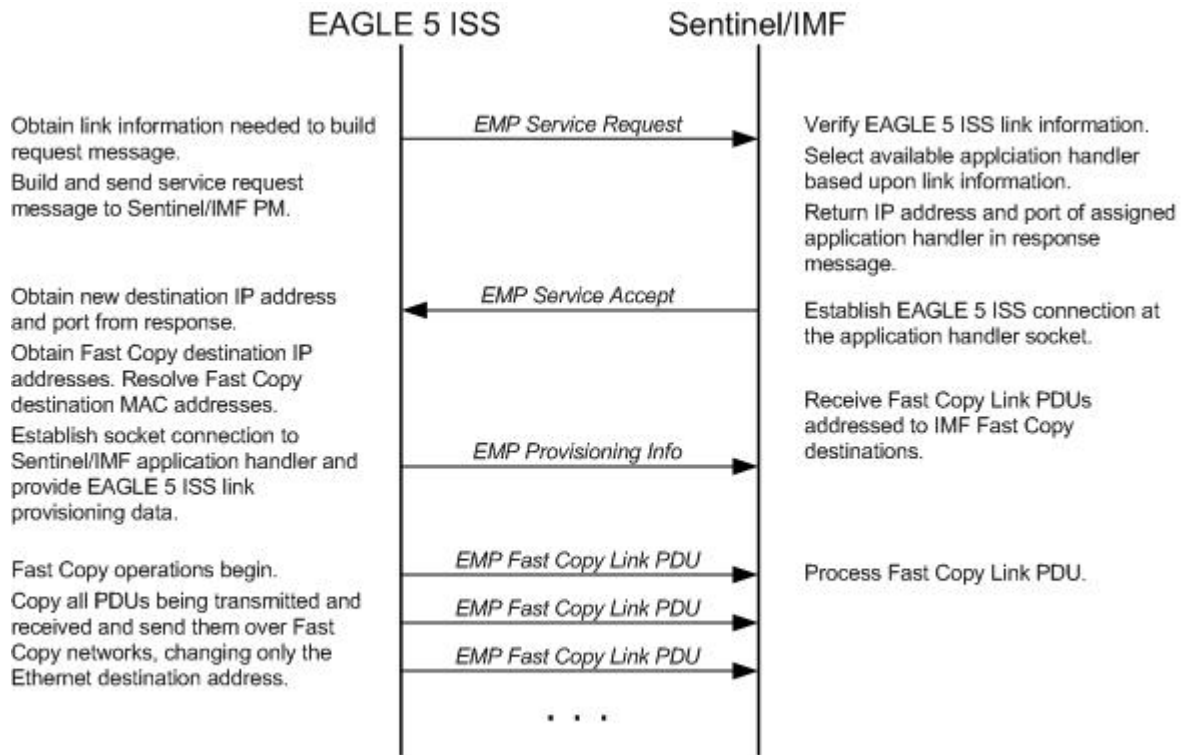
The IP communications link, used to transmit copied MSUs between the EAGLE 5 ISS and the ESP/IMF subsystem, is dynamically configured by the Sentinel/IMF. This is performed automatically as part of the operations for coming into service. A special function, part of the card's application software, is to establish communications with the ESP/IMF subsystem by sending a service request message

(see [Figure 26: Ethernet Link Establishment - EMP Link Data](#), [Figure 27: Ethernet Link Establishment - EMP Fast Copy Link PDU](#), and [Figure 28: Ethernet Link Establishment - EMP Fast Copy Link PDU Modified for the IPGHC GPL](#)).



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

Figure 26: Ethernet Link Establishment - EMP Link Data



*The diagram depicts an example of Fast Copy Link PDU message flow.*

**Figure 27: Ethernet Link Establishment - EMP Fast Copy Link PDU**

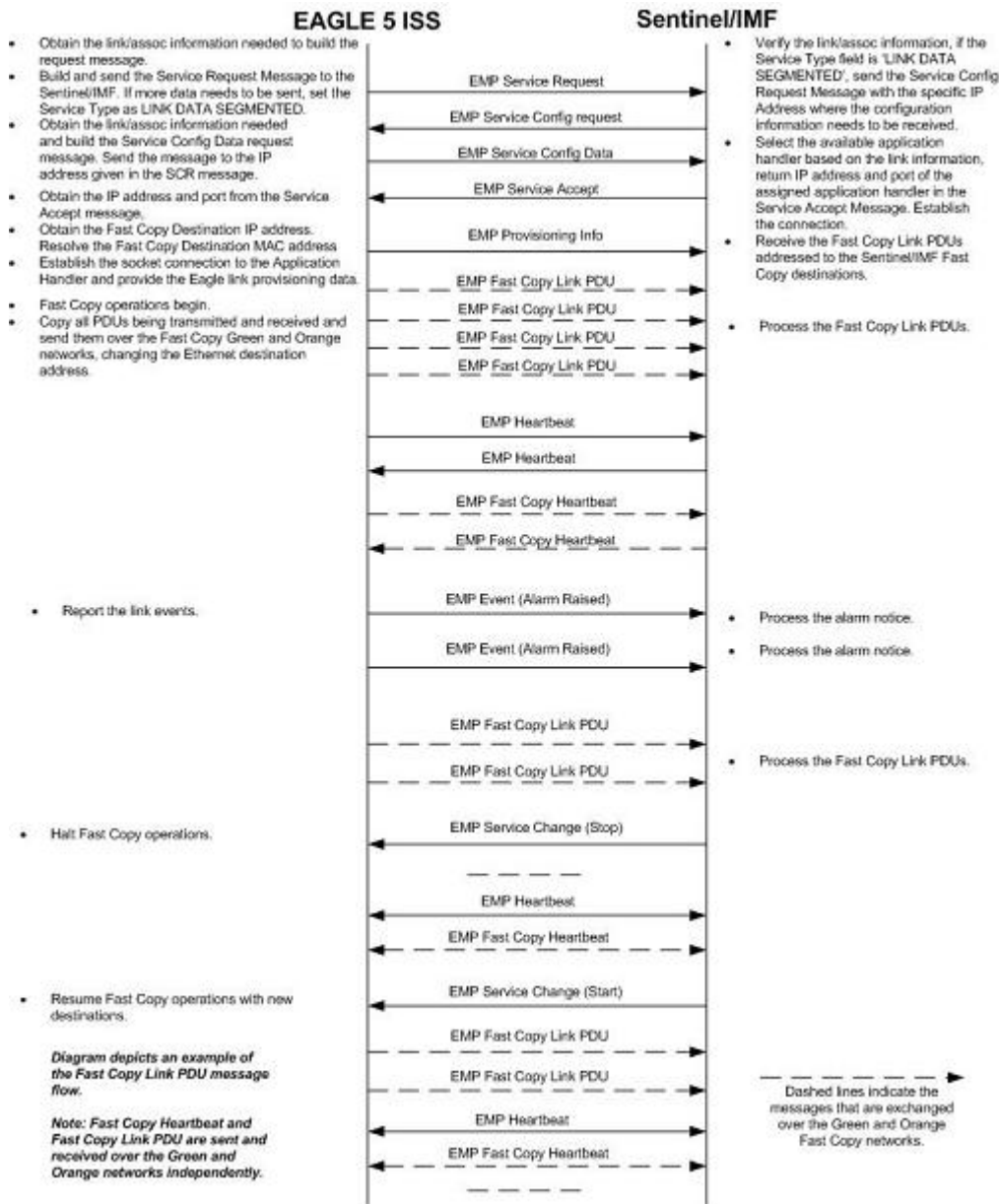


Figure 28: Ethernet Link Establishment - EMP Fast Copy Link PDU Modified for the IPGHC GPL

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 28: Ethernet Link Establishment - EMP Fast](#)

*Copy Link PDU Modified for the IPGHC GPL*, are used to send the large configuration information to the IMF.

The Service Request Message 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 reattempt link establishment with the ESP/IMF subsystem after delaying for a short period (that is, approximately 15 seconds). The LIM continuously repeats the link establishment procedure until it is successful. If the LIM ever loses its IP connection to the ESP server, the LIM will automatically begin reestablishment operations.

The STCs use 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, TRP (Tekelec Routing Protocol) manages the multiple redundant links and provides a faster network convergence than is possible with standard routing protocols.

## Time Stamping

The MSU information will be delivered to the ESP/IMF subsystem with an accurate time stamp ( $\pm 5$  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 IPGHC cards (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.
- If the Fast Copy function is being used to copy traffic from cards running the IPGHC GPL (the `FCMODE=FCOPY` and `FCGPL=IPGHC` values are shown in the `rtrv-eisopts` output), cards running the IPGHC GPL must be installed in the EAGLE. The state of at least one of the cards running the IPGHC GPL must be IS-NR.
- The TSC (Time Slot Counter) Synchronization feature is enabled in the EAGLE 5. TSC synchronization is supplied by the E5-MASP or E5-MCAP cards in card locations 1113 and 1115.



- A timing source for the low-speed signaling links and for the TSC (Time Slot Counter) synchronization feature

If the EAGLE does not contain LIMDS0 cards, but contains TDM part numbers 870-0774-15 or later, the clock source for any low-speed links and for the TSC (Time Slot Counter) synchronization feature used by the Sentinel/IMF can be generated from the high-speed master clock source. An external BITS clock is not required.

If an external BITS clock is connected to an EAGLE without LIMDS0 cards, but with TDM part numbers 870-0774-15 or later, the external BITS clock must be used as the clock source for any low-speed links and for the TSC (Time Slot Counter) synchronization feature.

If LIMDS0 cards are present in the EAGLE, the external BITS clock is required for timing of the DS0 signaling links and for TSC (Time Slot Counter) synchronization used by the Sentinel/IMF. The high-speed master clock source cannot be used to generate the clock source for any low-speed links and for the TSC (Time Slot Counter) synchronization feature.

- A Network Time Protocol (NTP) timing source from the ESP/IMF server
- The EAGLE shelves can contain HIPR2 cards. Shelves containing IPLIMx, IPGS 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's Guide* for more information about the E5-MCAP cards and STCs.

The  $n+1$  STC configuration requires that a minimum of two STCs must be provisioned in the database. If single-slot STCs are being provisioned in the database, a minimum of two single-slot STCs must be provisioned.

[Table 32: Monitored Card Types](#) shows the signaling links on these cards can be monitored by this feature.

**Table 32: 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 card
SS7ANSI, CCS7ITU	LIME1	E5-E1T1 card
	LIMT1	E5-E1T1 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

Card Application (APPL Value Used by the ent-card Command)	Card Type (TYPE Value Used by the ent-card Command)	Card Name
<p>Notes:</p> <p>Only signaling links assigned to M2PA associations can be monitored on the cards running the IPLIM and IPLIMI applications. This can be verified by entering the <code>rtrv-assoc:adapter=m2pa</code> command.</p> <p>Signaling links assigned to M3UA associations can be monitored on the cards running the SS7IPGW and IPGWI applications. This can be verified by entering the <code>rtrv-assoc:adapter=m3ua</code> command. 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.</p> <p>Monitoring can be performed on E5-E1T1 cards, E5-ENET cards, and E5-ENET-B cards using only the IMF.</p> <p>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 <code>rtrv-e1</code> 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 <code>rtrv-e1</code> output.</p>		

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

Because the performance of a single-slot STC is higher than a dual-slot STC, a dual-slot STC cannot replace a single-slot STC. If a single-slot STC replaces a dual-slot STC, and it is the only single-slot STC in the EAGLE, another single-slot STC must be added to the EAGLE. To add the additional single-slot STC, go to [Adding a Signaling Transport Card \(STC\)](#).

In order to perform the necessary IP routing within the EAGLE switch, a private virtual network (PVN) is incorporated; the PVN represents the internal IP addressing scheme for every STC within the EAGLE switch. Each card has an auto-assigned, default, Class B private IP address (for example, 172.28.60.16).

**Note:** The EAGLE uses a default value of 172.20.48.0 for the PVN address. You may change the default value by specifying a new network portion of an IP address and a network mask; the host portion is auto-configured. The EAGLE requires use of the lower 8 bits of address space for auto-configuration of internal networking schemes. The entered mask value may be up to 255.255.255.0

## Network Considerations

There are three networks used to connect the EAGLE 5 ISS to the ESP/IMF subsystem (see [Figure 25: ESP/IMF/EAGLE 5 ISS Network](#)):

- The EAGLE 5 ISS 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 5 ISS to the ESP/IMF servers through the Ethernet switches, then forwarded to the Sentinel/IMF by the isolation routers. Each router will have one Ethernet port designated as the physical demarcation point between the customer network and the ESP/IMF subsystem.

### IP Address Provisioning

The ESP/IMF subsystem requires IP addresses for these items:

- ESP/IMF external network:
  - Three IP addresses on the customer network for the ESP/IMF isolation routers, one IP address for HSRP, one IP address for each router (two total)
  - One netmask
  - One IP address for the default router.
- ESP/IMF internal network – Contiguous IP block routed within their network (last octet range 1-67 for 17 servers). The Sentinel/IMF considers each ESP/IMF server a separate processing element, therefore each ESP/IMF server needs its own IP address.
- Routes to their network to route to the VIP network already defined within ESP/IMF subsystem.



**Caution:** These IP addresses can be changed, as well as the PVNIP address in the EAGLE 5 ISS, contact the Customer Care Center (refer to [My Oracle Support \(MOS\)](#) for the contact information) before changing these IP addresses.

### Route Configuration

No explicit routing tables are provisioned in the ESP/IMF subsystem. Use of the single customer provided default router address is assumed for outgoing traffic. All incoming traffic will use the HSRP address provided by the isolation routers.

### Network Limitations

The maximum length of the network cables between the ESP/IMF server frame and the STC cards is limited to 328 feet (100 meters). This limitation is the maximum length that any 10/100BaseT cable can be run.

## Enabling the Time Slot Counter Synchronization (TSCSYNC) and EAGLE 5 Integrated Monitoring Support (E5IS) Features

The EAGLE 5 Integrated Monitoring Support feature requires that the Time Slot Counter Synchronization (TSCSYNC) and EAGLE 5 Integrated Monitoring Support (E5IS) features are enabled with the `chg-feat` command using the `tscsync` and `e5is` parameters. This procedure is used to enable these features.

**Note:** Once the Time Slot Counter Synchronization and EAGLE 5 Integrated Monitoring Support features are turned on with the `chg-feat` command, they cannot be turned off.

The Time Slot Counter Synchronization and EAGLE 5 Integrated Monitoring Support features must be purchased before turning on these features. If you are not sure whether you have purchased the Time Slot Counter Synchronization or EAGLE 5 Integrated Monitoring Support features, contact your Tekelec Sales Representative or Account Representative.

1. Verify that the EAGLE 5 Integrated Monitoring Support feature and Time Slot Counter Synchronization features are on, by entering the `rtrv-feat` command.

If the EAGLE 5 Integrated Monitoring Support feature is on, the `E5IS` field should be set to `on`. If the Time Slot Counter Synchronization feature is on, the `TSCSYNC` field should be set to `on`.

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

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 [Step 2](#).

If both the EAGLE 5 Integrated Monitoring Support feature and Time Slot Counter Synchronization features are on, then no further action is necessary. If you wish to change the `EISCOPY` and `FCMODE` values in the `rtrv-eisopts` output, the `PVN`, `PVNMASK`, `FCNA`, and `FCNB` values in the `rtrv-netopts` output, or add STC cards, perform the following procedures.

- `EISCOPY` value - [Configuring the EISCOPY Option for the EAGLE 5 Integrated Monitoring Support Feature](#)
- `FCMODE` value - [Configuring the FCMODE Option for the EAGLE 5 Integrated Monitoring Support Feature](#)
- `PVN`, `PVNMASK`, `FCNA`, `FCNB` values - [Configuring the IP Addresses for the EAGLE 5 Integrated Monitoring Support Feature](#)
- Add STC cards - [Adding a Signaling Transport Card \(STC\)](#)

2. Turn the Time Slot Counter Synchronization and EAGLE 5 Integrated Monitoring Support features on by entering one of these commands, depending on whether or not the `rtrv-feat` output in [Step 1](#) shows that the Time Slot Counter Synchronization feature is on.

If the Time Slot Counter Synchronization feature is not on, enter this command.

```
chg-feat:tscsync=on:e5is=on
```

If the Time Slot Counter Synchronization feature is on, enter this command.

```
chg-feat:e5is=on
```

**Note:** Once the Time Slot Counter Synchronization and EAGLE 5 Integrated Monitoring Support features are turned on with the `chg-feat` command, they cannot be turned off.

The Time Slot Counter Synchronization and EAGLE 5 Integrated Monitoring Support features must be purchased before turning on these features. If you are not sure whether you have purchased the Time Slot Counter Synchronization or EAGLE 5 Integrated Monitoring Support features, contact your Tekelec Sales Representative or Account Representative.

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

```
rlghncxa03w 06-10-20 21:18:37 GMT EAGLE5 36.0.0
CHG-FEAT: MASP A - COMPLTD
```

3. Verify the changes by entering the `rtrv-feat` command.

If the EAGLE 5 Integrated Monitoring Support feature is on, the `E5IS` field should be set to on. If the Time Slot Counter Synchronization feature is on, the `TSCSYNC` field should be set to on.

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

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

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

5. When the EAGLE 5 Integrated Monitoring Support feature is turned on, the values for the `EISCOPY` and `FCMODE` values in the `rtrv-eisopts` output, and the `PVN`, `PVNMASK`, `FCNA`, and `FCNB` values in the `rtrv-netopts` output are set to their default values. If you wish to change any of these values or add STC cards, perform the following procedures.

- `EISCOPY` value - [Configuring the EISCOPY Option for the EAGLE 5 Integrated Monitoring Support Feature](#)
- `FCMODE` value - [Configuring the FCMODE Option for the EAGLE 5 Integrated Monitoring Support Feature](#)
- `PVN`, `PVNMASK`, `FCNA`, `FCNB` values - [Configuring the IP Addresses for the EAGLE 5 Integrated Monitoring Support Feature](#)
- Add STC cards - [Adding a Signaling Transport Card \(STC\)](#)

## 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 5 ISS to copy MSUs to the ESP/IMF subsystem. The default value for the `eiscopy` parameter is off.

To change the `EISCOPY` option, the EAGLE 5 Integrated Monitoring Support feature (`E5IS`) must be turned on.

1. Verify that the EAGLE 5 Integrated Monitoring Support feature is on, by entering the `rtrv-feat` command.

If the EAGLE 5 Integrated Monitoring Support feature is on, the `E5IS` field should be set to on.

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

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 [Step 3](#).

If the EAGLE 5 Integrated Monitoring Support feature is on, continue the procedure with [Step 2](#).

2. Display the `EISCOPY` option by entering the `rtrv-eisopts` command.

This is an example of the possible output.

```
rlghncxa03w 10-07-07 11:43:04 GMT EAGLE5 42.0.0
EIS OPTIONS
-----
EISCOPY = OFF

FAST COPY OPTIONS
-----
FCGPL = IPSG          FCMODE = OFF
FCGPL = IPGHC         FCMODE = OFF
-----
```

If the `EISCOPY` value is `OFF`, continue the procedure with [Step 3](#).

If the `EISCOPY` value is `ON`, continue the procedure with [Step 9](#).

3. Display the STC cards in the database using the `rept-stat-mon` command.

This is an example of the possible output.

```
rlghncxa03w 10-07-01 09:12:36 GMT EAGLE5 42.0.0

CARD   VERSION      PST           SST           AST           TVG   CPU
        USAGE      USAGE
-----
1105   126-002-000  IS-NR        Active        -----      35%   52%
1205   126-002-000  IS-NR        Active        -----      35%   52%
1211   126-002-000  IS-NR        Active        -----      35%   52%
1303   126-002-000  IS-NR        Active        -----      35%   52%
1311   126-002-000  IS-NR        Active        -----      35%   52%
1313   126-002-000  IS-NR        Active        -----      35%   52%
2211   126-002-000  IS-NR        Active        -----      35%   52%
2213   126-002-000  IS-NR        Active        -----      35%   52%
-----
```

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

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 [Step 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 [Step 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 [Step 4](#).

4. Enter the `rst-card` command as necessary so that the primary state of at least two of the STCs shown in [Step 3](#) is IS-NR. Specify the card location of the STC that is not IS-NR, shown in [Step 3](#), with the `rst-card` command.

For this example, enter these commands.

```
rst-card:loc=1205
```

```
rst-card:loc=1211
```

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

```
rlghncxa03w 09-02-28 09:12:36 GMT EAGLE5 40.1.0
Card has been allowed.
```

5. Display the IP addresses and the PVN subnet mask by entering the `rtrv-netopts` command.

This is an example of the possible output.

```
rlghncxa03w 10-07-28 09:12:36 GMT EAGLE5 42.0.0
NETWORK OPTIONS
-----
PVN          = 172.20.48.0
PVNMASK     = 255.255.252.0
FCNA       = 172.21.48.0
FCNAMASK   = 255.255.254.0
FCNB       = 172.22.48.0
FCNBMASK   = 255.255.254.0
```

6. Display the current link parameters associated with the IP card in the database by entering the `rtrv-ip-lnk` command.

The following is an example of the possible output.

```
rlghncxa03w 10-07-28 21:14:37 GMT EAGLE5 42.0.0
LOC  PORT  IPADDR          SUBMASK          DUPLEX  SPEED  MACTYPE  AUTO  MCAST
1201 A    192.1.1.1      255.255.255.128 HALF        10    802.3    NO    NO
1203 A    192.1.1.12     255.255.255.0   ----        ---    DIX      YES   NO
1205 A    192.1.1.14     255.255.255.0   FULL       100    DIX      NO    NO
```

7. Display the IP routes in the database with the `rtrv-ip-rte` command.

This is an example of the possible output.

```
rlghncxa03w 10-07-28 09:12:36 GMT EAGLE5 45.0.0
LOC  DEST          SUBMASK          GTWY
1301 128.252.10.5  255.255.255.255 140.188.13.33
1301 128.252.0.0   255.255.0.0     140.188.13.34
```

```

1301 150.10.1.1      255.255.255.255 140.190.15.3
1303 192.168.10.1    255.255.255.255 150.190.15.23
1303 192.168.0.0      255.255.255.0   150.190.15.24

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

```

8. The EISCOPY option cannot be turned on if any of these conditions are present.

The subnet address that results from the PVN and PVNMASK, FCNA and FCNAMASK, or FCNB and FCNBMASK values in the `rtrv-netopts` output are the same as the subnet address resulting from the IPADDR and SUBMASK values in the `rtrv-ip-lnk` command, or the DEST and SUBMASK values of the `rtrv-ip-rte` command.

The subnet address that results from the PVN and PVNMASK values in the `rtrv-netopts` output cannot be the same as the subnet addresses that result from the FCNA and FCNAMASK, or FCNB and FCNBMASK values in the `rtrv-netopts` output.

The host portion of the subnet address that results from the PVN and PVNMASK value in the `rtrv-netopts` output is not 0 (zero).

The PVNMASK value in the `rtrv-netopts` outputs not one of these values.

255.255.0.0	255.255.128.0	255.255.192.0
255.255.224.0	255.255.240.0	255.255.248.0
255.255.252.0	255.255.254.0	255.255.255.0

If any of these conditions are present, perform the [Configuring the IP Addresses for the EAGLE 5 Integrated Monitoring Support Feature](#) procedure to change the required IP addresses before proceeding to [Step 9](#).

9. Change the EISCOPY option by performing one of these substeps.

- a) To turn the EISCOPY option on, enter this command.

```
chg-eisopts:eiscopy=on
```

If you wish to change the FCMODE values, perform the [Configuring the FCMODE Option for the EAGLE 5 Integrated Monitoring Support Feature](#). This procedure is finished.

- b) To turn the EISCOPY option off and the FCMODE values of all the GPLS shown in the `rtrv-eisopts` output in [Step 2](#) is OFF, enter this command.

```
chg-eisopts:eiscopy=off
```



CAUTION

**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 [Step 2](#) is either STC or FCOPY, enter this command.

```
chg-eisopts:eiscopy=of:fcgpl=all:fcmode=off
```



CAUTION

**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.
```

## Configuring the FCMODE Option for the EAGLE 5 Integrated Monitoring Support Feature

This procedure is used to configure the `FCMODE` option for the EAGLE 5 Integrated Monitoring Support feature with the `chg-eisopts` command and these parameters.

The `fcmode` parameter specifies a system-wide control to enable or disable monitoring on FC-capable cards. A card that can run the Fast Copy interface is referred to as an FC-capable card. Currently, E5-ENET cards running the IPSG and IPGHC GPLs are the only supported FC-capable cards. The `fcmode` parameter has three values.

- `off` - Monitoring is not performed on FC-capable cards.
- `stc` - STC monitoring is performed on FC-capable cards
- `fcopy` - FC monitoring is performed on FC-capable cards

The system default value for the `fcmode` parameter is `off`.

The `fcgpl` parameter specifies the type of cards that the monitoring specified by the `FCMODE` value will be applied to. The `fcgpl` parameter has three values.

- `ipsg` - monitoring is performed on E5-ENET 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 IPHG and IPGHC GPLs.

The system default value for the `fcgpl` parameter is `all`.

To change the `FCMODE` values, the `EISCOPY` value, shown in the `rtrv-eisopts` output, must be `on`. See the [Configuring the EISCOPY Option for the EAGLE 5 Integrated Monitoring Support Feature](#) procedure for information about changing the `EISCOPY` value.

1. Verify that the EAGLE 5 Integrated Monitoring Support feature is on, by entering the `rtrv-feat` command.

If the EAGLE 5 Integrated Monitoring Support feature is on, the `E5IS` field should be set to `on`.

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

If the EAGLE 5 Integrated Monitoring Support feature is off, perform [Enabling the Time Slot Counter Synchronization \(TSCSYNC\) and EAGLE 5 Integrated Monitoring Support \(E5IS\) Features](#) to turn on the EAGLE 5 Integrated Monitoring Support feature. After the EAGLE 5 Integrated Monitoring Support feature is turned on, the `EISCOPY` and `FCMODE` values for all the GPLs, shown in the `rtrv-eisopts` output, are `off`.

After the EAGLE 5 Integrated Monitoring Support feature is turned on, perform [Configuring the EISCOPY Option for the EAGLE 5 Integrated Monitoring Support Feature](#) to change the `EISCOPY` value to `ON`. When the `EISCOPY` value is changed to `ON`, the `FCMODE` values for all the GPLs are changed to `STC`.

- If the `FCMODE` values for all the GPLs will remain `STC`, this procedure is finished.
- If the `FCMODE` values for any of the GPLs will be changed, continue the procedure with by performing one of these steps.
  - If the `fcgpl=all` or `fcgpl=ipghc` parameters will be specified with the `fcmode=fcopy` parameter, continue the procedure with [Step 3](#).
  - If the `fcgpl=ipsg` parameter will be specified with the `fcmode=fcopy` parameter, continue the procedure with [Step 6](#).

If the EAGLE 5 Integrated Monitoring Support feature is on, continue the procedure with [Step 2](#).

2. Display the `EISCOPY` option by entering the `rtrv-eisopts` command.

This is an example of the possible output.

```
rlghncxa03w 10-07-07 11:43:04 GMT EAGLE5 42.0.0
EIS OPTIONS
-----
EISCOPY = OFF

FAST COPY OPTIONS
-----
FCGPL = IPSG          FCMODE = OFF
FCGPL = IPGHC        FCMODE = OFF
-----
```

Continue the procedure by performing one of these steps.

- If the EISCOPY value is OFF, 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 [Step 3](#).
    - If the `fcgpl=ipsg` parameter will be specified with the `fcmode=fcopy` parameter, continue the procedure with [Step 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 [Step 3](#).
  - If the `fcgpl=ipsg` parameter will be specified with the `fcmode=fcopy` parameter, continue the procedure with [Step 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 the *Database Administration Manual - IP7 Secure Gateway* 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 [Step 6](#).
- If the `fcgpl=all` parameter will not be specified with the `fcmode=fcopy` parameter, continue the procedure with [Step 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 [Step 4](#).

4. Display the signaling links that are assigned to the cards displayed in [Step 3](#) by entering this command.

```
rtrv-slk:type=ipgw
```

This is an example of the possible output.

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

LOC LINK LSN          SLC TYPE      ANAME          SLKTPS
1205 A  lsngtwy      0  SS7IPGW
1207 A  lsngtwy1    0  IPGWI

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

If signaling links are not shown in this output, perform the "Adding an IPGWx Signaling Link" procedure in the *Database Administration Manual - IP7 Secure Gateway* 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 [Step 6](#).
- If the `fcgpl=all` parameter will not be specified with the `fcmode=fcopy` parameter, continue the procedure with [Step 9](#).

If signaling links are shown in this output, continue the procedure with [Step 5](#).

5. Put into service the card shown in [Step 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 [Step 6](#).
- If the `fcgpl=all` parameter will not be specified with the `fcmode=fcopy` parameter, continue the procedure with [Step 9](#).

6. Display the IP SG cards and their status by entering this command.

```
rept-stat-card:appl=ipsg
```

This is an example of the possible output.

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

```

CARD   VERSION   TYPE   GPL   PST   SST   AST
1201   133-008-000  ENET   IPST   IS-NR  Active  -----
1202   133-008-000  ENET   IPST   IS-NR  Active  -----
Command Completed.

```

If no cards that are running the IPST GPL (an IPST card) are shown in the `rept-stat-card` output, perform the "Adding an IPST Card" procedure in the *Database Administration Manual - IP7 Secure Gateway* to provision the necessary IPST cards. The required IPST 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 [Step 9](#).

If IPST 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 [Step 9](#).

If IPST cards are shown in the `rept-stat-card` outputs, and the status of all the cards is not IS-NR, continue the procedure with [Step 7](#).

7. Display the signaling links that are assigned to the cards displayed in [Step 6](#) by entering this command.

```
rtrv-slk:type=ipst
```

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/
      RSVDSLKTPS
1201 A    lsnipst  0     IPST   assoc1         10
1202 A    lsnipst1 0     IPST   assoc2         10
      500
      500

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

```

If signaling links are not shown in this output, perform either the "Adding an IPST M2PA Signaling Link" procedure or "Adding an IPST M3UA Signaling Link" procedure in the *Database Administration Manual - IP7 Secure Gateway* to add the signaling links to the IPST cards. After the IPST signaling links have been added, continue the procedure with [Step 9](#).

If signaling links are shown in this output, continue the procedure with [Step 8](#).

8. Put into service the card shown in [Step 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 [Step 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 IP SG GPL (IP SG cards).
- `ipghc` - monitoring is performed on E5-ENET cards running the IP GH C GPL.
- `all` - monitoring is performed on E5-ENET cards running the IP SG and IP GH C 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 IP SG cards to off, enter this command.

```
chg-eisopts:fcmode=off:fcgpl=ipsg
```

- b) To change the `FCMODE` value for E5-ENET cards running the IP GH C GPL to STC, enter this command.

```
chg-eisopts:fcmode=stc:fcgpl=ipghc
```

- c) To change the `FCMODE` value for IP SG cards and E5-ENET cards running the IP GH C 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 [Step 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 = IP SG          FCMODE = OFF
FCGPL = IP GH C       FCMODE = STC
-----
```

For substep b in [Step 9](#), this is an example of the output.

```
rlghncxa03w 10-07-07 11:43:04 GMT EAGLE5 42.0.0
EIS OPTIONS
-----
EISCOPY = ON
```

```
FAST COPY OPTIONS
-----
FCGPL = IPSG          FCMODE = FCOPY
FCGPL = IPGHC         FCMODE = STC
-----
```

For substep c in [Step 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.
```

## 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`, `fca`, and `fcnb` parameters.

The `pvn` and `pvnmask` parameters define the network used by the STCs to transmit copied MSUs between the EAGLE 5 ISS 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 5 ISS uses a default value of 172.20.48.0 for the PVN address (`pvn` parameter). The default value may be changed by specifying a new network portion of an IP address and a network mask. The host portion of these PVN addresses are configured automatically. The default value for the `pvnmask` parameter is 255.255.252.0.

To change the network portion of the PVN address and the PVN submask used by the PVN addresses within the EAGLE 5 ISS, enter the `chg-netopts` command with the `pvn` and `pvnmask` parameters.

The EISCOPY function must be disabled (`eiscopy=off`) in order to make these changes. 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 IPSTG GPLs are the only supported FC-capable cards. The default value for the `fcna` parameter is 172.21.48.0. The default value for the `fcnb` parameter is 172.22.48.0. The FCNAMASK and FCNBMASK values are 255.255.254.0 and cannot be changed. To change the `fcna` and `fcnb` parameter values, the FCMODE values for all the GPLs shown in the `rtrv-eisopts` output must be either `off` or `stc`. The `fcna` and `fcnb` parameter values can be a Class A, B, or C IP address. The third segment of the IP address can only contain an even number. The value of the fourth segment of the IP address must be 0 (zero).

The subnet address that results from the PVN and PVNMASK, FCNA and FCNAMASK, or FCNB and FCNBMASK values cannot be the same as the subnet address resulting from the `ipaddr` and `submask` parameter values of the `chg-ip-lnk` command, or the `dest` and `submask` parameter values of the `ent-ip-rte` command.

This interaction applies to the PVN and PVNMASK values only if the `ipaddr` or `dest` parameter values are Class B IP addresses.

The `ipaddr`, `dest`, and `submask` parameter values can be verified by entering the `rtrv-ip-lnk` and `rtrv-ip-rte` commands. Choose `pvn` and `pvnmask`, `fcna`, or `fcnb` parameter values whose resulting subnet address is not be the same as the subnet address resulting from the `ipaddr` and `submask` parameter values of the `chg-ip-lnk` command, or the `dest` and `submask` parameter values of the `ent-ip-rte` command.

**CAUTION**

**Caution:** When configuring the IP addresses, make sure that the IP addresses do not conflict with the DHCP IP addresses that are leased to the STC cards. Any conflicting IP addresses can adversely affect the EAGLE 5 Integrated Monitoring Support feature.

To change the IP addresses and the PVNMASK value, the EAGLE 5 Integrated Monitoring Support feature (E5IS) must be turned on.

1. Verify that the EAGLE 5 Integrated Monitoring Support feature is on, by entering the `rtrv-feat` command.

If the EAGLE 5 Integrated Monitoring Support feature is on, the E5IS field should be set to on.

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

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 value 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 [Step 3](#).

If the EAGLE 5 Integrated Monitoring Support feature is on, continue the procedure with [Step 2](#).

2. Display the EISCOPY and FCMODE values by entering the `rtrv-eisopts` command.



This is an example of the possible output.

```
rlghncxa03w 10-07-28 09:12:36 GMT EAGLE5 42.0.0
EIS OPTIONS
-----
EISCOPY = ON

FAST COPY OPTIONS
-----
FCGPL = IPSG          FCMODE = FCOPY
FCGPL = IPGHC         FCMODE = FCOPY
-----
```

Continue the procedure by performing one of these actions.

- If the PVN and PVNMASK values are being changed and the EISCOPY value is ON, perform the [Configuring the EISCOPY Option for the EAGLE 5 Integrated Monitoring Support Feature](#) procedure to change the EISCOPY value to OFF. After the [Configuring the EISCOPY Option for the EAGLE 5 Integrated Monitoring Support Feature](#) procedure has been performed, continue the procedure with [Step 3](#). For the EISCOPY value to be OFF, the FCMODE values for all the GPLs shown in the `rtrv-eisopts` output must be OFF. If the FCMODE values for all the GPLs shown in the `rtrv-eisopts` output are OFF, the FCNA and FCNB values can also be changed.

If the EISCOPY value is OFF, continue the procedure with [Step 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 [Step 3](#).

If the FCMODE values for all the GPLs shown in the `rtrv-eisopts` output is OFF or STC, continue the procedure with [Step 3](#).

3. Display the IP addresses and the PVN subnet mask by entering the `rtrv-netopts` command.

This is an example of the possible output.

```
rlghncxa03w 09-02-28 09:12:36 GMT EAGLE5 40.1.0
NETWORK OPTIONS
-----
PVN          = 172.20.48.0
PVNMASK      = 255.255.252.0
FCNA        = 172.21.48.0
FCNAMASK     = 255.255.254.0
FCNB        = 172.22.48.0
FCNBMASK     = 255.255.254.0
```

4. Display the current link parameters associated with the IP card in the database by entering the `rtrv-ip-lnk` command.

The following is an example of the possible output.

```
rlghncxa03w 09-02-28 21:14:37 GMT EAGLE5 40.1.0
LOC  PORT IPADDR          SUBMASK          DUPLEX  SPEED  MACTYPE  AUTO  MCAST
```

1201	A	192.1.1.1	255.255.255.128	HALF	10	802.3	NO	NO
1203	A	192.1.1.12	255.255.255.0	----	---	DIX	YES	NO
1205	A	192.1.1.14	255.255.255.0	FULL	100	DIX	NO	NO

5. Display the IP routes in the database with the `rtrv-ip-rte` command.

This is an example of the possible output.

```
rlghncxa03w 09-02-28 09:12:36 GMT EAGLE5 45.0.0
LOC  DEST          SUBMASK          GTWY
1301 128.252.10.5     255.255.255.255 140.188.13.33
1301 128.252.0.0      255.255.0.0      140.188.13.34
1301 150.10.1.1       255.255.255.255 140.190.15.3
1303 192.168.10.1     255.255.255.255 150.190.15.23
1303 192.168.0.0      255.255.255.0    150.190.15.24
```

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

6. The subnet address that results from the `pvn` and `pvnmask`, `fcna` and `fcnamask`, or `fcnb` and `fcnbmask` parameter values cannot be the same as the subnet address resulting from the `ipaddr` and `submask` parameter values of the `chg-ip-lnk` command, or the `dest` and `submask` parameter values of the `ent-ip-rte` command.

This interaction applies to the `PVN` and `PVNMASK` values only if the `ipaddr` or `dest` parameter values are Class B IP addresses. The `ipaddr`, `dest`, and `submask` parameter values can be verified by entering the `rtrv-ip-lnk` and `rtrv-ip-rte` commands in [Step 4](#) and [Step 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 [Step 4](#), or the `dest` and `submask` values of the `rtrv-ip-rte` command in [Step 5](#). Continue the procedure with [Step 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 [Step 3](#) cannot be changed.
- The `PVNMASK` value must be one of these values.

255.255.0.0	255.255.128.0	255.255.192.0
255.255.224.0	255.255.240.0	255.255.248.0
255.255.252.0	255.255.254.0	255.255.255.0

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

```
rlghncxa03w 11-03-20 21:18:37 GMT EAGLE5 43.0.0
Caution: Ensure that configured PVN/FCNA/FCNB addresses do not conflict
with the DHCP IP addresses leased to STC cards.

CHG-NETOPTS: MASP A - COMPLTD
```

8. Verify the changes using the `rtrv-netopts` command.

This is an example of the possible output.

```
rlghncxa03w 10-07-28 09:12:36 GMT EAGLE5 42.0.0
NETWORK OPTIONS
-----
PVN      = 158.30.0.0
PVNMASK  = 255.255.252.0
FCNA     = 180.37.56.0
FCNAMASK = 255.255.254.0
FCNB     = 181.37.56.0
FCNBMASK = 255.255.254.0
```

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

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

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

If you do not wish to change the `EISCOPY` value or change the `FCMODE` values, this procedure is finished.

If you wish to change the `EISCOPY` value, perform [Configuring the EISCOPY Option for the EAGLE 5 Integrated Monitoring Support Feature](#).

If you wish to change the `FCMODE` values, perform [Configuring the FCMODE Option for the EAGLE 5 Integrated Monitoring Support Feature](#).

## 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 LIMs 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 33: STC Part Numbers](#).

**Table 33: STC Part Numbers**

Card Type	Card Name (as shown on the card Label)	Part Number
E5-STC	E5-ENET	870-2212-02
	E5-ENET-B	870-2971-XX

The dual-slot STC can be inserted only in card slots 01, 03, 05, 07, 11, 13, 15, and 17 of the extension shelf. The dual-slot STC can be inserted in the control shelf, but only in slots 01, 03, 05, 07, and 11. The dual-slot STC occupies two card slots, so the even numbered card slot must be empty and not provisioned in the database, as shown in [Table 34: Dual-Slot STC Locations](#). The dual-slot STC is connected to the network through the odd numbered card slot connector.

**Table 34: Dual-Slot STC Locations**

Location of the STC	Empty Card Location	Location of the STC	Empty Card Location
Slot 01	Slot 02	Slot 11	Slot 12
Slot 03	Slot 04	Slot 13	Slot 14
Slot 05	Slot 06	Slot 15	Slot 16
Slot 07	Slot 08	Slot 17	Slot 18

The single-slot STC can be inserted into any card slot, except an even numbered card slot adjacent to a dual-slot card, shown in [Table 34: Dual-Slot STC Locations](#), 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

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

### STC Provisioning

The following rules apply to provisioning STCs.

- A minimum of two STCs must be provisioned in the EAGLE.
- The maximum number of STCs that can be provisioned in the EAGLE is 32.
- Only single-slot STCs can be installed and provisioned in the EAGLE if IP signaling links are being monitored. Dual-slot STCs cannot be installed or provisioned.
- HIPR2 cards must be installed in the shelf that contains E5-STCs.
- For shelves containing HIPR2 cards in card slots 9 and 10, these rules apply to provisioning STCs.
  - STCs should be provisioned in the same shelf that contains the cards being monitored.
  - More than three STCs can be provisioned in the shelf depending on the number of empty cards slots the shelf has.
- To monitor signaling links on these cards, HIPR2 cards must be installed in slots 9 and 10 of the shelf that contains these cards.
  - E5-ENET cards that contain IP signaling links.
  - E5-E1T1 cards that contain E1 or T1 signaling links.
- If the E5-STC card is an E5-ENET-B card, the FAN feature must be turned on and fans must be installed on the shelf that contains the E5-ENET-B card. Enter the `rtrv-feat` command to verify whether or not the FAN feature is turned on. Perform the procedures in *Installation Guide* to install fans on the shelf that contains the E5-ENET-B card if fans must be installed. The MFC (message flow control) option must be on. Enter the `rtrv-stpopts` command to verify whether or not the MFC option is on. Perform the [Configuring the MFC Option](#) procedure to turn the MFC option on, if required.

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

The examples in this procedure are used to add an STC card in these card locations: 1303, 2101, and 2102.

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

```

rlghncxa03w 09-05-28 09:12:36 GMT EAGLE5 46.0.0
CARD   TYPE      APPL      LSET NAME      LINK SLC LSET NAME      LINK SLC
1102   TSM          GLS
1113   E5-MCAP      OAMHC
1114   E5-TDM-A
1115   E5-MCAP      OAMHC
1116   E5-TDM-B
1117   E5-MDAL
1201   LIMDS0       SS7ANSI   sp2             A    0    sp1            B    0
1203   LIMDS0       SS7ANSI   sp3             A    0
1204   LIMDS0       SS7ANSI   sp3             A    1
1206   LIMDS0       SS7ANSI   nsp3           A    1    nsp4           B    1
1216   E5-ENET-B   STPLAN
1301   E5-SM4G      SCCPHC
1308   LIMDS0       SS7ANSI   sp6             A    1    sp7            B    0
1314   LIMDS0       SS7ANSI   sp7             A    1    sp5            B    1
1317   E5-ENET-B   STPLAN

```

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

2. Verify that the EAGLE Integrated Monitoring Support feature is on, by entering the `rtrv-feat` command. If the EAGLE 5 Integrated Monitoring Support feature is on, the `E5IS` field should be set to on.

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

**Note:** If the EAGLE Integrated Monitoring Support feature is not on, go to the [Enabling the Time Slot Counter Synchronization \(TSCSYNC\) and EAGLE 5 Integrated Monitoring Support \(E5IS\) Features](#) procedure and enable the EAGLE Integrated Monitoring Support feature.

If HIPR2 cards are not required for provisioning STC cards, refer to [STC Provisioning](#) to determine if HIPR2 cards are required, continue the procedure with [Step 8](#).

If HIPR2 cards are required for provisioning STC cards, continue the procedure with the next step.

3. Verify that the HIPR2 cards are installed in card locations 9 and 10 in the shelf before adding the STC cards in this procedure. Enter this command.

```
rept-stat-gpl:gpl=hipr2
```

This is an example of the possible output.

```

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

```

If HIPR2 cards are not installed in the shelf containing the STC cards, refer to *Installation Guide* to install the HIPR2 cards.

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 [Step 8](#).
- If the card that is being added is an E5-ENET-B card, continue the procedure with [Step 4](#).

4. Verify whether or not the MFC option is on by entering the `rtrv-stpopts` command.

This is an example of the possible output.

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

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

If the MFC option is off, perform the [Configuring the MFC Option](#) procedure to turn on the MFC option.

If the MFC option is on, or the [Configuring the MFC Option](#) procedure was performed in this step, continue the procedure with [Step 5](#).

5. 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 [Step 2](#), the `FAN` field should be set to on.

If the Fan feature is on, continue the procedure with [Step 7](#).

If the Fan feature is off, continue the procedure with [Step 6](#).

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

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

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

The Fan feature must be purchased before you turn this feature on with the `chg-feat` command. If you are not sure if you have purchased the Fan feature, contact your Sales Representative or Account Representative.

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

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

7. 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 [Step 8](#).

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 [Step 8](#).

8. 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 34: Dual-Slot STC Locations](#). 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
```

9. Verify the changes using the `rtrv-card` command with the card location specified in [Step 8](#). For this example, enter these commands.

```
rtrv-card:loc=1303
```

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0
CARD  TYPE      APPL      LSET NAME      LINK SLC LSET NAME      LINK SLC
1303  STC          EROUTE
```

```
rtrv-card:loc=2101
```

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0
CARD  TYPE      APPL      LSET NAME      LINK SLC LSET NAME      LINK SLC
2101  STC          EROUTE
```

```
rtrv-card:loc=2102
```

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0
CARD  TYPE      APPL      LSET NAME      LINK SLC LSET NAME      LINK SLC
2102  STC          EROUTE
```

10. Verify that the card to be entered has been physically installed into the card location specified in [Step 8](#).



**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.

11. Put the STC card added in [Step 8](#) into service using the `alw-card` command specifying the card location specified in [Step 8](#). For this example, enter these commands.

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

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

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



When the `alw-card` command has successfully completed, this message should appear.

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0
Card has been allowed.
```

12. 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.
```

## Removing a Signaling Transport Card (STC)

This procedure is used to remove an STC from the database using the `dlt-card` command.



**Caution:** If the STC is the last STC in service, removing this card from the database will disable the EAGLE 5 Integrated Monitoring Support feature.



**Caution:** If removing the STC reduces the quantity of STCs in the EAGLE 5 ISS below number of STCs required by the ESP subsystem, the performance of the EAGLE 5 Integrated Monitoring Support feature will be degraded.

The examples in this procedure are used to remove the STC in card location 1303.

### Canceling the `REPT-STAT-CARD` Command

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

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

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

1. Display the cards in the database using the `rtrv-card` command. This is an example of the possible output.

```

rlghncxa03w 09-05-28 09:12:36 GMT EAGLE5 45.0.0
CARD   TYPE      APPL      LSET NAME      LINK SLC LSET NAME      LINK SLC
1101   DSM         VSCCP
1103   DCM         STPLAN
1113   E5-MCAP    OAMHC
1114   E5-TDM-A
1115   E5-MCAP    OAMHC
1116   E5-TDM-B
1117   E5-MDAL
1201   LIMDS0     SS7ANSI   sp2             A    0    sp1            B    0
1202   LIMDS0     SS7ANSI   sp2             A    1    nsp3           B    0
1203   LIMDS0     SS7ANSI   sp3             A    0
1204   LIMDS0     SS7ANSI   sp3             A    1
1206   LIMDS0     SS7ANSI   nsp3            A    1    nsp4           B    0
1212   DSM         VSCCP
1214   TSM         GLS
1215   DCM         STPLAN
1301   LIMATM     ATMANSI   lsnatml        A    0
1303   STC         EROUTE
1305   DCM         STPLAN
1308   LIMDS0     SS7ANSI   sp6             A    0    sp7            B    0
1311   LIMDS0     SS7ANSI   sp2             A    2    sp1            B    1
           sp7             A1   1    sp3            B1   2
1315   LIMDS0     SS7ANSI   sp7             A    2    sp5            B    0
1318   LIMATM     ATMANSI   lsnatml        A    1
2101   STC         EROUTE
2102   STC         EROUTE
2105   STC         EROUTE

```

An STC is identified by the entries `STC` in the `TYPE` field and `EROUTE` in the `APPL` field.

2. Display the status of the STC being removed with the `rept-stat-card` command with the location of the STC. For this example, enter this command.

```
rept-stat-card:loc=1303
```

This is an example of the possible output.

```

rlghncxa03w 10-07-27 16:43:42 GMT EAGLE5 42.0.0
CARD  VERSION  TYPE      GPL      PST      SST      AST
1303  133-003-000 STC        EROUTE   IS-NR    Active   -----
ALARM STATUS           = No Alarms.
BPDCM GPL version     = 133-108-000
IMT BUS A              = Conn
IMT BUS B              = Conn
CLOCK A                = Active
CLOCK B                = Idle
CLOCK I                = Idle
MBD BIP STATUS         = Valid
MOTHER BOARD ID        = Valid
DBD STATUS              = Valid
DBD TYPE                = Valid
DBD MEMORY SIZE        = 512M
HW VERIFICATION CODE   = -----
EROUTE % OCCUP         = 50%

```

```
NTP broadcast = VALID
Command Completed.
```

3. Inhibit the card using the `rmv-card` command, specifying the card location. For this example, enter this command.

```
rmv-card:loc=1303
```

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

```
rlghncxa03w 06-08-12 09:12:36 GMT EAGLE5 37.0.0
Card has been inhibited.
```

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

```
dlt-card:loc=1303
```

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

```
rlghncxa03w 06-08-12 09:12:36 GMT EAGLE5 37.0.0
DLT-CARD: MASP A - COMPLTD
```

5. Verify the changes using the `rtrv-card` command specifying the card that was removed in step 4. For this example, enter this command.

```
rtrv-card:loc=1303
```

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

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

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

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

# Appendix

# A

## Reference Information

---

### Topics:

- [Configuring the MFC Option.....285](#)

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 5 ISS to use Message Flow Control (MFC) to control the traffic in the EAGLE 5 ISS instead of Group Ticket Voucher (TVG). 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 5 ISS.

**Note:** When turning on MFC, the following cards are not supported from EAGLE Release 44.0 or later, except during migration to the B-series cards:

- DCM card (870-1945-xx)
  - DSM card (870-1984-xx)
  - EDCM card (870-2372-xx) used for SLAN or STC functionality
  - EDCM-A card (870-2508-xx) used for SLAN or STC functionality
- `off=mfc` - turns the MFC option off. When the MFC option is turned off, Group Ticket Voucher controls the traffic in the EAGLE 5 ISS. The MFC option cannot be turned off using this procedure. Contact the Customer Care Center before attempting to turn off the MFC option. Refer to [My Oracle Support \(MOS\)](#) for the contact information.

**Note:** A loss in MSU traffic may occur while running bi-directional traffic at 700 MSUs per second, 272 bytes on an E1-ATM or LIM-ATM card after GTT, while two STC cards are active.

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

1. Enter the `rtrv-stpopts` command to display the existing value for the MFC option. The value for the MFC option is shown in the `MFC` field. This is an example of the possible output.

```
rlghncxa03w 10-12-17 16:02:05 GMT EAGLE5 43.0.0
STP OPTIONS
-----
MFC                               off

Command Completed.
```

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

If the MFC option is off, continue the procedure with [Step 2](#).

If the MFC option is on and you wish to turn the option off, this procedure cannot be performed. Contact the Customer Care Center before attempting to turn off the MFC option. Refer to [My Oracle Support \(MOS\)](#) for the contact information.

If the MFC option is on and you do not wish to turn the option off, no further action is necessary.

2. Turn the MFC option on by entering this command.

```
chg-stpopts: on=mfc
```

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

```
rlghncxa03w 10-12-07 00:22:57 GMT EAGLE5 43.0.0
CHG-STPOPTS: MASP A - COMPLTD
```

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

```
rlghncxa03w 10-12-17 16:02:05 GMT EAGLE5 43.0.0
STP OPTIONS
-----
MFC                               on
Command Completed.
```

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

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.
```

## A

ACT	Activate
AFTPC	Affected Point Code The point code in subsystem-prohibited (SSP), subsystem-status-test (SST), and subsystem-allowed (SSA) SCCP management messages used by gateway screening to determine if the messages containing these point codes are allowed in to the network. This point code is in the SCMG Data (SCCP Management) portion of the signaling information field in the MSU.
Allowed Affected Destination Field	The gateway screening entity that identifies the point code in the affected destination field (the concerned signaling point code) of incoming MTP network management messages from another network that are allowed into the EAGLE. Messages containing the specified point code are allowed into the network.
Allowed DPC	The gateway screening entity that identifies the destination point codes that are allowed to receive SS7 messages from the EAGLE. Messages containing the specified destination point codes go on to the next step in the gateway screening process, or are allowed into the network if the gateway screening process stops with this entity.

## A

Allowed ISUP	The gateway screening entity that identifies the ISUP or TUP message types that are allowed into the network.
Allowed OPC	The gateway screening entity that identifies the originating point codes that are allowed to send SS7 messages into the network. Messages containing the specified originating point codes go on to the next step in the gateway screening process, or are allowed into the network if the gateway screening process stops with this entity.
Allowed SIO	The gateway screening entity that identifies the type of MSUs (ISUP, TUP, TCAP, and so forth) that are allowed into the network. The message type is determined by the network indicator code (NIC), priority (PRI), and service indicator (SI) fields of the signaling information octet (SIO) field in the MSU, and the H0 and H1 heading codes of the signaling information field of the MSU. Messages containing the specified message type go on to the next step in the gateway screening process, or are allowed into the network if the gateway screening process stops with this entity.
ANSI	American National Standards Institute An organization that administers and coordinates the U.S. voluntary standardization and conformity assessment system. ANSI develops and publishes standards. ANSI is a non-commercial, non-government organization



## A

which is funded by more than 1000 corporations, professional bodies, and enterprises.

APC

Adjacent Point Code

The point code that identifies a node adjacent to the EAGLE. This term is used in link sets and routes.

Application Processing Chassis

API

Application Interface

Application Programming Interface

An interface with commands, possibly routines and/or macros, provided by an operating system or an add-on for an operating system (that support network use, for example). Application programs can use this interface to tell the operating system to perform specific actions.

ARP

Address Resolution Protocol. ARP monitoring uses the Address Resolution Protocol to determine whether a remote interface is reachable.

Auto Reply service. Personalized SMS auto reply service. This service is provided by the Mobile Messaging XS-ARP component.

Allocation and Retention Priority. A mechanism to downgrade lower-priority bearers, or upgrade higher-priority bearers, in cases of network congestion or emergency. Used when a service or bearer is admitted, allocated, or handed over.

ATI

Any Time Interrogation

**A**

An ATI message allows an external server to interrogate an HLR and obtain information about the location and/or state of a GSM subscriber.

Incoming application-terminated

ATMANSI

The application used for high-speed ANSI ATM signaling links.

ATMITU

The application used for high-speed E1 ATM signaling links.

**B**

BITS

Building Integrated Timing System

The Building Integrated Timing System (BITS) clocks come directly from the central office BITS clock source or indirectly from an optional holdover clock installed in the system.

BLKDPC

Blocked Destination Point Code -  
The point code that the gateway screening uses to keep MSUs bound for a specific point code out of the network where the EAGLE is located. This point code is in the routing label portion of the signaling information field in the MSU. Messages that do not contain the specified destination point code go on to the next step in the gateway screening process, or are allowed into the network if the gateway screening process stops with this entity.

BLKOPC

Blocked Originating Point Code -  
The point code that gateway

**B**

screening uses to keep MSUs coming from a specific point code out of the network where the EAGLE is located. This point code is in the routing label portion of the signaling information field in the MSU. Messages that do not contain the specified originating point code go on to the next step in the gateway screening process, or are allowed into the network if the gateway screening process stops with this entity.

**C**

CCS7ITU

The application for the ITU SS7 signaling links that is used with card types `limds0`, `limch`, `lime1`, and `limt1`.

CDR

Call Detail Record

This refers to the recording of all connections in a database to permit activities such as billing connection charges or network analysis. CDR files are used in public switched networks, IP networks, for IP telephony, and mobile communications networks.

Charging Data Record

Used for user billing: a telecom provider transfers them from time to time in order to send bills to their users.

control cards

Cards that occupy slots 1113 through 1118 of the control shelf on an EAGLE and perform OAM, TDM, and database functions for the EAGLE. The legacy set consists of the single-slot GPSM-II card running the OAM application and EOAM GPL, the single-slot TDM

## C

card, and the dual-slot MDAL card. The E5-based set consists of the dual-slot E5-MASP card (the E5-MCAP module and the E5-TDM module) and the dual-slot E5-MDAL card.

Cards that occupy slots 1113 through 1118 of the control shelf control cards on an EAGLE and perform basic OAM. The E5-based set consists of the dual-slot E5-MASP card (the E5-MCAP module and the E5-TDM module) and the dual-slot E5-MDAL card.

## D

DCM

Database Communication Module

The DCM provides IP connectivity for applications. Connection to a host is achieved through an ethernet LAN using the TCP/IP protocol.

DESTFLD

The point code in the affected destination field (the concerned signaling point code) of incoming MTP network management messages from another network that are allowed into the EAGLE.

Destination

The node to which the signaling link traffic is routed. This destination is identified by a point code, either a full point code or a cluster point code.

DHCP

Dynamic Host Configuration Protocol

A protocol used by computers to obtain unique IP address, default router, subnet mask, and IP addresses for DNS servers from a

## D

	DHCP server. DHCP allows devices to be added to the network with little or no manual configuration.
DPC	Destination Point Code - DPC refers to the scheme in SS7 signaling to identify the receiving signaling point. In the SS7 network, the point codes are numeric addresses which uniquely identify each signaling point. This point code can be adjacent to the EAGLE, but does not have to be.
DPCA	Destination Point Code ANSI
DPCI	Destination Point Code International
DPCN	Destination Point Code National
DS0	Digital Signal Level-0 (64 Kbits/sec or 56 Kbits/sec)  A basic digital signaling rate of 64 Kbits/sec, corresponding to the capacity of one voice-frequency-equivalent channel.
DSM	Database Service Module.  The DSM provides large capacity SCCP/database functionality. The DSM is an application card that supports network specific functions such as EAGLE Provisioning Application Processor (EPAP), Global System for Mobile Communications (GSM), EAGLE Local Number Portability (ELAP),

## D

and interface to Local Service Management System (LSMS).

DTA

Database Transport Access - A feature in the EAGLE that encapsulates specific MSUs into the data portion of SCCP within a new SS7 MSU and sends the new MSU to the destination using global title translation. The EAGLE uses gateway screening to determine which MSUs are used by the DTA feature.

## E

E5-E1T1

EPM-based E1/T1 Multi-Channel Interface Module

An EPM-based card that provides E1 and T1 connectivity. E1T1 is an abbreviation for the ITU E1 and ANSI T1 interfaces. Thus the nomenclature defines the shelves where the card can be used and the physical interface that it provides.

E5IS

EAGLE 5 Integrated Monitoring Support

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

## E

ESP/IMF subsystem delivers the monitored traffic to the Sentinel/IMF.

E5-MASP card

E5-based dual-slot card that consists of the E5-MCAP module (occupies slot 1113 and slot 1115) and the E5-TDM module (occupies slot 1114 and slot 1116) in an EAGLE control shelf. Used when the E5-MDAL card is used.

E5-MCAP card

The module contains the Communications Processor and Applications Processor and provides connections to the IMT bus. Controls the maintenance and database administration activity and performs both application and communication processing. Runs the OAM application and OAMHC GPL. Occupies slot 1113 and slot 1115 in an EAGLE control shelf. Used when the E5-MDAL card is used. Contains two USB ports.

E5-MDAL card

The E5 MDAL card processes alarm requests, provides general purpose relays, and provides fan control. Occupies slots 1117 and 1118 in an EAGLE Control Shelf. Used with E5-MASP cards. Does NOT contain a drive for removable cartridges.

E5-SLAN

E5-ENET card used to support the STP LAN application.

E5-TDM card

The E5-TDM card provides the EAGLE with 16 ports for user terminals, contains fixed disk storage and distributes Composite Clocks and High Speed Master

## E

clocks throughout the EAGLE. Occupies slot 1114 and slot 1116 in an EAGLE Control Shelf. Used when the E5-MDAL card is used.

## ECAP

EAGLE Collector Application Processor

A dedicated standalone platform for the collection of EAGLE traffic statistical data.

ECAP provides the information and data needed to apply the charging rules to an external billing and charging application, called the Aggregator. ECAP depends on the Eagle SLAN card for this information.

## ELAP

EAGLE Local Number Portability Application Processor

The EAGLE LNP Application Processor (ELAP) platform provides capacity and performance required to support the ported number database.

## EPAP

EAGLE Provisioning Application Processor

## ESP

Expanded Services Platform

The Sentinel system with the hardware and software platform that provides the interface to the Integrated EAGLE and Sentinel monitoring system. The ESP hardware and software platform runs on the model 120 server.

## F

## flush-mounted USB port

USB port on the E5-MCAP card; used with credit card flash memory



**F**

drives for upgrades and could be used for disaster recovery.

FTP

File Transfer Protocol

A client-server protocol that allows a user on one computer to transfer files to and from another computer over a TCP/IP network.

Feature Test Plan

**G**

G-Flex

GSM Flexible numbering

A feature that allows the operator to flexibly assign individual subscribers across multiple HLRs and route signaling messages, based on subscriber numbering, accordingly.

GLS

Generic Loading Services

An application that is used by the TSM cards for downloading gateway screening to LIM cards.

GPL

Generic Program Load

Software that allows the various features in the system to work. GPLs and applications are not the same software.

G-Port

GSM Mobile Number Portability

A feature that provides mobile subscribers the ability to change the GSM subscription network within a portability cluster, while retaining their original MSISDN(s).

## G

GSM	<p>Global System for Mobile Communications</p> <p>A second generation digital PCS mobile phone standard used in many parts of the world.</p>
GSMSCRN	<p>GSM MAP Screening.</p> <p>A feature that allows the user to provision which MAP subsystem numbers are affected, which MAP operations codes to screen, which origination points are allowed, and which error messages to use.</p>
GT	<p>Global Title Routing Indicator</p>
GTA	<p>Global Title Address</p>
GTI	<p>Global Title Indicator</p>
GTT	<p>Global Title Translation</p> <p>A feature of the signaling connection control part (SCCP) of the SS7 protocol that the EAGLE uses to determine which service database to send the query message when an MSU enters the EAGLE and more information is needed to route the MSU. These service databases also verify calling card numbers and credit card numbers. The service databases are identified in the SS7 network by a point code and a subsystem number.</p>
GWS	<p>Gateway Screening</p> <p>Used at gateway STPs to limit access into the network to</p>

**G**

authorized users. A gateway STP performs inter-network routing and gateway screening functions. GWS controls access to nonhome SS7 networks. Only an MSU that matches predefined criteria in the EAGLE database is allowed to enter the EAGLE.

**H**

HC-MIM

High Capacity Multi-Channel Interface Module

A card that provides access to eight E1/T1 ports residing on backplane connectors A and B. Each data stream consists of 24 T1 or 31 E1 DS0 signaling links assigned in a time-division multiplex (TDM) manner. Each channel occupies a unique timeslot in the data stream and can be selected as a local signaling link on the interface card. Each card has 8 E1 or 8 T1 port interfaces with a maximum of 64 signaling links provisioned among the 8 E1/T1 ports.

HIPR2

High-Speed IMT Packet Router 2

A card that provides increased system throughput and traffic capacity on the existing Fibre-Channel ring. A high rate Fibre-Channel option of 2.5 Gbps is available when an EAGLE is provisioned with all HIPR2 cards. In a mixed topology where a HIPR2 is used in an EAGLE along with HMUX and HIPR, the Fibre-Channel ring runs at the lower rate of 1.0625 Gbps.

HLR

Home Location Register

**H**

A component within the Switching Subsystem of a GSM network. The HLR database is the central database within the GSM architecture. This is where information about the mobile communications subscribers who are assigned to a specific location area is stored. The subscriber data is used to establish connections and control services. Depending on the network size, the number of subscribers and the network organization, a number of HLRs can exist within a GSM network.

HSL

High-Speed Link

An innovative distributed I/O technology designed for automation applications that is based on an open standard RS-422, which is designed for full/half-duplex, multi-drop serial transmission.

**I**

ICMP

Internet Control Message Protocol

ID

Identity, identifier

IMF

Integrated Message Feeder

The IMF sits on the EAGLE and replicates the signaling data that is processed through the EAGLE to send to an off-board processor (the IXP in the case of IAS). Because it replicates the data (and doesn't introduce a new element in the path) it does not introduce any delay to the signaling and it does not create a separate footprint for a "probe" system.

## I

IMT	<p>Inter-Module-Transport</p> <p>The communication software that operates the inter-module-transport bus on all cards except the LIMATM, DCM, DSM, and HMUX.</p>
Internet Protocol	<p>See IP.</p>
IP	<p>Intelligent Peripheral</p> <p>Internet Protocol - IP specifies the format of packets, also called datagrams, and the addressing scheme. The network layer for the TCP/IP protocol suite widely used on Ethernet networks, defined in STD 5, RFC 791. IP is a connectionless, best-effort packet switching protocol. It provides packet routing, fragmentation and re-assembly through the data link layer.</p>
IP Address	<p>The location of a device on a TCP/IP network. The IP Address is either a number in dotted decimal notation which looks something like (IPv4), or a 128-bit hexadecimal string such as (IPv6).</p>
IPGWI	<p>An application that is used by the SSED/CM/E5-ENET card for IP point-to-multi-point connectivity within an ITU-I or ITU-N network. The system allows a maximum of 64 cards to be assigned the IPGWI application.</p>
IPGWx	<p>Point-to-multipoint MTP-User signaling (e.g. ISUP, TCAP) over IP capability. Typically used for A</p>

## I

link connectivity which require routing keys. Far End not required to support MTP3. The IPGWx GPLs (IPGWI, SS7IPGW) run on the SSEDCEM/E5-ENET cards.

IPLIM

The application used by the SSEDCEM/E5-ENET card for IP point-to-point connectivity for ANSI point codes.

IPLIMx

Point-to-point MTP3 and MTP3-User signaling over IP capability. Typically used for B-C-D links but can be used for A links but does not have routing key functionality. Far End required to support MTP3. The IPLIMx GPLs (IPLIMI, IPLIM) run on the SSEDCEM/E5-ENET cards.

IS-NR

In Service - Normal

ISS

Integrated Signaling System

ISUP

ISDN User Part

The ISDN-specific part of the transmission with additional information via a signaling channel between exchanges.

ITU

International Telecommunications Union

An organization that operates worldwide to allow governments and the private telecommunications sector to coordinate the deployment and operating of telecommunications networks and services. The ITU is

## I

responsible for regulating, coordinating and developing international telecommunications, and for harmonizing national political interests.

## L

## LAN

Local Area Network

A private data network in which serial transmission is used for direct data communication among data stations located in the same proximate location. LAN uses coax cable, twisted pair, or multimode fiber.

See also STP LAN.

## latched USB port

On the E5-MCAP card, a USB port with a lockable latch. Used with removable media (flash memory "thumb" drives) to install and back up customer data.

## LIM

Link Interface Module

Provides access to remote SS7, IP and other network elements, such as a Signaling Control Point (SCP) through a variety of signaling interfaces (DS0, MPL, E1/T1 MIM, LIM-ATM, E1-ATM, IPLIMx, IPGWx). The LIMs consist of a main assembly and possibly, an interface appliqué board. These appliqués provide level one and some level two functionality on SS7 signaling links.

## Link

Signaling Link

Signaling Link

Carries signaling within a Link Set using a specific Association. A Link

**L**

can belong to only one Link Set and one Association. There is generally one Link per Association in a Link Set.

## Load Sharing

A type of routing used by global title translation to route MSUs. This type of routing is used when a second point code and subsystem is defined for the primary point code and subsystem. Traffic is shared equally between the replicated point codes and subsystems.

## LSL

## Low-speed Link

The low-speed signaling data link is a full-duplex, digital transmission channel operating at 64 or 56 kbps. The packets carried using this protocol are variable length and carried down a single clear channel link. This means that the link must be dedicated to the SS7 traffic and cannot be used to carry any other data.

## LST

## Link Set Type

**M**

## M2PA

SS7 MTP2-User Peer-to-Peer Adaptation Layer

## M3UA

SS7 MTP3-User Adaptation Layer  
M3UA enables an MTP3 User Part to be connected to a remote MTP3 via a reliable IP transport.

## MAP

Mated Application Part



## M

	<p>Mobile Application Part</p> <p>An application part in SS7 signaling for mobile communications systems.</p>
MAS	<p>Maintenance and Administration Subsystem</p> <p>A set of cards located in the Control Shelf, used to provide a central management point for the EAGLE. The MAS provides user interface, maintenance communication, peripheral services, alarm processing, system disk interface, and measurements using the following three subassemblies: GPSM-II, TDM, and MDAL.</p>
Mated Application	<p>The point codes and subsystem numbers of the service databases that messages are routed to for global title translation.</p>
MAU	<p>Media Access Unit</p> <p>An industry standard single port Ethernet transceiver that connects the E5-ENET to the Ethernet.</p>
MFC	<p>Message Flow Control</p> <p>MFC controls all traffic across the IMT bus. With MFC, an EAGLE card can inform all EAGLE cards that it has reached the allotted capacity of a particular advertised service.</p>
MLS	<p>Multiple Linksets to Single Adjacent PC</p>

## M

## MRN

## Message Reference Number

An unsolicited numbered message (alarm or information) that is displayed in response to an alarm condition detected by the system or in response to an event that has occurred in the system.

## Mated Relay Node

A mated relay node (MRN) group is provisioned in the database to identify the nodes that the traffic is load shared with, and the type of routing, either dominant, load sharing, or combined dominant/load sharing.

## MSU

## Message Signal Unit

The SS7 message that is sent between signaling points in the SS7 network with the necessary information to get the message to its destination and allow the signaling points in the network to set up either a voice or data connection between themselves. The message contains the following information:

- The forward and backward sequence numbers assigned to the message which indicate the position of the message in the traffic stream in relation to the other messages.
- The length indicator which indicates the number of bytes the message contains.
- The type of message and the priority of the message in the signaling information octet of the message.
- The routing information for the message, shown in the routing label of the message, with the

**M**

identification of the node that sent message (originating point code), the identification of the node receiving the message (destination point code), and the signaling link selector which the EAGLE uses to pick which link set and signaling link to use to route the message.

MTP	Message Transfer Part The levels 1, 2, and 3 of the SS7 protocol that control all the functions necessary to route an SS7 MSU through the network Module Test Plan
MTP2	Message Transfer Part, Level 2
MTP3	Message Transfer Part, Level 3

**N**

NAI	Nature of Address Indicator Standard method of identifying users who request access to a network. Network Access Identifier The user identity submitted by the client during network authentication.
NAIV	NAI Value
NIC	Network Identifier Code Network Information Center Network Interface Card

## N

Computer hardware that enables computers to communicate with one another over a computer network. Also called a network card or a network adapter.

NP

Number Plan

Numbering Plan

Number Portability

A capability that permits telecommunications users to maintain the same telephone access number as they change telecommunication suppliers.

NPV

Numbering Plan Value

NSR

Next Screening Reference

NTP

Network Time Protocol

## O

OOS-MT

Out of Service - Maintenance

The entity is out of service and is not available to perform its normal service function. The maintenance system is actively working to restore the entity to service.

OOS-MT-DSBLD

Out of Service - Maintenance Disabled

The entity is out of service and the maintenance system is preventing the entity from performing its normal service function.

OPC

Originating Point Code

## O

Within an SS7 network, the point codes are numeric addresses which uniquely identify each signaling point. The OPC identifies the sending signaling point.

## P

## PC

## Point Code

The identifier of a signaling point or service control point in a network. The format of the point code can be one of the following types:

- ANSI point codes in the format network indicator-network cluster-network cluster member (**ni-nc-ncm**).
- Non-ANSI domestic point codes in the format network indicator-network cluster-network cluster member (**ni-nc-ncm**).
- Cluster point codes in the format network indicator-network cluster-\* or network indicator-\*-\*.
- ITU international point codes in the format **zone-area-id**.
- ITU national point codes in the format of a 5-digit number (**nnnnn**), or 2, 3, or 4 numbers (members) separated by dashes (**m1-m2-m3-m4**) as defined by the Flexible Point Code system option. A group code is required (**m1-m2-m3-m4-gc**) when the ITUDUPPC feature is turned on.
- 24-bit ITU national point codes in the format main signaling area-subsignaling area-service point (**msa-ssa-sp**).

**P**

PCA	Point Code ANSI
PCI	Peripheral Component Interface Point Code International Protocol Control Information Peripheral Component Interconnect
PCN	Point Code National Product Change Notice
PVN	Private Virtual Network  Private Virtual Network represents the internal IP addressing scheme for every card within the EAGLE switch. Each card has an auto-assigned, default, Class B private IP address.

**R**

removable media	Flash memory or “thumb” drives used in the latched USB port on an E5-MCAP card for installation and backup of customer data.
RFC	Request for Comment  RFCs are standards-track documents, which are official specifications of the Internet protocol suite defined by the Internet Engineering Task Force (IETF) and its steering group the IESG.
Route	A signaling path from an LSP to an RSP using a specified Link Set

**S**

## S

SCCP	<p>Signaling Connection Control Part</p> <p>The signaling connection control part with additional functions for the Message Transfer Part (MTP) in SS7 signaling. Messages can be transmitted between arbitrary nodes in the signaling network using a connection-oriented or connectionless approach.</p>
SCP	<p>Service Control Point</p> <p>Service Control Points (SCP) are network intelligence centers where databases or call processing information is stored. The primary function of SCPs is to respond to queries from other SPs by retrieving the requested information from the appropriate database, and sending it back to the originator of the request.</p> <p>Secure Copy</p>
Screen Set	<p>A gateway screening table containing a list of rules, or screening references. The screening references indicate the screening action that is to be performed on a message in a specific linkset.</p>
SE-HSL	<p>Synchronous E1 High Speed Link Format for E1 high-speed signaling links where time-slot 0 is used for framing and error control. The remainder of bandwidth, equivalent to 31 channels of 64Kbps data, is used as a single data link yielding a total capacity of 1.984 Mbps. Also known as Unchannelized E1.</p>
SI	<p>Service Indicator</p>

## S

SIO	<p>Service Information Octet.</p> <p>The network indicator code (NIC), priority (PRI), and service indicator (SI) in the SIO field in the message signaling unit (MSU). This information identifies the type of MSU (ISUP, TCAP, and so forth) that is allowed in the network where the EAGLE is located.</p>
SLAN	<p>Signaling Transfer Point Local Area Network</p> <p>A feature in the EAGLE that copies MSUs selected through the gateway screening process and sends these MSUs over the Ethernet to an external host computer for further processing.</p>
SLTA	<p>Signaling Link Test Acknowledgment</p>
SLTM	<p>Signal Link Test Message</p>
SMS	<p>Short Message Service</p> <p>A communication service component of the GSM mobile communication system that uses standard communications protocols to exchange short text messages between mobile phone devices. See also GSM.</p>
SRI	<p>Send Routing Information</p> <p>Send_Route_Information Message</p>
SS7	<p>Signaling System #7</p>



## S

A communications protocol that allows signaling points in a network to send messages to each other so that voice and data connections can be set up between these signaling points. These messages are sent over its own network and not over the revenue producing voice and data paths. The EAGLE is an STP, which is a device that routes these messages through the network.

SS7ANSI

SS7 ANSI

An application used by the LIM cards and the E1/T1 MIM card for the MTP functionality.

SS7IPGW

SS7 IP Gateway

An application used by the DCM/SSEDCM card for IP point-to-multipoint capability within an ANSI network.

SSN

SS7 Subsystem Number

The subsystem number of a given point code. The subsystem number identifies the SCP application that should receive the message, or the subsystem number of the destination point code to be assigned to the LNP subsystem of the EAGLE.

Subsystem Number

A value of the routing indicator portion of the global title translation data commands indicating that no further global title translation is required for the specified entry.

Subsystem Number

## S

Used to update the CdPA.

ST-HSL-A

Synchronous T1 High Speed Link

The 192 data bits of a framed T1 are combined to form a single unchannelized high-speed data stream that uses the SS7 protocol for messaging. Also known as Unchannelized T1.

STC

Sentinel Transport Card

Signaling Transport Card

The Signaling Transport Card (STC) is a member of the DCM card family with an "eroute" generic program load (GPL) installed. The STCs provide the IP interface between the LIM cards on the IMT bus and the Signaling Extended Services Platform (ESP) subassembly. The STC is used for sending MSU data to the ESP/IMF.

STP

Signal Transfer Point

The STP is a special high-speed switch for signaling messages in SS7 networks. The STP routes core INAP communication between the Service Switching Point (SSP) and the Service Control Point (SCP) over the network.

Spanning Tree Protocol

STPLAN

Signaling Transfer Point Local Area Network

The application used by the SLAN card and E5-SLAN card to support the STP LAN feature. This application does not support 24-bit ITU-N point codes.

## T

TC	Table Copy Transaction Capabilities
TCAP	Transaction Capabilities Application Part - A protocol in the SS7 protocol suite that enables the deployment of advanced intelligent network services by supporting non-circuit related information exchange between signaling points using the Signaling Connection Control Part connectionless service. TCAP also supports remote control - ability to invoke features in another remote network switch.
TCP	Transfer-Cluster-Prohibited Transfer Control Protocol Transmission Control Protocol A connection-oriented protocol used by applications on networked hosts to connect to one another and to exchange streams of data in a reliable and in-order manner.
TCP/IP	Transmission Control Protocol/Internet Protocol
TDM	Terminal Disk Module Time Division Multiplexing Data transmissions within individual connections follow a pre-defined multiplex scheme where a fixed time slot is available for each channel.
TPS	Transactions Per Second A method of measuring how quickly a network can transmit and

**T**

receive data. Capacities listed with "TPS" units involve the maximum of the receive rate and the transmit rate, and the worst-case assumption is that the transmit and receive rates are the same. Under the TU model, transaction units per second are calculated with the total transaction unit value and the advertised card capacity.

Translation Type

See TT.

TSC

Time Slot Counter

TSCSYNC

Time Slot Counter Synchronization

The Time Slot Counter (TSC) Synchronization feature allows the system's A (Active) and B (Standby) internal clocks to be synchronized by the standby OAM GPSSM-II card.

TT

Translation Type

Resides in the Called Party Address (CdPA) field of the MSU and determines which service database is to receive query messages. The translation type indicates which Global Title Translation table determines the routing to a particular service database.

TVG

Group Ticket Voucher

TX

Transmit

**U**

UAM

Unsolicited Alarm Message

## U

A message sent to a user interface whenever there is a fault that is service-affecting or when a previous problem is corrected. Each message has a trouble code and text associated with the trouble condition.

UDP User Datagram Protocol

UDT Unitdata Transfer

UDTS Unitdata Transfer Service  
An error response to a UDT message.

UIM Unsolicited Information Message  
A message sent to a user interface whenever there is a fault that is not service-affecting or when a previous problem is corrected. Each message has a trouble code and text associated with the trouble condition.

USB port Receptacle for flash memory drives on personal computers. On the E5-MDAL card, a flush-mounted USB port used with credit card flash memory drives for upgrade. On the E5-MCAP card, a latched USB port for use with flash memory "thumb" drives for installation and backup of customer data.

## V

VIP Virtual IP Address

V

Virtual IP is a layer-3 concept employed to provide HA at a host level. A VIP enables two or more IP hosts to operate in an active/standby HA manner. From the perspective of the IP network, these IP hosts appear as a single host.