

Tekelec LSMS with EAGLE[®] 5 ISS

LNP Feature Activation Guide

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Patents

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

U.S. Patent Numbers:

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

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Chapter 1

Introduction

Topics:

- *Overview2*
- *Scope and Audience.....2*
- *Manual Organization.....2*
- *Document Conventions.....3*
- *Documentation Admonishments.....4*
- *Customer Care Center.....4*
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- *Related Publications.....7*
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- *Maintenance and Administration Subsystem.....8*
- *EAGLE 5 ISS Database Partitions.....10*

This chapter contains general information about the organization of this manual and conventions used. Contact information for the Tekelec Customer Care Center and emergency response is also included here.

Overview

The *LNP Feature Activation Guide* describes the procedures necessary for database administration personnel or translations personnel to configure the EAGLE 5 ISS to implement the local number portability (LNP) feature and to implement these parts of the LNP feature on the EAGLE 5 ISS:

- LNP services
- LNP options
- LNP subsystem application
- Automatic call gapping
- Triggerless LNP feature
- Mapping LNP translation types
- Increasing the LRN and NPANXX Quantities on the EAGLE 5 ISS
- Activating and Deactivating the LNP Short Message Service (SMS) feature

Note:

EAGLE 5 ISS database administration privileges are password restricted. Only those persons with access to the command classes “Database Administration,” “LNP Basic,” “LNP Database Administration,” and “LNP Subscription” can execute the LNP administrative functions.

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.

Scope and Audience

This manual is intended for anyone responsible for configuring the EAGLE 5 ISS to implement the local number portability (LNP) feature and to implementing the LNP services, options, subsystem application and other LNP features on the EAGLE 5 ISS. Users of this manual and the others in the EAGLE 5 ISS family of documents must have a working knowledge of telecommunications and network installations.

Manual Organization

Throughout this manual, 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 these sections:

Introduction on page 1 contains general information about the database and the organization of this manual.

[LNP Feature Activation](#) on page 15 describes how to activate the LNP feature.

[LNP Services Configuration](#) on page 131 describes the procedures necessary to configure the following elements of the EAGLE 5 ISS:

- LNP Services
- LNP Subsystem Applications
- LNP Options
- Mapping LNP translation types
- Increasing the LRN and NPANXX Quantities on the EAGLE 5 ISS
- Activating and Deactivating the LNP Short Message Service (SMS) feature
- The Triggerless LNP feature

[Automatic Call Gapping \(ACG\) Configuration](#) on page 197 describes the procedures used to configure automatic call gapping for the LNP feature.

Document Conventions

In order to clearly differentiate between references to objects, actions, literal entries, and user-supplied information, the following conventions are used in this manual:

- Menu selections and buttons are shown in bold, and the steps in a menu path are represented with ">". For example:

From **ELAP Menu**, select **Maintenance > Display Release Levels** to verify that the ELAP version is 3.5.

Click the **Disable LSMS Connection** button.

- Commands, entries that must be entered exactly as shown in this document, and filenames are shown in the Courier bold font. For example:

- `pass:cmd="ping 192.168.120.1":loc=1101`
- Enter the `cd /ccsosmr` command to go to the `ccsosmr` directory.
- `/opt/TKLCPplat/bin/syscheck -v -m local lsmshc proc`

- Output examples and command prompts are shown in the Courier font. For example:

```
rlghncxa03w 06-08-01 21:20:37 GMT EAGLE5 35.1.0  
Card has been allowed
```

- Enter Choice: 13 (Enter Choice: is the command prompt in this example)
- Keys on the keyboard are represented by the text on the key enclosed in "<>" and shown in bold. For example: the Control, ALT, and Delete keys are shown as **<Ctrl>** **<Alt>** **<Delete>**.

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

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

Customer Care Center

The Tekelec Customer Care Center is your initial point of contact for all product support needs. A representative takes your call or email, creates a Customer Service Request (CSR) and directs your requests to the Tekelec Technical Assistance Center (TAC). Each CSR includes an individual tracking number. Together with TAC Engineers, the representative will help you resolve your request.

The Customer Care Center is available 24 hours a day, 7 days a week, 365 days a year, and is linked to TAC Engineers around the globe.

Tekelec TAC Engineers are available to provide solutions to your technical questions and issues 7 days a week, 24 hours a day. After a CSR is issued, the TAC Engineer determines the classification of the trouble. If a critical problem exists, emergency procedures are initiated. If the problem is not critical, normal support procedures apply. A primary Technical Engineer is assigned to work on the CSR and provide a solution to the problem. The CSR is closed when the problem is resolved.

Tekelec Technical Assistance Centers are located around the globe in the following locations:

Tekelec - Global

Email (All Regions): support@tekelec.com

- **USA and Canada**

Phone:

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

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

TAC Regional Support Office Hours:

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

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

Phone:

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

TAC Regional Support Office Hours (except Brazil):

10:00 a.m. through 7:00 p.m. (GMT minus 6 hours), Monday through Friday, excluding holidays

- **Argentina**

Phone:

0-800-555-5246 (toll-free)

- **Brazil**

Phone:

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

TAC Regional Support Office Hours:

8:30 a.m. through 6:30 p.m. (GMT minus 3 hours), Monday through Friday, excluding holidays

- **Chile**

Phone:

1230-020-555-5468

- **Columbia**

Phone:

01-800-912-0537

- **Dominican Republic**

Phone:

1-888-367-8552

- **Mexico**

Phone:

001-888-367-8552

- **Peru**

Phone:

0800-53-087

- **Puerto Rico**

Phone:

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

- **Venezuela**
Phone:
0800-176-6497

- **Europe, Middle East, and Africa**
 - **Signaling**
Phone:
+44 1784 467 804 (within UK)
TAC Regional Support Office Hours:
8:00 a.m. through 7:00 p.m. (GMT), Monday through Friday, excluding holidays
 - **Software Solutions**
Phone:
+33 3 89 33 54 00
TAC Regional Support Office Hours:
8:00 a.m. through 7:00 p.m. (GMT), Monday through Friday, excluding holidays

- **Asia**
 - **India**
Phone:
+91 124 436 8552 or +91 124 436 8553
TAC Regional Support Office Hours:
10:00 a.m. through 7:00 p.m. (GMT plus 5 1/2 hours), Monday through Saturday, excluding holidays
 - **Singapore**
Phone:
+65 6796 2288
TAC Regional Support Office Hours:
9:00 a.m. through 6:00 p.m. (GMT plus 8 hours), Monday through Friday, excluding holidays

Emergency Response

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

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

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

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

Related Publications

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

Documentation Availability, Packaging, and Updates

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

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

The electronic file of each manual is also available from the Tekelec Customer Support site (support.tekelec.com). 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 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 Customer Support Site

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

1. Log into the Tekelec **new** Customer Support site at support.tekelec.com.
Note: If you have not registered for this new site, click the **Register Here** link. Have your customer number available. The response time for registration requests is 24 to 48 hours.
2. Click the **Product Support** tab.
3. Use the Search field to locate a document by its part number, release number, document name, or document type. The Search field accepts both full and partial entries.
4. Click a subject folder to browse through a list of related files.
5. To download a file to your location, right-click the file name and select **Save Target As**.

Maintenance and Administration Subsystem

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

Note: In normal operation, the E5-based control cards and the legacy control cards cannot be mixed in one EAGLE 5 ISS control shelf.

Legacy Control Cards

The legacy set of EAGLE 5 ISS control cards consists of the following cards:

- Two MASP card sets; each set contains the following two cards:
 - A General Purpose Service Module II (GPSM-II) card

- A Terminal Disk Module (TDM) card
- One Maintenance Disk and Alarm (MDAL) card

General Purpose Service Module II (GPSM-II) Card

Each GPSM-II card contains the Communications Processor and the 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. GPSM-II cards are located in slots 1113 and 1115 of the control shelf.

Terminal Disk Module (TDM) Card

Each TDM card provides the Terminal Processor for the 16 I/O ports, and interfaces to the Maintenance Disk and Alarm (MDAL) card. The TDM card also distributes Composite Clocks and High Speed Master clocks throughout the EAGLE 5 ISS, and distributes Shelf ID to the EAGLE 5 ISS. Each TDM card contains one fixed disk drive that is used to store primary and backup system databases, measurements, and Generic Program Loads (GPLs). The TDM cards are located in slots 1114 and 1116 of the control shelf.

Maintenance Disk and Alarm (MDAL) Card

The MDAL card processes alarm requests and provides fan control. There is only one 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 MDAL card provides the system audible alarm. The MDAL card provides control of fans on a per-frame basis and allows for each fan relay to be set individually. The MDAL card contains a removable cartridge drive; the removable cartridge is used for installing new software; backing up the system software, the application software, and the database; and for downloading data for off-line processing. The MDAL card is located in slots 1117 and 1118 of the control shelf.

E5-based Control Cards

The E5-based set of EAGLE 5 ISS 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 "credit card" flash drive. The removable media drive is used to install and back up customer data. The credit card drive 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 ISS, and distributes Shelf ID to the EAGLE 5 ISS. 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 does not contain a removable cartridge drive; drives for removable media are located on the E5-MCAP card. The E5-MDAL card is located in slots 1117 and 1118 of the control shelf.

EAGLE 5 ISS Database Partitions

The data that the EAGLE 5 ISS uses to perform its functions are stored in two separate areas: the fixed disk drives, and the removable cartridge. The following sections describe these areas and data that is stored on them. These areas and their partitions are shown in [Figure 1: EAGLE 5 ISS Database Partitions \(Legacy Control Cards\)](#) on page 10 and [Figure 2: EAGLE 5 ISS Database Partitions \(E5-Based Control Cards\)](#) on page 11.

Figure 1: EAGLE 5 ISS Database Partitions (Legacy Control Cards)

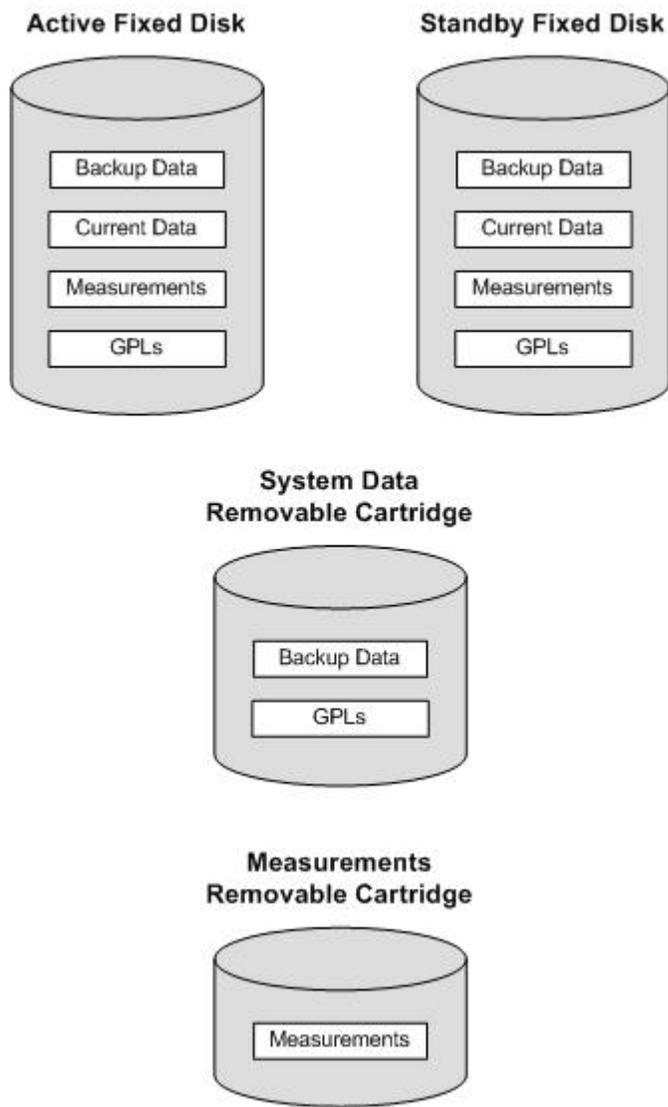
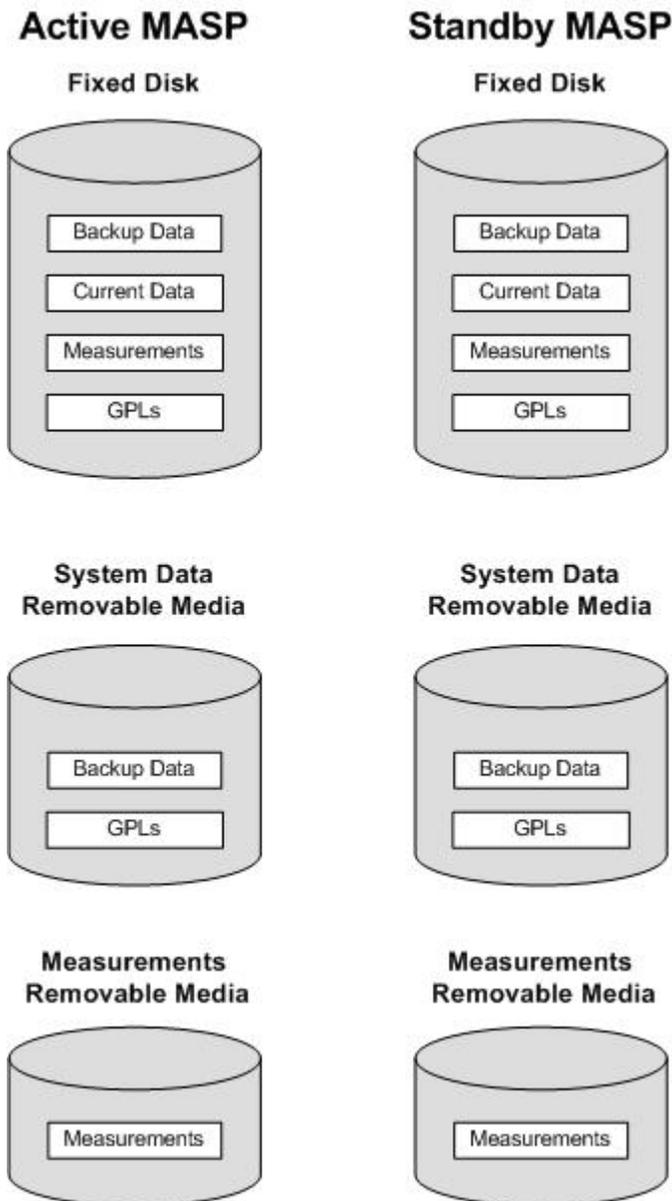


Figure 2: EAGLE 5 ISS Database Partitions (E5-Based Control Cards)



Fixed Disk Drive

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

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

- Current partition
- Backup partition

- Measurements partition
- Generic program loads (GPLs) partition

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

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

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

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

Removable Cartridge or Removable Media

The removable cartridge is used with the legacy MDAL control card in card location 1117. The removable media is used with the E5-MCAP card portion of the E5-MASP in card locations 1113 and 1115.

The removable cartridge or 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 TDMs, a single removable cartridge or removable media cannot store all of the data in the database, GPL and measurements partitions.

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

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

Chapter 2

LNP Feature Activation

Topics:

- *The LNP Solution16*
- *Hardware Requirements16*
- *Activating the LNP Feature Overview.....20*
- *Adding a Service Module Card.....30*
- *Removing DSM Cards.....34*
- *Configuring the Service Module Card Ethernet Link to the MPS.....36*
- *Overview of the ELAP User Interfaces.....41*
- *Setting Up an ELAP Workstation.....48*
- *ELAP Configuration and Initialization.....53*
- *Overview of ELAP Configuration.....57*
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- *MPS Health Check Procedure.....83*
- *EMS Configuration Component.....84*
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- *Managing Bulk Load from the LSMS.....94*
- *Copying One RTDB from Another RTDB....108*
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- *Activating the LNP Feature on the EAGLE 5 ISS.....115*
- *Distributing the LNP Database after LSMS-Based Operation or RTDB Copy.....124*
- *Manually Verifying and Restarting the Eagle Agents on the LSMS.....128*

This chapter contains the procedures needed to activate the Local Number Portability (LNP) feature. The procedures used to set up an ELAP workstation and to configure an ELAP are also included here.

The LNP Solution

The EAGLE LNP subsystem has grown from an initial support of 12 million telephone numbers (TNs) to its current support level of 228 million TNs. With the 384 Million Records feature, the LNP Solution can support up to 384 million TNs on a single E5-SM4G card within 3.2 GB of memory. In addition, the new E5-SM4G card provides increased processor capacity. Nine E5-SM4G cards are necessary to provide the same system throughput as twenty-five DSM cards. The improved performance also enables faster reload times and rates for download to be achieved.

The overall function of the LNP Solution remains the same at a high level. LNP provisioning instructions are received and stored at the LSMS and distributed to the ELAP pair associated with an EAGLE. The ELAP provides persistent storage for the data and provides database update and data loading services for the EAGLE LNP application. The system is designed such that each E5-SM4G card contains an exact image of the ELAP LNP database. This enables the EAGLE to support fast transaction rates for database lookup requests from the LIMs.

Hardware Requirements

The following hardware is required for the LNP feature:

- Service Module cards must be configured and installed in the EAGLE 5 ISS.

Note: In this manual, Service Module card refers to either a DSM card or an E5-SM4G card unless a specific card is required.

The EAGLE 5 ISS must be running release 35.0 or greater.

- The LSMS must be running release 11.0 to use the maximum capacity of 384 million LNP telephone numbers. The LSMS must be running release 8.5 or greater to use the maximum capacity of 228 million LNP telephone numbers. LSMS releases 7.0 and 8.0 can be used with the EAGLE 5 ISS release 35.0 or greater, but with the following limitations:
 - LSMS 7.0 supports a maximum capacity of 120 million LNP telephone numbers.
 - LSMS 8.0 supports a maximum capacity of 192 million LNP telephone numbers.
- The ELAP (EAGLE LNP Application Processor) running on the MPS platform. The ELAP must be running release 5.0 or greater. ELAP 7.0 supports up to 228 million numbers. ELAP release 8.0 is required for 240 million numbers and above, including the 384 million numbers feature.

Note: This document contains instructions on using ELAP version 8.0. If you are using a previous version of ELAP, please refer to the document, *ELAP Administration Manual_Up to ELAP 7.0*.

If any of these systems are not running the required release, contact the [Customer Care Center](#) on page 4.

The LNP telephone number quantity for the EAGLE 5 ISS is set with feature access keys corresponding to the quantity, up to 384 million numbers. To configure a particular LNP telephone number quantity in the EAGLE 5 ISS, the EAGLE 5 ISS must contain Service Module cards with a minimum amount of RAM. [Table 2: LNP Hardware and Part Number Configuration Table](#) on page 17 shows the LNP telephone number quantities, the part numbers that correspond to these

quantities, and the Service Module card requirements for that LNP telephone number quantity. Perform the [Activating the LNP Feature on the EAGLE 5 ISS](#) on page 115 procedure for more information on setting these quantities.

Table 2: LNP Hardware and Part Number Configuration Table

LNP Telephone Number Quantity	LNP Telephone Number Part Number	Minimum Hardware Required for the LNP Telephone Number Quantity
2 Million	893-0110-01	1 GB Service Module card
4 Million	893-0110-02	1 GB Service Module card
6 Million	893-0110-03	1 GB Service Module card
8 Million	893-0110-04	1 GB Service Module card
12 Million	893-0110-05	1 GB Service Module card
24 Million	893-0110-06	2 GB Service Module card
36 Million	893-0110-07	3 GB Service Module card
48 Million	893-0110-08	4 GB Service Module card
60 Million	893-0110-09	4 GB Service Module card
72 Million	893-0110-10	4 GB Service Module card
84 Million	893-0110-11	4 GB Service Module card
96 Million	893-0110-12	4 GB Service Module card
108 Million	893-0110-13	4 GB Service Module card
120 Million	893-0110-14	4 GB Service Module card
132 Million	893-0110-15	4 GB Service Module card
144 Million	893-0110-16	4 GB Service Module card
156 Million	893-0110-17	4 GB Service Module card
168 Million	893-0110-18	4 GB Service Module card

LNP Telephone Number Quantity	LNP Telephone Number Part Number	Minimum Hardware Required for the LNP Telephone Number Quantity
180 Million	893-0110-19	4 GB Service Module card
192 Million	893-0110-20	4 GB mixed or E5-SM4G only
204 Million	893-0110-21	4 GB DSM card (See Note)
216 Million	893-0110-22	4 GB DSM card (See Note)
228 Million	893-0110-23	4 GB DSM card (See Note)
240 Million	893-0110-24	4 GB E5-SM4G card (See Note)
252 Million	893-0110-25	4 GB E5-SM4G card
264 Million	893-0110-26	4 GB E5-SM4G card
276 Million	893-0110-27	4 GB E5-SM4G card
288 Million	893-0110-28	4 GB E5-SM4G card
300 Million	893-0110-29	4 GB E5-SM4G card
312 Million	893-0110-30	4 GB E5-SM4G card
324 Million	893-0110-31	4 GB E5-SM4G card
336 Million	893-0110-32	4 GB E5-SM4G card
348 Million	893-0110-33	4 GB E5-SM4G card
360 Million	893-0110-34	4 GB E5-SM4G card
372 Million	893-0110-35	4 GB E5-SM4G card
384 Million	893-0110-36	4 GB E5-SM4G card
<p>Note: For LNP subscribers less than 192 million numbers, a mix of DSM and E5-SM4G cards can be used. For 204 -228 million numbers, if running on ELAP 7.0 or less, only DSM cards can be installed. For 204 -228 million numbers running on ELAP 8.0, only E5-SM4G cards can be</p>		

LNP Telephone Number Quantity	LNP Telephone Number Part Number	Minimum Hardware Required for the LNP Telephone Number Quantity
installed. For LNP subscribers with 240 million numbers, the LNP is only available on ELAP 8.0 using only E5-SM4G cards.		

The LNP data is collected at the LSMS from the NPAC (for subscription data) and from local provisioning on the LSMS (for default NPANXX, split NPANXX and other types of LNP records). This data is sent to the active ELAP, on the MPS platform, at an EAGLE 5 ISS across a TCP/IP connection in the customer's network. The ELAP stores the data and replicates it to the mate ELAP. The LNP data is sent to the Service Module cards of the EAGLE 5 ISS from the ELAP using two dedicated Ethernet networks between the MPS platform and the Service Module cards of the EAGLE 5 ISS.

When the LNP feature is enabled for the first time, the LRN (location routing number) and NPANXX quantities are set at 100,000 (for LRNs) and 150,000 (for NPANXXs). These quantities can be increased to 200,000 LRNs and 350,000 NPANXXs, but only when the LNP telephone number quantity is 60 million or greater. See the [Increasing the LRN and NPANXX Quantities on the EAGLE 5 ISS](#) on page 182 procedure.

The hardware requirements for the 384 Million LNP Records feature is dependent upon the quantity of TNs that are enabled and the version of ELAP in use.

Table 3: Hardware Compatibility Matrix

Quantity FAK Enabled	ELAP 7.0 or Less	ELAP 8.0
<= 192M	Service Module cards	N/A
204M - 228M	DSM	N/A
>= 240M	N/A	E5-SM4G

Note: Quantities of >228M require ELAP 8.0 and LSMS 11.0.

Telco Switches

The 384 Million Records feature replaces the DSM network with two redundant 1GigE full duplex networks for the A and B ports, connected with Telco ethernet switches. This requires the installation of the Telco switches and the replacement of the existing network cabling.

Note: A complete upgrade from from DSM or mixed DSM/E5-SM4G card sets to all E5-SM4G hardware is required to enable the 384 Million LNP Records feature.

The E5-SM4G 5000 TPS enhancement allows the E5-SM4G card to achieve 5000 TPS when an LNP quantity feature that is less than or equal to 192 million numbers is enabled. The E5-SM4G Throughput Capacity feature (893-0191-01) must be enabled to achieve 5000 TPS on an E5-SM4G card. Total system TPS capacity cannot exceed 40,000 TPS when E5-SM4G cards are used.

Activating the LNP Feature Overview

To activate this feature, actions need to be taken at the LSMS, the ELAP, as well as at the EAGLE 5 ISS.

This procedure contains the basic steps necessary to activate the LNP feature. Some of these basic steps reference more detailed procedures contained in this guide.

At the EAGLE 5 ISS:

1. Verify these items in the EAGLE 5 ISS's database by entering these commands:

a) `rtrv-ctrl-feat` – to verify the features that are enabled:

- LNP telephone number quantity and the LNP ELAP Configuration feature
- INP
- G-Port
- ANSI-41 INP Query
- EIR
- A-Port
- IS41 GSM Migration
- PPSMS (Prepaid SMS)
- G-Flex

If the `rtrv-ctrl-feat` output shows that an LNP telephone number quantity or the EAGLE 5 ISS's LNP ELAP Configuration feature is enabled, continue with substep b.

For an LNP telephone number quantity to be shown in the `rtrv-ctrl-feat` output, or for the EAGLE 5 ISS's LNP ELAP Configuration feature to be enabled, these features cannot be enabled:

- G-Port
- INP
- ANSI-41 INP Query
- EIR
- A-Port, IS41 GSM Migration
- PPSMS (Prepaid SMS)
- G-Flex
- V-Flex

Note: With ELAP 8.0 and the 384 Million LNPRECORDS feature, the E5-SM4G Throughput Capacity feature and the LNP feature are no longer exclusive and can be enabled at the same time.



CAUTION

CAUTION: If any of the features shown in the previous list are enabled, the LNP feature cannot be enabled and this procedure cannot be performed. If you wish to enable the LNP feature, contact the [Customer Care Center](#) on page 4.

- b) `rtrv-ip-lnk` – to verify the Service Module card Ethernet configuration to the ELAPs.
- c) `rept-stat-card` – to verify the state and location of the cards running the VSCCP applications.

- d) `rept-stat-sccp` – to show the status and number of service modules running the VSCCP application currently provisioned in the EAGLE 5 ISS.

Record the values displayed in these steps.



CAUTION:

If the number of DSM cards is 26 to 32, the LNP feature cannot be enabled. If the LNP feature is enabled, the maximum number of DSM cards the EAGLE 5 ISS can have is 25. The 384 Million Records feature does not support DSM cards. Only E5-SM4G cards can be used for this feature. All DSM cards must be removed to enable 384 million numbers. Total GTT capacity for the EAGLE 5 ISS will be reduced to a maximum of 40,800 transactions per second by removing DSM cards in order to enable the LNP feature.

See the LNP Hardware and Part Number Configuration Table, [Table 2: LNP Hardware and Part Number Configuration Table](#) on page 17, for specific card requirements and compatibility matrix.

Note:

If the `rtrv-ctrl-feat` output in [Step 1.a](#) on page 20 shows that the EAGLE 5 ISS's LNP ELAP Configuration feature is enabled, skip [Step 2](#) on page 21 through [Step 3](#) on page 21, and go to [Step 4](#) on page 21.

- If [Step 1.c](#) on page 20 shows no cards running the VSCCP application (Service Module Cards), perform the [Adding a Service Module Card](#) on page 30 procedure to make sure that Service Module cards are configured and installed in the EAGLE 5 ISS according to the hardware requirements shown in [Table 2: LNP Hardware and Part Number Configuration Table](#) on page 17.
- If [Step 1.c](#) on page 20 shows any cards that do not meet the hardware requirements for the desired LNP telephone number quantity, perform the [Removing DSM Cards](#) on page 34 procedure to make sure that any such cards are removed.

Note:

If [Step 2](#) on page 21 through [Step 3](#) on page 21 were performed, skip [Step 4](#) on page 21, and go to [Step 5](#) on page 22.

- Verify the memory installed on the Service Module card is enough based on the LNP telephone number quantity being assigned (see [Table 2: LNP Hardware and Part Number Configuration Table](#) on page 17).

Enter the `rept-stat-card` command specifying the location of a Service Module card with the `mode=full` parameter. The amount of memory is shown in the `DBD MEMORY SIZE` field and is measured in megabytes.

```
rlghncxa03w 07-05-01 10:09:55 GMT EAGLE5 35.1.0
CARD  VERSION      TYPE      APPL      PST      SST      AST
1301  123-002-001    DSM      VSCCP     IS-NR    Active   -----
ALARM STATUS      = No Alarms.
IMT  VERSION      = 123-002-000
PROM VERSION      = 002-125-002
IMT BUS A         = Conn
IMT BUS B         = Conn
CLOCK A           = Idle
CLOCK B           = Idle
CLOCK I           = Active
MBD BIP STATUS    = valid
```

```
DB STATUS          = valid DBD MEMORY SIZE = 1024M
HW VERIFICATION CODE = ----
SCCP % OCCUP      = 0%
SNM TVG RESULT    = 24 hr: -----, 5 min: -----
Command Completed.
```

If the amount of memory is not enough to support the new LNP telephone number quantity, perform the [Adding a Service Module Card](#) on page 30 procedure and add a Service Module card with the correct amount of memory (see [Table 2: LNP Hardware and Part Number Configuration Table](#) on page 17). After the new Service Module card has been added, perform the [Removing DSM Cards](#) on page 34 procedure and remove the Service Module card specified in this step from the database. Repeat this step for every Service Module card shown in [Step 1.c](#) on page 20.

- If [Step 1.b](#) on page 20 does not show IP links from the Service Module cards to the MPS, or if Service Module cards were configured in [Step 2](#) on page 21 or [Step 4](#) on page 21, configure the IP Link from the Service Module cards to MPS A and B using the [Configuring the Service Module Card Ethernet Link to the MPS](#) on page 36 procedure.
- If [Step 5](#) on page 22 was not performed, enter the `rept-stat-sccp` command to verify that the state of all Service Module cards is IS-NR (In-Service Normal).

The state of the Service Module cards is shown in the PST column of the output.

```
tk1c1170501 08-08-18 10:16:24 EST EAGLE5 40.0.0
CARD  VERSION      PST           SST           AST           MSU  CPU
                   USAGE  USAGE
-----
1217  126-030-000  IS-NR        Active        -----      100%  45%
1317  126-030-000  IS-NR        Active        -----      100%  51%
2217  126-030-000  IS-NR        Active        -----      100%  42%
3201  126-030-000  IS-NR        Active        -----      54%   25%
3203  126-030-000  IS-NR        Active        -----      55%   25%
3205  126-030-000  IS-NR        Active        -----      57%   27%
-----
SCCP Service Average MSU Capacity = 71% Average CPU Capacity = 32%
Command Completed.
```

Note:

The `rept-stat-sccp` 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-sccp` command, see the `rept-stat-sccp` command description in the *EAGLE 5 ISS Commands Manual*.

- If the state any of the Service Module cards shown in [Step 1.b](#) on page 20, [Step 4](#) on page 21, or [Step 6](#) on page 22 are not IS-NR, place these cards back into service with the `rst-card` command and specifying the card location of the card shown in [Step 1.b](#) on page 20, [Step 4](#) on page 21, or [Step 6](#) on page 22 that is not IS-NR.

For this example, enter this command: `rst-card:loc=1301`. When this command has successfully completed, these messages should appear.

```
rlghncxa03w 07-05-01 21:20:37 GMT EAGLE5 37.0.0
Card has been allowed.
```

- Test port A of one of the Service Module cards using the `ping pass` command with the card location of the Service Module card recorded in step 1 and the IP address for port A of that Service Module card shown in either [Step 1.b](#) on page 20 or [Step 5](#) on page 22.

```
pass:cmd="ping 192.168.120.1":loc=1301
```

```
Command Accepted - Processing
  rlghncxa03w 07-08-27 08:30:44 GMT EAGLE5 37.0.0
  pass: loc=1301: cmd="ping 192.168.120.1"
  Command entered at terminal #1.
;
  rlghncxa03w 07-08-27 08:30:44 GMT EAGLE5 37.0.0
  PASS: Command sent to card
;
  rlghncxa03w 07-08-27 08:30:44 GMT EAGLE5 37.0.0
  PING command in progress
;
rlghncxa03w 07-08-27 08:30:46 GMT EAGLE5 37.0.0
PING 192.168.120.1: 56 data bytes
64 bytes from tekral.nc.tekelec.com (192.168.120.1):icmp_seq=0.time=5. ms
64 bytes from tekral.nc.tekelec.com (192.168.120.1):icmp_seq=1.time=0. ms
64 bytes from tekral.nc.tekelec.com (192.168.120.1):icmp_seq=2.time=0. ms
----192.168.120.1 PING Statistics----
  3 packets transmitted, 3 packets received, 0% packet loss
  round-trip (ms)  min/avg/max = 0/1/5
  PING command complete
```

- Test port B of the Service Module card specified in [Step 8](#) on page 22 using the ping pass command with the card location of the Service Module card specified in [Step 8](#) on page 22 and the IP address for port B shown in either [Step 1.b](#) on page 20 or [Step 5](#) on page 22.

```
pass:cmd="ping 192.168.121.1":loc=1301
```

```
Command Accepted - Processing
  rlghncxa03w 07-08-27 08:30:44 GMT EAGLE5 37.0.0
  pass: loc=1301: cmd="ping 192.168.121.1"
  Command entered at terminal #1.
;
  rlghncxa03w 07-08-27 08:30:44 GMT EAGLE5 37.0.0
  PASS: Command sent to card
;
  rlghncxa03w 07-08-27 08:30:44 GMT EAGLE5 37.0.0
  PING command in progress
;
rlghncxa03w 07-08-27 08:30:46 GMT EAGLE5 37.0.0
PING 192.168.121.1: 56 data bytes
64 bytes from tekral.nc.tekelec.com (192.168.121.1):icmp_seq=0.time=5. ms
64 bytes from tekral.nc.tekelec.com (192.168.121.1):icmp_seq=1.time=0. ms
64 bytes from tekral.nc.tekelec.com (192.168.121.1):icmp_seq=2.time=0. ms
----192.168.121.1 PING Statistics----
  3 packets transmitted, 3 packets received, 0% packet loss
  round-trip (ms)  min/avg/max = 0/1/5
  PING command complete
```

- Repeat [Step 8](#) on page 22 and [Step 9](#) on page 23 for all other Service Module cards in the EAGLE 5 ISS.

At the MPS (ELAP A or B):

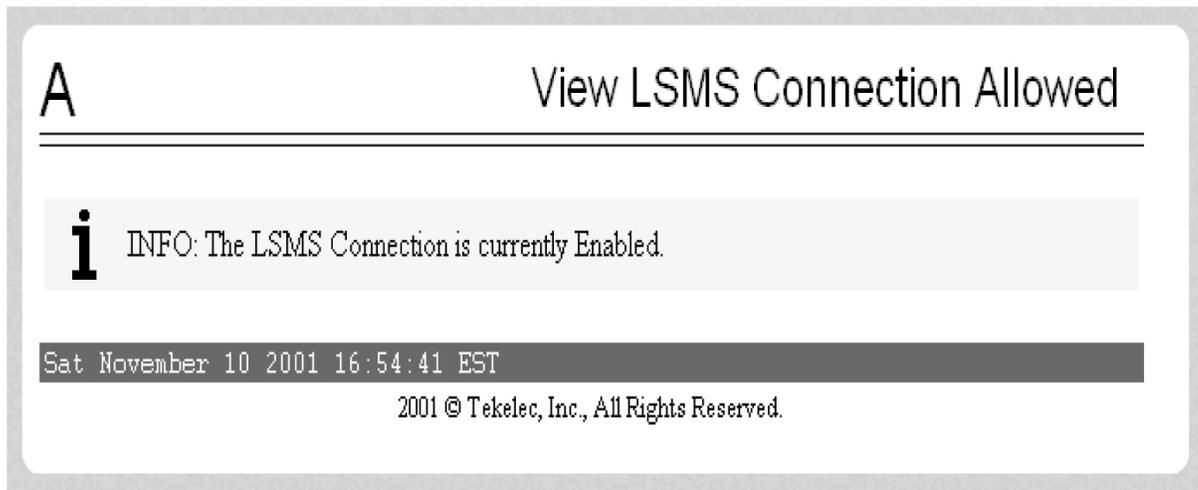
- Log into ELAP A or B.
- From **ELAP Menu**, select **Maintenance ► Display Release Levels** to verify that the ELAP version is correct (see [Table 2: LNP Hardware and Part Number Configuration Table](#) on page 17).
If the ELAP version is not correct, contact the [Customer Care Center](#) on page 4 for the contact information before performing the procedure.
- Perform a health check of the MPS.

Perform the *MPS Health Check Procedure* on page 83.

14. Disable the LSMS Connection.

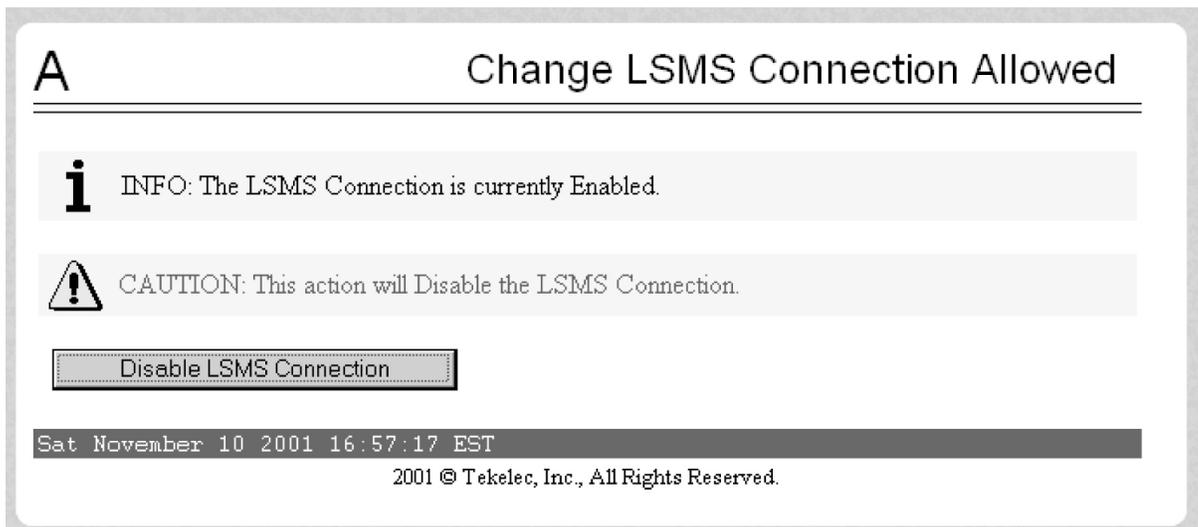
Select **Maintenance** ► **LSMS Connection** ► **View Allowed** as seen in *Figure 3: View LSMS Connection Allowed Dialog* on page 24.

Figure 3: View LSMS Connection Allowed Dialog



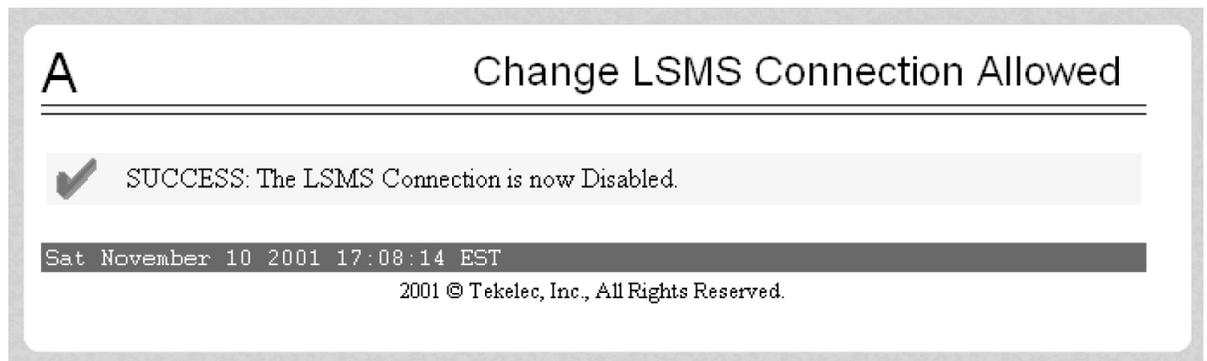
If the connection is disabled, no action is necessary. Go to *Step 15* on page 25. If the connection is enabled, select **Maintenance** ► **LSMS Connection** ► **Change Allowed**. The **Change LSMS Connection Allowed** dialog displays, showing **Disable LSMS Connection** icon as seen in *Figure 4: Change LSMS Connection Allowed Dialog* on page 24.

Figure 4: Change LSMS Connection Allowed Dialog



Click the **Disable LSMS Connection** button. The **Change LSMS Connection Allowed Dialog - Disable Success Dialog** as seen in *Figure 5: Change LSMS Connection Allowed - Disable Success Dialog* on page 24.

Figure 5: Change LSMS Connection Allowed - Disable Success Dialog



15. Repeat [Step 11](#) on page 23 through [Step 13](#) on page 23 for the other ELAP.

16. Verify the telephone number quantity on the ELAP.

Perform the [Verifying RTDB Status at the EAGLE 5 ISS Terminal](#) on page 109 procedure. The number of telephone numbers on the ELAP must be less than the configured quantity on the EAGLE 5 ISS. The EAGLE 5 ISS quantity is shown in the `rtrv-ctrl-feat` command output performed in [Step 1.a](#) on page 20. If the telephone number quantity on the ELAP is less than the quantity shown in the `rtrv-ctrl-feat` output, or is less than the quantity that will be configured in [Step 17](#) on page 25, go to [Step 17](#) on page 25. If the telephone number quantity on the ELAP is greater than the quantity shown in the `rtrv-ctrl-feat` output, the ELAP RTDB is not loaded onto the entire set of Service Module cards on the EAGLE 5 ISS. Some of the Service Module cards load the ELAP RTDB to provide a restricted level of GTT/LNP service. The remainder of the Service Module cards are put into a restricted state. UIM 1323 is generated at the EAGLE 5 ISS. To avoid this situation, make sure when performing [Step 17](#) on page 25 that the telephone number quantity configured on the EAGLE 5 ISS is greater than the ELAP telephone number quantity.

At the EAGLE 5 ISS:

17. Activate the LNP feature for the desired LNP telephone number quantity.

Perform the [Activating the LNP Feature on the EAGLE 5 ISS](#) on page 115 procedure. At the LSMS:

18. Contact the [Customer Care Center](#) on page 4 to enable the LNP telephone quantity on the LSMS.

19. Create a new EMS for the new MPSs by performing the [Creating an EMS Configuration Component](#) on page 85 procedure.

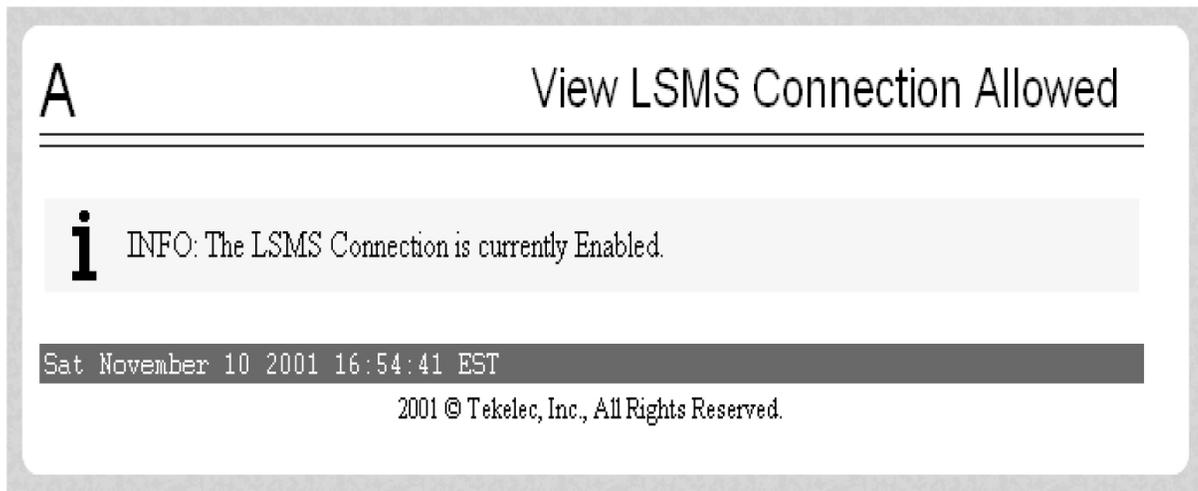
20. Configure new MPSs in the EMS Routing window.

Perform the [EMS Routing](#) on page 94 procedure. At the MPS (ELAP A or B):

21. Enable the LSMS Connection.

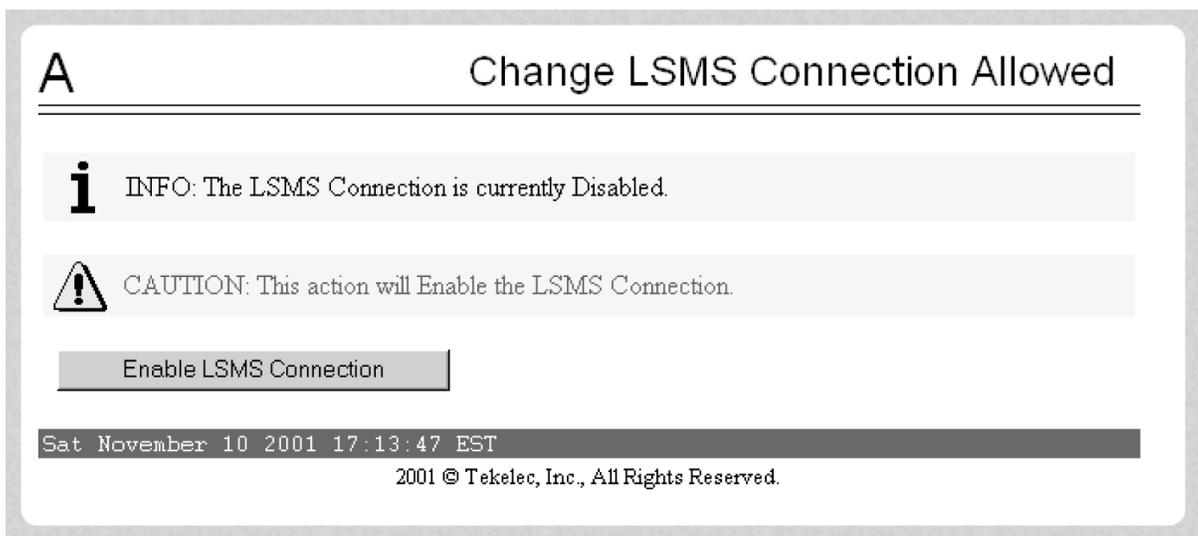
Select **Maintenance** ► **LSMS Connection** ► **View Allowed**. The **View LSMS Connection Allowed Dialog** is displayed in [Figure 6: View LSMS Connection Allowed - Connection Enabled Dialog](#) on page 25.

Figure 6: View LSMS Connection Allowed - Connection Enabled Dialog



If the connection is enabled, no action is necessary. Go to [Step 22](#) on page 27. If the connection is disabled, select **Maintenance ► LSMS Connection ► Change Allowed**. The **Change LSMS Connection Allowed Dialog** is displayed in [Figure 7: Change LSMS Connection Allowed - Connection Disabled Dialog](#) on page 26.

Figure 7: Change LSMS Connection Allowed - Connection Disabled Dialog



Click the **Enable LSMS Connection** button. The **Change LSMS Connection Allowed Dialog** is displayed in [Figure 8: Change LSMS Connection Allowed - Enable Success Dialog](#) on page 26.

Figure 8: Change LSMS Connection Allowed - Enable Success Dialog



Repeat [Step 21](#) on page 25 for the other ELAP.

At the LSMS:

22. Perform a bulk download or SERVDI bulk download (support ELAP reload via database image) to one of the ELAPs.

Perform the procedures in the [Bulk Load Procedure](#) on page 94 or [SERVDI Bulk Download](#) on page 101 section.

At the MPS (the ELAP specified in [Step 22](#) on page 27):

23. Copy the bulk downloaded database to the other ELAP , or restore the RTDB if using the SERVDI procedure.
Perform the procedures in the [Copying One RTDB from Another RTDB](#) on page 108 section, or [Restore RTDB on ELAP 8.0](#) on page 111 for SERVDI.
24. Perform a health check of the MPS.
Perform the [MPS Health Check Procedure](#) on page 83 section.

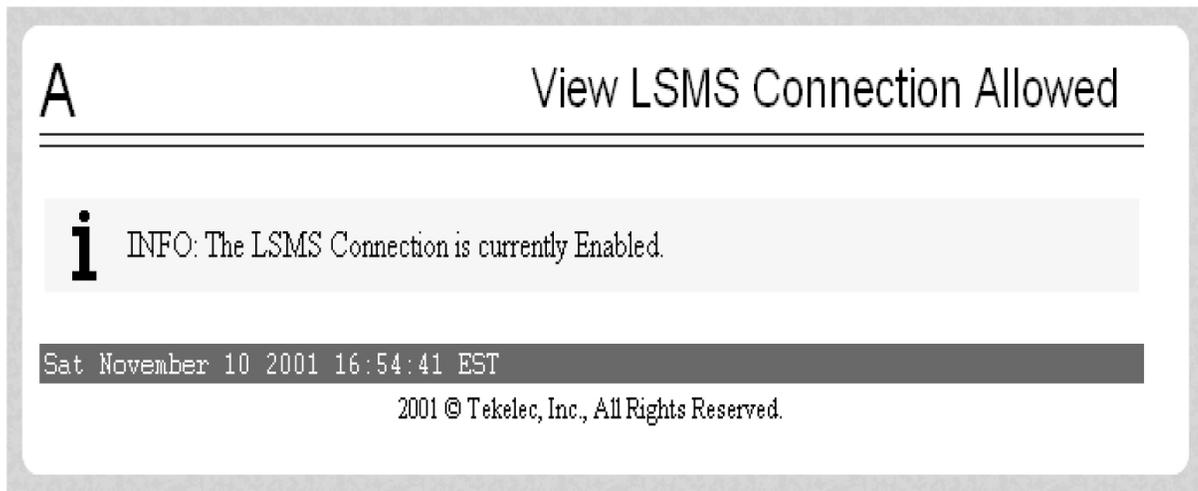
At the EAGLE 5 ISS:

25. Distribute the RTDB database to each Service Module card in the EAGLE 5 ISS.
Perform the procedures in the [Distributing the LNP Database after LSMS-Based Operation or RTDB Copy](#) on page 124 section.

At the MPS (ELAP A or B):

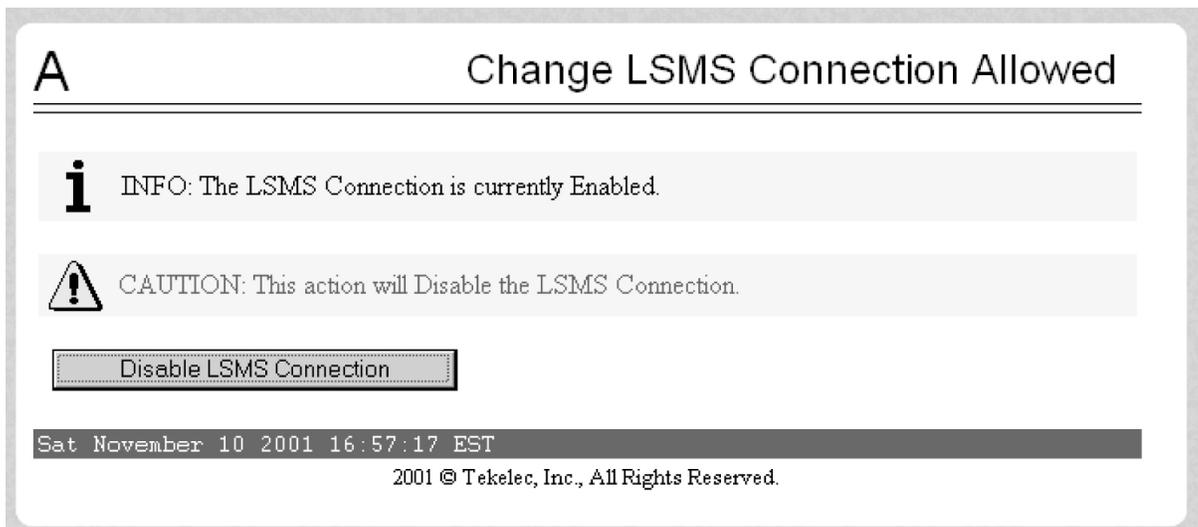
26. Disable the LSMS Connection.
Select **Maintenance** ► **LSMS Connection** ► **View Allowed**. The **View LSMS Connection Allowed Dialog** is displayed in [Figure 9: View LSMS Connection Allowed - Connection Enabled Dialog](#) on page 27.

Figure 9: View LSMS Connection Allowed - Connection Enabled Dialog



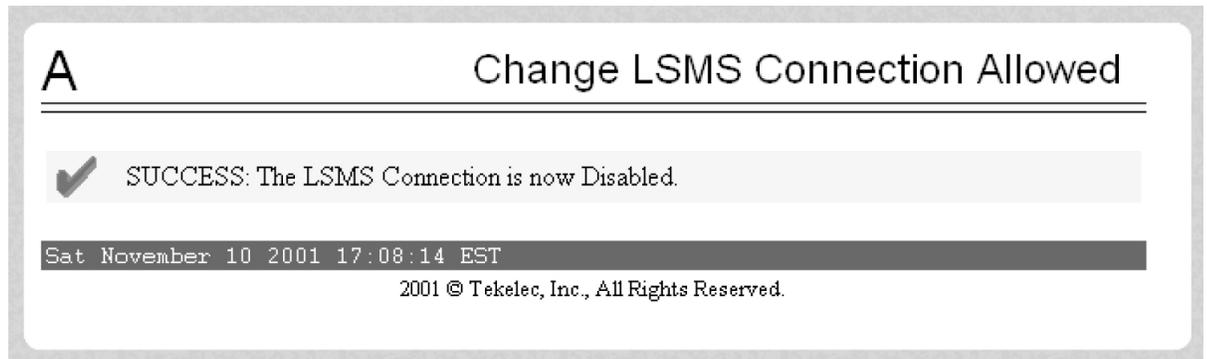
If the connection is disabled, no action is necessary. Go to [Step 27](#) on page 29. If the connection is enabled, select **Maintenance ► LSMS Connection ► Change Allowed**. The **Change LSMS Connection Allowed Dialog** is displayed in [Figure 10: Change LSMS Connection Allowed - Connection Enabled Dialog](#) on page 28.

Figure 10: Change LSMS Connection Allowed - Connection Enabled Dialog



Click the **Disable LSMS Connection** button. The **Change LSMS Connection Allowed Dialog** is displayed in [Figure 11: Change LSMS Connection Allowed - Disable Success Dialog](#) on page 28.

Figure 11: Change LSMS Connection Allowed - Disable Success Dialog



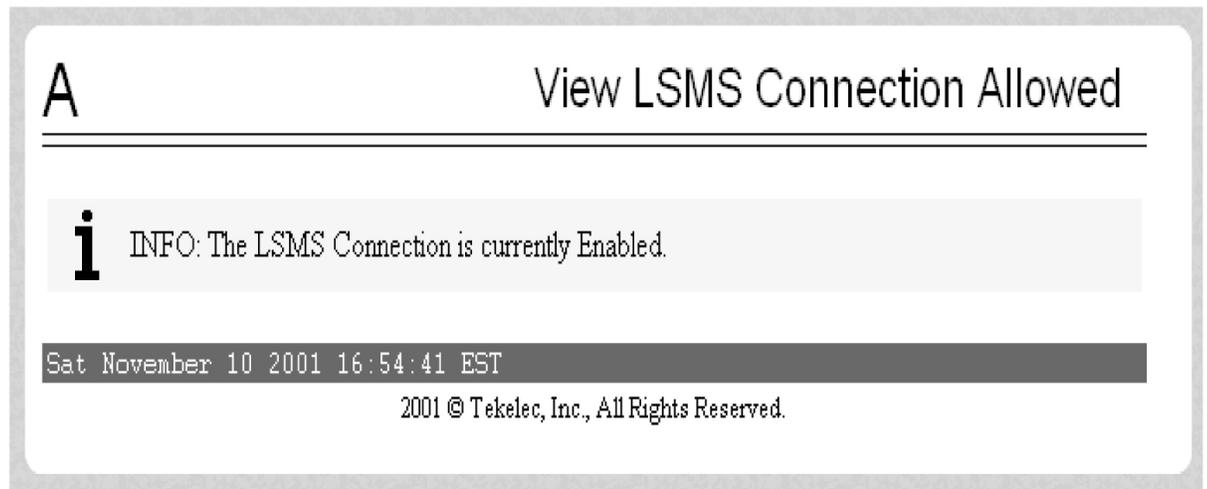
Repeat [Step 26](#) on page 27 for the other ELAP.

At the MPS (ELAP A or B):

27. Enable LSMS Connection.

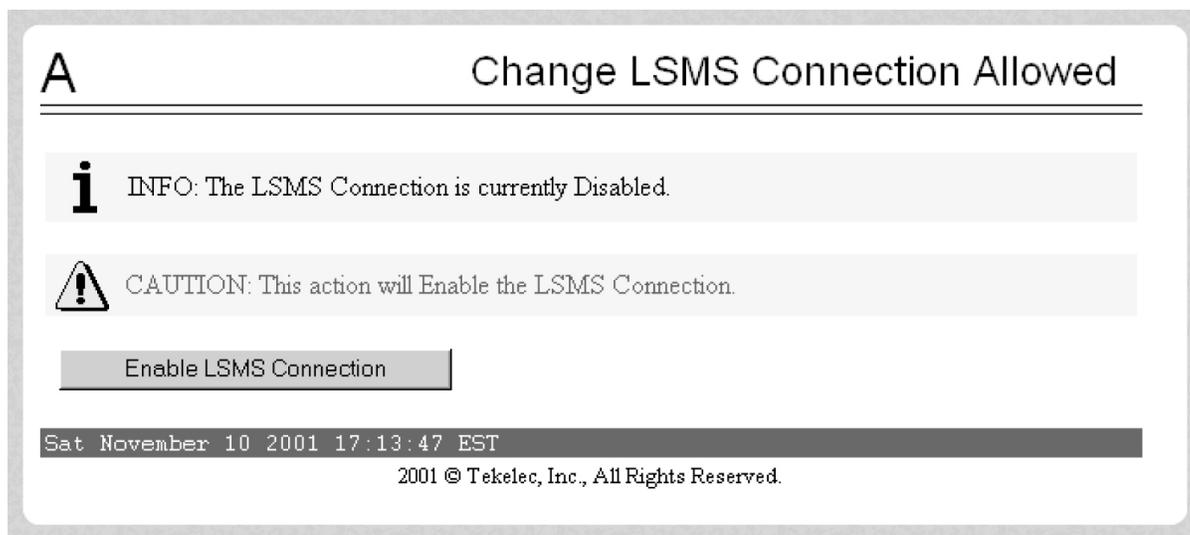
Select **Maintenance** ► **LSMS Connection** ► **View Allowed**. The **View LSMS Connection Allowed Dialog** is displayed in [Figure 12: View LSMS Connection Allowed - Connection Enabled Dialog](#) on page 29.

Figure 12: View LSMS Connection Allowed - Connection Enabled Dialog



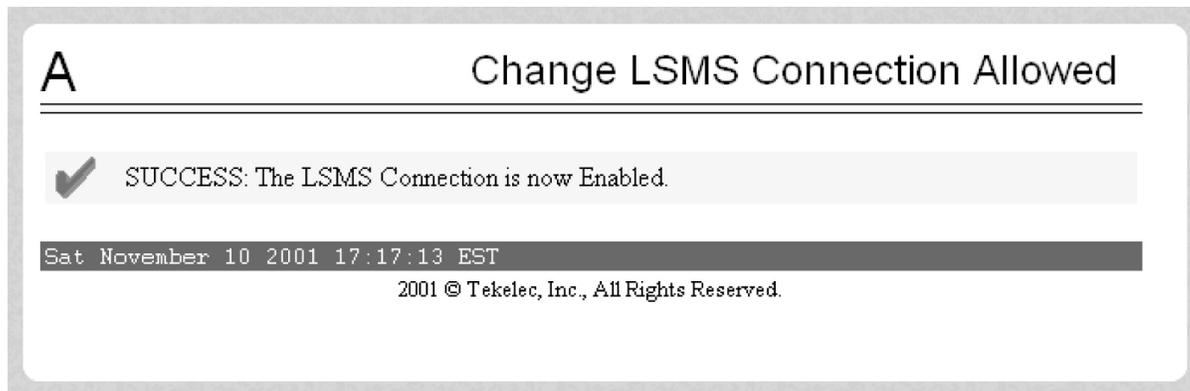
If the connection is enabled, no action is necessary. Go to [Step 28](#) on page 30. If the connection is disabled, select **Maintenance** ► **LSMS Connection** ► **Change Allowed**. The **Change LSMS Connection Allowed Dialog** is displayed in [Figure 13: Change LSMS Connection Allowed - Connection Disabled Dialog](#) on page 29.

Figure 13: Change LSMS Connection Allowed - Connection Disabled Dialog



Click the **Enable LSMS Connection** button. The **Change LSMS Connection Allowed Dialog** is displayed in [Figure 14: Change LSMS Connection Allowed - Enabled Success Dialog](#) on page 30.

Figure 14: Change LSMS Connection Allowed - Enabled Success Dialog



Repeat [Step 27](#) on page 29 for the other ELAP. **At the LSMS:**

28. Verify that both EMSs are associated with the LSMS.

The EMS Status area in the LSMS Console window should show that the EMSs connected to the LSMS are green.

The procedure is completed.

Adding a Service Module Card

This procedure is used to add a Service Module card to support the LNP feature using the `ent-card` command. The following Service Module cards can be used, depending on the amount of memory installed on the Service Module card and the feature requirements. See the LNP Hardware and Part Number Configuration Table ([Table 2: LNP Hardware and Part Number Configuration Table](#) on page 17) for card configuration per LNP telephone number quantity.

- DSM 4G – A Service Module card with 4 GB of memory installed
- E5-SM4G – An E5-SM4G Service Module card with 4GB of memory installed

Note: If you have purchased the 204 - 228 million LNP Records feature and are running ELAP version 7.0 or less, only DSM cards can be installed. If you have purchased the 240 - 384 million LNP Records feature and are running ELAP version 8.0, E5-SM4G cards are required.

Note: Nine E5-SM4G cards provide the capacity of 25 DSM cards.

Note: The E5-SM4G card supports 5000 transactions per second (TPS) when used with LNP-based features.

The Service Module card can be inserted only in the odd numbered card slots of the extension shelf. The Service Module card cannot be inserted in slot 09. Slot 09 of each shelf contains the HMUX card or HIPR card (EAGLE 5 ISS release 33.0 or later). The Service Module card can be inserted in the control shelf, but only in slots 01, 03, 05, 07, and 11. The Service Module card occupies two card slots, so the even numbered card slot adjacent to the odd numbered slot where the Service Module card has been inserted must be empty. The Service Module card is connected to the network through the odd-numbered card slot connector.

Table 4: Service Module Card Locations

Location of Service Module card	Empty Card Location	Location of Service Module card	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 `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 `dsm`.

:appl

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

:force

Allow the LIM card to be added to the database even if there are not enough Service Module cards to support the number of LIMs in the EAGLE 5 ISS.

The shelf to which the card is to be added must already be in the database. This can be verified with the `rtrv-shlf` command. If the shelf is not in the database, see the "Adding a Shelf" procedure in the *EAGLE 5 ISS Database Administration Manual – System Management*.

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

Before the Service Module card can be configured in the database for the LNP feature, the global title translation feature must be turned on with the `chg-feat` command. The `rtrv-feat` command can verify that the global title translation feature is on.

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 the [Customer Care Center](#) on page 4.

The EAGLE 5 ISS can contain a maximum of 25 DSM cards or 9 E5-SM4G cards.

Note: If you want to add an E5-SM4G card as the Service Module card, verify the temperature threshold settings for the E5-SM4G card by performing the “Changing the High-Capacity Card Temperature Alarm Thresholds” procedure in the *Database Administration Manual – SS7*.

See the LNP Hardware and Part Number Configuration Table ([Table 2: LNP Hardware and Part Number Configuration Table](#) on page 17) for card configuration per LNP telephone number quantity.

1. Verify that the GTT feature is on by entering the `rtrv-feat` command.

If the GTT feature is on, the GTT 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 *EAGLE 5 ISS Commands Manual*.

Note: If the GTT feature is on, shown by the entry `GTT = on` in the `rtrv-feat` command output in [Step 1](#) on page 32, skip this step and go to [Step 3](#) on page 32.

2. Turn the global title translation feature on by entering the `chg-feat:gtt=on` command.
`chg-feat`

```
rlghncxa03w 07-08-01 09:57:41 GMT EAGLE5 37.0.0
CHG-FEAT: MASP A - COMPLTD
```

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 it on. If you are not sure whether you have purchased the GTT feature, contact the [Customer Care Center](#) on page 4.

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

```
rlghncxa03w 07-08-01 09:58:31 GMT EAGLE5 37.0.0
CARD  TYPE      APPL      LSET NAME      LINK SLC LSET NAME      LINK SLC
1102  TSM          GLS
1113  GPST         EOAM
1114  TDM-A
1115  GPST         EOAM
1116  TDM-B
1117  MDAL
1201  LIMDS0      SS7ANSI   sp2            A      0      sp1            B      0
1203  LIMDS0      SS7ANSI   sp3            A      0
1204  TSM         DSM
1206  LIMDS0      SS7ANSI   nsp3           A      1      nsp4           B      1
1216  DCM         STPLAN
```

1217	DCM	EBDADCM						
1308	LIMDS0	SS7ANSI	sp6	A	1	sp7	B	0
1314	LIMDS0	SS7ANSI	sp7	A	1	sp5	B	1
1317	DCM	STPLAN						

Note: Cards should be distributed throughout the EAGLE 5 ISS for proper power distribution. Refer to the *Installation Manual - EAGLE 5 ISS* for the shelf power distribution.

- To verify HIPR card installation, go to the next step.
 - If you want to install a Service Module card, go to [Step 5](#) on page 33.
4. Verify that HIPR cards are installed in card locations 9 and 10 in the shelf containing the E5-SM4G card being added in this procedure. Enter this command:

```
rept-stat-gpl:gpl=hipr
```

```
rlghncxa03w 07-02-01 11:40:26 GMT EAGLE5 37.0.0
GPL      CARD      RUNNING      APPROVED      TRIAL
HIPR     1109     126-002-000 126-002-000 126-003-000
HIPR     1110     126-002-000 126-002-000 126-003-000
HIPR     1209     126-002-000 126-002-000 126-003-000
HIPR     1210     126-002-000 126-002-000 126-003-000
HIPR     1309     126-002-000 126-002-000 126-003-000
HIPR     1310     126-002-000 126-002-000 126-003-000
HIPR     2109     126-002-000 126-002-000 126-003-000
HIPR     2110     126-002-000 126-002-000 126-003-000
Command Completed
```

- If HIPR cards are installed in the shelf containing the E5-SM4G card, go to the next step.
 - If HIPR cards are not installed at (either or both) card locations 9 and 10 on the shelf containing the E5-SM4G card, refer the *Installation Manual - EAGLE 5 ISS* and install the HIPR cards. Once the HIPR cards have been installed, go to the next step.
5. Verify that the Service Module card has been physically installed into the proper location.



CAUTION

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

6. Add the Service Module card to the database using the `ent-card` command.

```
ent-card:loc=1301:type=dsm:appl=vsccp
```

```
rlghncxa03w 07-08-01 09:57:51 GMT EAGLE5 37.0.0
ENT-CARD: MASP A - COMPLTD
```

7. Verify the changes using the `rtrv-card` command (specify card location).

```
rtrv-card:loc=1301
```

```
rlghncxa03w 07-08-01 09:58:31 GMT EAGLE5 37.0.0
CARD  TYPE      APPL      LSET NAME      LINK SLC LSET NAME      LINK SLC
1301  DSM        VDSM
```

8. Repeat this procedure to add other Service Module cards to the EAGLE 5 ISS.
9. Backup the new changes using the `chg-db:action=backup:dest=fixed` command.

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

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

You have now completed this procedure.

Removing DSM Cards

This procedure is used to remove DSM cards that do not meet the hardware requirements for the desired LNP telephone number quantity from the database, using the `dlt-card` command. The 384 Million Numbers feature is not supported by DSM cards. Any DSM cards must be removed from the system to use this feature. The hardware requirements for Service Module cards and LNP telephone number quantities are shown in [Table 2: LNP Hardware and Part Number Configuration Table](#) on page 17.

Note: When any SCCP card is removed, the hourly measurements data that has not been collected will be lost. It is important to remove these cards right after hourly collection to minimize measurements data loss.

These card locations were recorded in [Step 1.c](#) on page 20 of the [Activating the LNP Feature Overview](#) on page 20, or shown in the `rept-stat-card` output in [Step 4](#) on page 21 (Service Module cards that do not contain enough memory for the desired LNP telephone number quantity) of the [Activating the LNP Feature Overview](#) on page 20 procedure. These cards cannot be in the EAGLE 5 ISS when the LNP feature is activated for the desired LNP telephone number quantity. The card cannot be removed if it does not exist in the database.



CAUTION

CAUTION: If the service module card is the last service module card in service, removing this card from the database will cause a global title translation and local number portability traffic to be lost.

The examples in this procedure are used to remove the service module card in card location 1204.

1. Display the status of the DSM cards by entering the `rept-stat-sccp` command.

```
tk1c1190601 08-10-01 16:31:14 EST EAGLE 40.0.0
CARD  VERSION      PST      SST      AST      MSU      CPU
      USAGE      USAGE
-----
1205 P 126-027-000 IS-NR    Active   -----    0%    5%
1317 126-027-000 IS-NR    Active   -----    0%    5%
2213 126-027-000 IS-NR    Active   -----    0%    5%
2215 126-027-000 IS-NR    Active   -----    0%    6%
2217 126-027-000 IS-NR    Active   -----    0%    5%
2317 126-027-000 IS-NR    Active   -----    0%    5%
1105 126-027-000 IS-NR    Active   -----    0%    6%
```

```
SCCP Service Average MSU Capacity = 0%   Average CPU Capacity = 5%
Command Completed..
```

Note: The `rept-stat-sccp` 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-sccp` command, see the `rept-stat-sccp` command description in the *EAGLE 5 ISS Commands Manual*.

- Remove the card from service using the `rmv-card` command and specifying the card location, recorded in [Step 1.c](#) on page 20 or shown in [Step 4](#) on page 21 of the [Activating the LNP Feature Overview](#) on page 20 procedure.

If the Service Module card to be inhibited is the only card in service, the `force=yes` parameter must also be specified. The cards that are in service are shown by the entry IS-NR in the **PST** field in the output in [Step 1](#) on page 34. For this example, enter this command.

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

```
rlghncxa03w 07-08-01 09:12:36 GMT   EAGLE5 37.0.0
Card has been inhibited.
```

- Remove the card from the database 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=1204
```

```
rlghncxa03w 07-08-01 09:12:36 GMT   EAGLE5 37.0.0
DLT-CARD: MASP A - COMPLTD
```

- Verify the changes using the `rtrv-card` command specifying the card that was removed in [Step 3](#) on page 35. For this example, enter this command.

```
rtrv-card:loc=1204
```

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

- Remove the card specified in [Step 3](#) on page 35 from the shelf.
- Repeat this procedure for all other or DSM cards in the EAGLE 5 ISS that do not meet the hardware requirements for the desired LNP telephone number quantity.
- 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.
```

You have now completed this procedure.

Configuring the Service Module Card Ethernet Link to the MPS

This procedure is used to configure the Ethernet link parameters for the Service Module cards using the `chg-ip-lnk` command. The `chg-ip-card` command is used to connect to the Virtual IP networks, which are new with ELAP 8.0.

Note: The parameters described here are for ELAP version 8.0. If you are running on ELAP 7.0, please reference the *LNP Feature Activation Guide version 38.0* on the *Tekelec Customer Support Site* at: <https://support.tekelec.com/index.asp>.

The `chg-ip-link` command uses the following parameters.

`:loc` – Card location. The location of the Service Module card.

`:port` – The Ethernet interface on the Service Module card, A or B.

`:ipaddr` – IP address assigned to the Ethernet interface on the Service Module card. This is an IP address expressed in standard “dot notation.” IP addresses consist of the system’s network number and the machine’s unique host number.

`:submask` – The subnet mask of the IP interface. A subnet mask is an IP address with a restricted range of values. The bits in the mask must be a string of one’s followed by a string of zeros. There must be at least two one’s in the mask, and the mask cannot be all one’s. See [Table 5: Valid Subnet Mask Parameter Values](#) on page 37 to assign the correct parameter values.

`:auto` – Tells hardware whether to automatically detect the duplex and speed.

`:mactype` – This is the Media Access Control Type of the interface.

When a Service Module card is entered into the database, these values are automatically configured in the IP Link table for both Ethernet interfaces on the Service Module. If the values are not configured as listed below, you may need to change them.

- MACTYPE = DIX
- AUTO = YES
- MCAST = NO

The `IPADDR` and `SUBMASK` columns in the `rtv-ip-lnk` output are shown as dashes. Each Ethernet link assigned to the Service Module card requires the IP address and submask of the MPS. The `MCAST` value for both Ethernet links must be `no` (`mcast=no`). No other values need to be changed.

A zero `ipaddr` parameter value (0 . 0 . 0 . 0) indicates the Service Module card Ethernet interface to the MPS is disabled.

The Service Module card must be placed out of service.

If either the `ipaddr` or `submask` parameters are specified, then both parameters must be specified. If the `ipaddr` parameter value is zero (0 . 0 . 0 . 0), the `submask` parameter is not required.

The A or B interface can be used with the Service Module card.

The value of the IP address specified for the `ipaddr` parameter is defined as follows:

- The first two octets of the IP address are 192.168. These are the first two octets for private class C networks as defined in RFC 1597.

- The third octet is configured, usually to the default value .120 for the main network (port A of the Service Module card) and the default value .121 for the backup network (port B of the Service Module card). These are not visible to any external networks, and should not need to be changed.
- The fourth octet of the address is selected as follows:
 - If the ELAP is configured as ELAP A, the fourth octet has a value of 100.
 - If the ELAP is configured as ELAP B, the fourth octet has a value of 200.

The `submask` parameter value is based upon the `ipaddr` setting. See [Table 5: Valid Subnet Mask Parameter Values](#) on page 37 for the valid input values for the `submask` and `ipaddr` parameter combinations.

Table 5: Valid Subnet Mask Parameter Values

Network Class	IP Network Address Range	Valid Subnet Mask Values
A	1.0.0.0 to 127.0.0.0	255.0.0.0 (the default value for a class A IP address) 255.192.0.0 255.224.0.0 255.240.0.0 255.248.0.0 255.252.0.0 255.254.0.0 255.255.128.1
A+B	128.1.0.0 to 191.255.0.0	255.255.0.0 (the default value for a class B IP address) 255.255.192.0 255.255.224.0 255.255.240.0 255.255.248.0 255.255.252.0 255.255.254.0 255.255.255.128
A+B+C	192.0.0.0 to 223.255.255.0	255.255.255.0 (the default value for a class C IP address) 255.255.255.192 255.255.255.224

	255.255.255.240
	255.255.255.248
	255.255.255.252

The `chg-ip-card` command is used to provision IP networking parameters for the E5-SM4G cards. The `chg-ip-card` command supports two new parameters, `:bpipaddr` and `:bpsubmask`, allowed only if the E5SM4G card is in the inhibited state. The `:bpipaddr` and `:bpsubmask` parameters are used to implement bonded ports on the E5-SM4G cards, which allow the A and B networks to be used as a single redundant network.

`:bpipaddr` – Bonded Port IP address. This parameter specifies an IP address for the Service Module card.

`:bpsubmask` – Bonded Port IP submask. The subnet values are the same as for the `chg-ip-link` values, shown in [Table 5: Valid Subnet Mask Parameter Values](#) on page 37.

The `:bpsubmask` parameter must be specified if `:bpipaddr` is specified for `chg-ip-card`, and `:bpipaddr` must be specified or already have a valid value if a valid `:bpsubmask` is specified.

The `:bpipaddr` IP value must be unique among all IP cards and IP links.

When specifying `:bpipaddr` with a NULL network address, the `chg-ip-card` command will reset both `:bpipaddr` and `:bpsubmask`.

1. Display the current Ethernet link parameters associated with the Service Module card in the database by entering the `rtrv-ip-lnk` command.

The following is an example of the possible output.

```
rlghncxa03w 06-08-01 21:14:37 GMT EAGLE5 35.1.0
LOC  PORT  IPADDR          SUBMASK          MACTYPE  AUTO  MCAST
1203 A    192.001.001.001 255.255.255.0    802.3    YES  NO
1203 B    -----          -----          DIX      YES  NO
1205 A    192.001.001.014 255.255.255.0    DIX      YES  NO
1205 B    -----          -----          DIX      YES  NO
1301 A    -----          -----          DIX      YES  NO
1301 B    -----          -----          DIX      YES  NO
1303 A    -----          -----          DIX      YES  NO
1303 B    -----          -----          DIX      YES  NO
1305 A    -----          -----          DIX      YES  NO
1305 B    -----          -----          DIX      YES  NO
1307 A    -----          -----          DIX      YES  NO
1307 B    -----          -----          DIX      YES  NO
1311 A    -----          -----          DIX      YES  NO
1311 B    -----          -----          DIX      YES  NO
IP-LNK  table is (12 of 512) 2% full.
```

2. Verify the status of the Service Module card being configured in this procedure using the `rept-stat-card` command.

For example, enter this command: `rept-stat-card:loc=1301`. This is an example of the possible output.

```
rlghncxa03w 06-08-01 17:00:36 GMT EAGLE5 35.1.0
CARD  VERSION  TYPE  APPL  PST  SST  AST
1301  123-002-000  DSM  VSCCP  IS-NR  Active  -----
ALARM STATUS      = No Alarms.
BPDCM GPL         = 002-102-000
```

```

IMT BUS A      = Conn
IMT BUS B      = Conn
SCCP % OCCUP   = 0%
Command Completed.

```

If the state of the Service Module card being configured in this procedure is in service-normal (IS-NR), go to [Step 3](#) on page 39 to inhibit the card. If the state of the Service Module card is out-of-service-maintenance disabled (OOS-MT-DSBLD), go to [Step 5](#) on page 39 to change the Ethernet link parameters.

- Place the Service Module card out of service using the `inh-card` command.

For example, enter this command: `inh-card:loc=1301`. This message should appear.

```

rlghncxa03w 06-08-01 21:18:37 GMT EAGLE5 35.1.0
Card has been inhibited.

```

- Display the status of the Service Module card to verify that it is out-of-service maintenance-disabled (OOS-MT-DSBLD).

Enter this command: `rept-stat-card:loc=1301`. This is an example of the possible output.

```

rlghncxa03w 06-08-01 17:00:36 GMT EAGLE5 35.1.0
CARD  VERSION      TYPE      APPL      PST      SST      AST
1301  123-002-000    DSM      VSCCP     OOS-MT-DSBLD  Manual  -----
ALARM STATUS      = No Alarms.
BPDCM GPL         = 002-102-000
IMT BUS A         = Conn
IMT BUS B         = Conn
SCCP % OCCUP      = 0%
Command Completed.

```

- Configure the Ethernet link parameters associated with the Service Module card in the database using the `chg-ip-lnk` command.

For this example, enter these commands:

```

chg-ip-lnk:loc=1301:port=a:ipaddr=192.168.120.1:submask=255.255.255.0:auto=yes:mcast=no
chg-ip-lnk:loc=1301:port=b:ipaddr=192.168.121.1:submask=255.255.255.0:auto=yes:mcast=no.

```

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

```

rlghncxa03w 06-08-01 21:18:37 GMT EAGLE5 35.1.0
CHG-IP-LNK: MASP A - COMPLTD

```

- Verify the new Ethernet link parameters associated with the Service Module card that was changed in [Step 5](#) on page 39 by entering the `rtrv-ip-lnk` command with the card location specified in [Step 5](#) on page 39.

For this example, enter this command: `rtrv-ip-lnk:loc=1301`. The following is an example of the possible output.

```

rlghncxa03w 06-08-01 21:19:37 GMT EAGLE5 35.1.0
LOC  PORT  IPADDR      SUBMASK      MACTYPE  AUTO  MCAST
1301  A     192.168.120.001  255.255.255.0  DIX     YES   NO
1301  B     192.168.121.001  255.255.255.0  DIX     YES   NO

```

Note: If [Step 3](#) on page 39 was not performed, skip [Step 9](#) on page 40 and [Step 10](#) on page 40, and go to [Step 11](#) on page 41.

- Configure the Ethernet card parameters associated with the E5-SM4G card in the database using the `chg-ip-card` command.

For example, enter this command:

```
chg-ip-card:bpipaddr=128.1.120.1:bpsubmask=255.255.192.0
```

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

```
rlghncxa03w 08-02-22 15:35:05 EST EAGLE 38.0.0 CHG-IP-CARD: MASP A - COMPLTD
```

- Verify the new parameters associated with the E5-SM4G card that was changed in [Step 7](#) on page 40 by entering the `rtrv-ip-card` command with the card location specified in [Step 7](#) on page 40.

The following example displays the output that occurs when an E5-SM4G card is used.

```
rlghncxa03w 08-05-04 22:12:42 EST EAGLE5 39.0.0
LOC 1105
  SRCHORDR LOCAL
  DNSA -----
  DNSB -----
  DEFROUTER -----
  DOMAIN -----
  SCTPCSUM  crc32c
  BPIPADDR  192.168.124.2
  BPSUBMASK 255.255.255.0
LOC 1107
  SRCHORDR LOCAL
  DNSA -----
  DNSB -----
  DEFROUTER -----
  DOMAIN -----
  SCTPCSUM  crc32c
  BPIPADDR  192.168.124.4
  BPSUBMASK 255.255.255.0
LOC 1111
  SRCHORDR LOCAL
  DNSA -----
  DNSB -----
  DEFROUTER -----
  DOMAIN -----
  SCTPCSUM  crc32c
  BPIPADDR  192.168.124.3
  BPSUBMASK 255.255.255.0
```

- Put the Service Module card that was inhibited in [Step 3](#) on page 39 back into service by using the `alw-card` command.

For example, enter this command: `alw-card:loc=1301`. This message should appear.

```
rlghncxa03w 06-08-01 21:20:37 GMT EAGLE5 35.1.0
Card has been allowed.
```

- Verify the in-service normal (IS-NR) status of the Service Module card using the `rept-stat-card` command.

For example, enter this command: `rept-stat-card:loc=1301`. This is an example of the possible output.

```
rlghncxa03w 06-08-01 17:00:36 GMT EAGLE5 35.1.0
CARD VERSION      TYPE      APPL      PST      SST      AST
1301 123-002-000  DSM      VSCCP     IS-NR     Active   -----
  ALARM STATUS    = No Alarms.
  BPDCM GPL       = 002-102-000
```

```

IMT BUS A      = Conn
IMT BUS B      = Conn
SCCP % OCCUP   = 0%
Command Completed.

```

11. Repeat this procedure for all other Service Module cards in the EAGLE 5 ISS.
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.

```

You have now completed this procedure.

Overview of the ELAP User Interfaces

The EAGLE LNP Application Processor (ELAP) User Interface provides two user interfaces:

- The Graphical User Interface provides GUI menus that maintain, debug, and operate the platform; it and its associated error messages are described in *Chapter 3, "ELAP Graphical User Interface"* of the *ELAP Administration Manual - 8.0*.
- The text-based User Interface has a Configuration menu that performs the ELAP configuration and initialization, it is described in *Overview of ELAP Configuration* on page 57.

The GUI provides the user with menus and screens to perform routine operations. The text-based user interface provides the ELAP Configuration menu to perform the initial configuration.

To communicate with the ELAP graphical user interface, you use a PC with a network connection and a network browser. For information about using the ELAP GUI, see *Chapter 3, "ELAP Graphical User Interface"* of the *ELAP Administration Manual*.

To configure ELAP, you use the ELAP text-based user interface. For information about configuring the ELAP and how to set up its PC workstation, continue with this chapter.

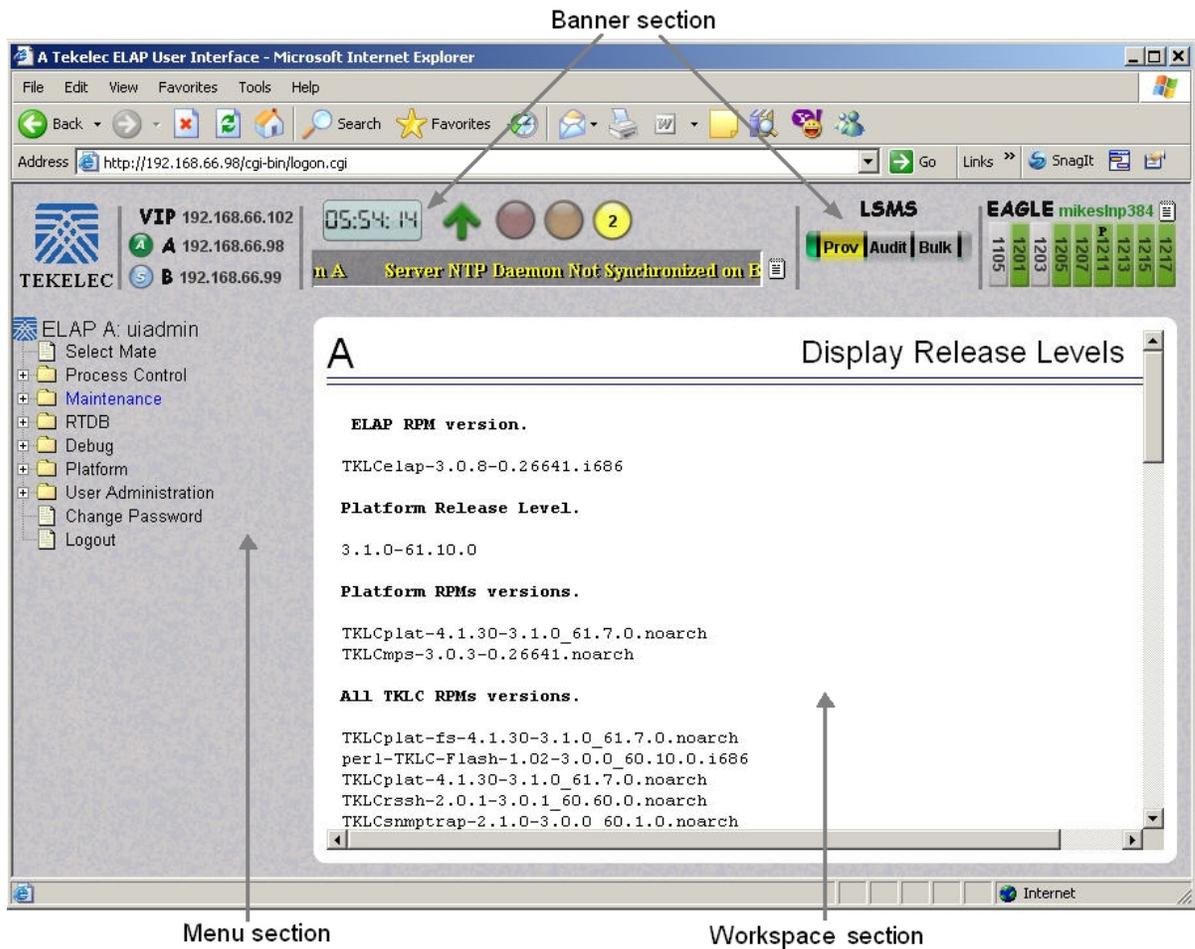
ELAP GUI Main Screen

The ELAP graphical user interface main screen contains three sections:

- *ELAP GUI Banner Section* on page 42
- *ELAP GUI Menu Section* on page 47
- *ELAP GUI Workspace Section* on page 48

The banner is the topmost section. It extends the entire width of the browser window. The remainder of the screen is divided vertically into two sections. The smaller left section is the menu section. The larger right section is the workspace section.

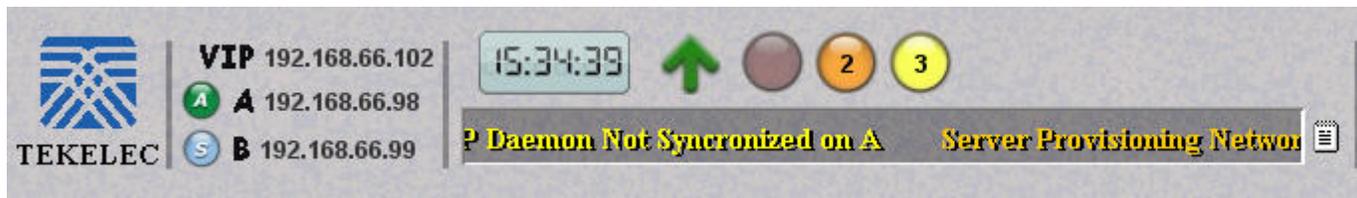
Figure 15: ELAP GUI Main Screen



ELAP GUI Banner Section

The banner section of the ELAP graphical user interface main screen has a Java applet that remains in constant communication with the ELAP program. This allows the banner section to display real-time ELAP information.

Figure 16: ELAP Banner Applet



The banner applet contains five information areas:

- [Busy Icon](#) on page 43
- [ELAP Host Addresses](#) on page 43
- [ELAP Alarm Information Area](#) on page 43
- [LSMS Connection Status](#) on page 45

- [Service Module Card Status](#) on page 45

Busy Icon

The Tekelec company logo is located at the top left of the banner applet and performs as the busy icon. It serves as an indicator of activity in progress. When a menu action is being executed, the Tekelec icon rotates; when the action ends, the icon is at rest.

Figure 17: Busy Icon

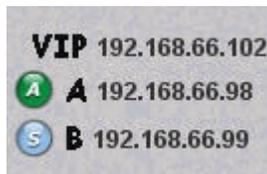


ELAP Host Addresses

The ELAP host addresses area of the ELAP banner applet provides address connection information for:

- HA ELAP Pair VIP address
- ELAP A server provisioning IP address connection
- ELAP B server provisioning IP address connection

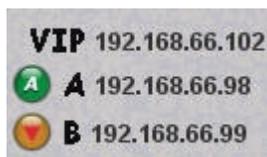
Figure 18: ELAP Host Addresses Area



The LEDs provide the following information:

- Green - ELAP is connected
- Yellow with red triangle - ELAP is inhibited
- A - Active ELAP
- S - Standby ELAP

Figure 19: ELAP IP Addresses with Inhibited Mate (Standby) ELAP

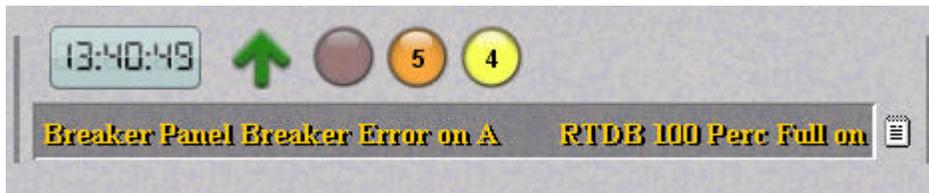


Clicking on an ELAP IP address toggles between the ELAP IP address and the ELAP host name(s).

ELAP Alarm Information Area

The ELAP alarm information area of the ELAP banner applet provides alarm-related information.

Figure 20: ELAP Alarm Information Area



The ELAP alarm information area provides these features:

- Clock - Displays the time on the selected ELAP. Clicking on the clock changes the display mode.
- ELAP software status - Displays the status of the ELAP software.

When the ELAP software is running, a green up arrow is displayed (see [Figure 20: ELAP Alarm Information Area](#) on page 43). When ELAP software is down, a red (down) arrow is displayed. When there is a GUI time-out, TERMINATED is displayed in red.

- Alarm LEDs - The alarm LEDs displays the existence and severity of alarms on the selected ELAP. The LEDs are:

Critical alarms (left LED) - turns red when a Critical alarm occurs

Major alarms (middle LED) - turns orange when a Major alarm occurs

Minor alarms (right LED) - turns yellow when a Minor alarm occurs

When a number is displayed on the LEDs, this indicates the number of alarms (of that type) that are currently active.

- Alarm message history - Clicking the message history icon opens a Java Applet Window, displaying a history of the alarms and information messages for the selected server.

Entries are color-coded to match alarm severity:

Red - critical messages

Orange - major messages

Yellow - minor messages

White - informational messages

Figure 21: Example of Message History

The screenshot shows a Java Applet Window titled 'Message History - 192.168.61.113'. It contains a table with the following data:

Time Added	Time Cleared	Side	Message	Hide
7/18/08 1:38:31 PM		A	Server NTP Daemon Not Synchronized	<input type="checkbox"/>
7/18/08 1:38:31 PM		B	Server NTP Daemon Not Synchronized	<input type="checkbox"/>
7/18/08 1:38:31 PM		B	Copy RTDB backup from 192.168.61.2...	<input type="checkbox"/>
7/18/08 1:38:40 PM		A	Bulk Download In Progress	<input type="checkbox"/>

Below the table are two buttons: 'Clear' and 'Refresh'. The window title bar indicates it is a 'Java Applet Window'.

To remove cleared messages from the message history, click the **Clear** button.

Click the **Refresh** button to refresh the messages displayed.

Click the **Hide** checkbox associated with a message to prevent the message from displaying in the banner message box.

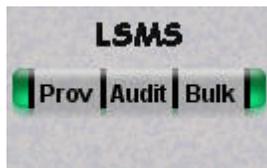
- Banner message box - The banner message box is a horizontal scroll box that displays text messages for the user. Banner messages indicate the status of the ELAP machine.

LSMS Connection Status

The LSMS connection status area is divided into five sections that provide the following information (from left to right):

- LSMS provisioning indicator (enabled/disabled)
- LSMS provisioning connection status indicator (connected/unconnected/listening/unknown)
- LSMS audit connection status indicator (connected/unconnected/listening/unknown)
- LSMS bulk download connection status indicator (connected/unconnected/listening/unknown)
- LSMS bulk download indicator (enabled/disabled)

Figure 22: LSMS Connection Status Area



Moving the cursor over any of the five sections displays a pop-up that provides LSMS information.

Figure 23: LSMS Connection Status - Cursor Pop-up Display



The color of the LSMS connection status indicators signifies the state:

- Gray - disabled
- Orange - unknown (only displays during state transitions)
- Yellow - listening
- Green - connected or enabled

Note: LSMS audit and LSMS bulk download cannot be enabled at the same time. Enabling one toggles the other to a disabled state.

Service Module Card Status

The service module card status area of the ELAP Banner Applet provides information on the (up to) nine Service Module card slots on the EAGLE 5 ISS. The color of the card slots indicates the following:

- Grey - unknown card state

Booting

Inhibited card
 Previously provisioned slot with undetectable card

- Light green (with ascending loading bar) - card loading (loading status is shown)

Figure 24: Service Module Cards Status - Loading



- Green stripped - inconsistent card state
- Dark green - loaded consistent state
- P - indicates Primary Service Module card

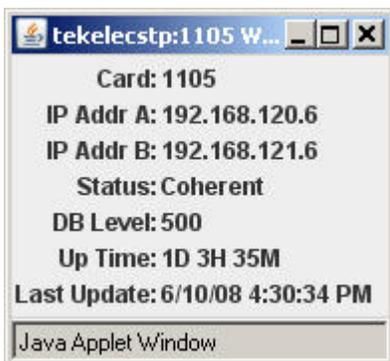
Moving the cursor over an occupied slot icon displays a pop-up window that provides card information.

Figure 25: Service Module Card Status Pop-up Window



Clicking on a card slot icon opens a Java applet window that provides information on that Service Module card.

Figure 26: Service Module Card Status - Java Applet Window



The service module card information icon links to a Java applet.

Figure 27: Service Module Card Status - Information Icon



Clicking on it opens a window displaying all nine Service Module Card slots, on the EAGLE 5 ISS, and information about installed cards.

Figure 28: Service Module Card Status - Pop-up Window

CardLoc	IP Addr A	IP Addr B	Status	Level	Uptime	LastUpdateTime	Primary
1103			Unavailable	0			
1105			Unavailable	0			
1111			Unavailable	0			
1201			Unavailable	0			
1211			Unavailable	0			
1213			Unavailable	0			
1301	192.168.120.11	192.168.121.11	Coherent	0	2D 1H 42M	6/8/08 4:03:12 PM	<input checked="" type="checkbox"/>
1303			Unavailable	0			
1311			Unavailable	0			

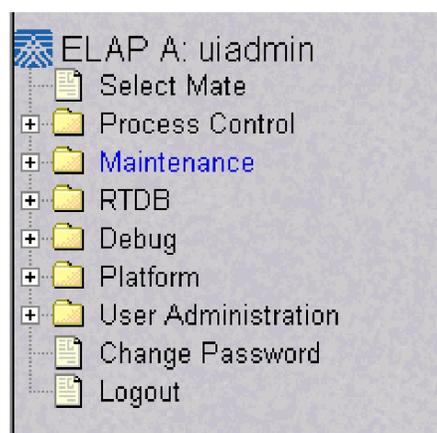
Java Applet Window

ELAP GUI Menu Section

The ELAP graphical user interface menu section is located in the left side of ELAP browser. The top of the frame is the software system title (ELAP) and a letter that designates the selected ELAP, either A or B. One or more submenus appear below the title. The content of the menu corresponds to the access privileges of the user.

By clicking on the name or folder icon of a directory, the user may expand and contract the listing of submenu content (typical “tree-menu” view). Directory contents may be either menu actions or more submenus. When you click the Menu actions, the output is displayed in the workspace section (the right frame of ELAP browser interface).

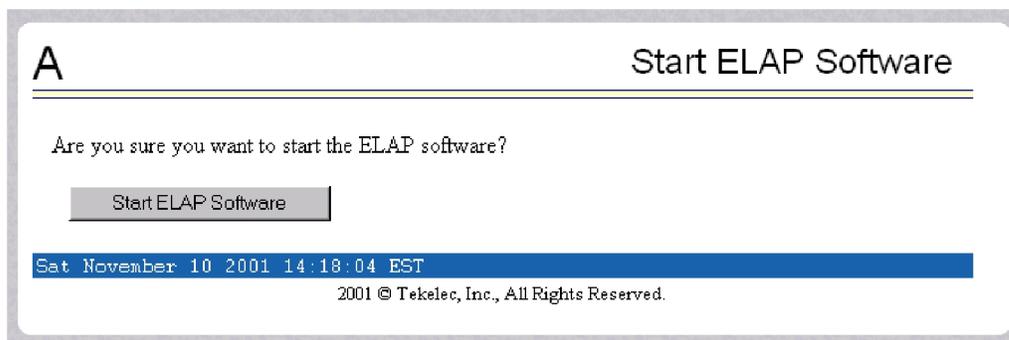
Figure 29: Example of an ELAP Menu



ELAP GUI Workspace Section

The ELAP graphical user interface workspace section displays the results of menu actions taken by the user. The content of the workspace section can be various things such as prompts or status reports. Every menu action that writes to the workspace uses a standard format. See the example of the workspace format in Example of Workspace Format.

Figure 30: Example of Workspace Section Format



The format for the workspace is a page header and footer, and page margins on either side. In the header two data fields are displayed. The left-justified letter A or B designates the ELAP server that is currently select for menu action. The other data field has the right-justified menu action title. The footer consists of a bar and text with the time when the page was generated. At the bottom of the footer, a Tekelec copyright notice appears.

Workspace Section Syntax Checking

The web browser user interface uses layers of syntax checking to validate user input for text-entry fields.

- Mouse-over syntax check: For many of the **entry fields**, you can move the mouse over the field, causing a list of syntax hints for that field to appear.
- Pop-up syntax checking: When you click the **Submit** button, syntax is verified on the client side by code running on the user's browser. Incorrect syntax appears in a pop-up window, which contains a description of the syntax error. When the window is dismissed, you can correct the error and submit the input again.
- Back-end syntax checking: When you have clicked **Submit** button and the client side syntax checking has found no errors, back-end syntax checking is performed. If back-end syntax checking detects an error, it is displayed in the work space with an associated error code.

Setting Up an ELAP Workstation

The customer workstation serving as a client PC must meet certain criteria, which are described next.

Screen Resolution

For optimum usability, the workstation must have a minimum resolution of 800x600 pixels and a minimum color depth of 16 thousand colors per pixel.

Compatible Browsers

The ELAP user interface was designed and written to perform with Microsoft Internet Explorer 5.0 or later. The ELAP user interface is also compatible with Mozilla Firefox 1.0.2 or later. Do not use other browsers with the ELAP user interface. When using Firefox, you will encounter the following message when logging into the ELAP GUI:

Java

The EPAP GUI uses a Java banner applet to display real-time updates and status for both A and B sides of the MPS.

The Java installation must be performed in the sequence shown:

1. [Install Java Plug-In](#) on page 49
2. [Install Java Policy File](#) on page 51
3. [Add Security Parameters to an Existing Java Policy File](#) on page 52 or [Create a New Java Policy File](#) on page 53

Install Java Plug-In

Because the Java applet is required for the EPAP GUI to operate, perform the following procedure to install the Java plug-in after you complete the EPAP configuration.

Note: The selected browser must be the only browser open on your PC when you modify or create the Java policy file, or else the change will not take effect.

1. Using the selected browser (Internet Explorer 5.0 or later or Mozilla Firefox 1.0.2 or later), enter the IP address for your EPAP A machine. You will see the login screen.
2. Attempt to log in to the EPAP User Interface screen. If using Firefox, you will encounter the following message when logging into the EPAP GUI:

```
The User Interface may not function correctly with the browser you are using.
Microsoft Internet Explorer, version 5 and later, has been certified for this
application
```

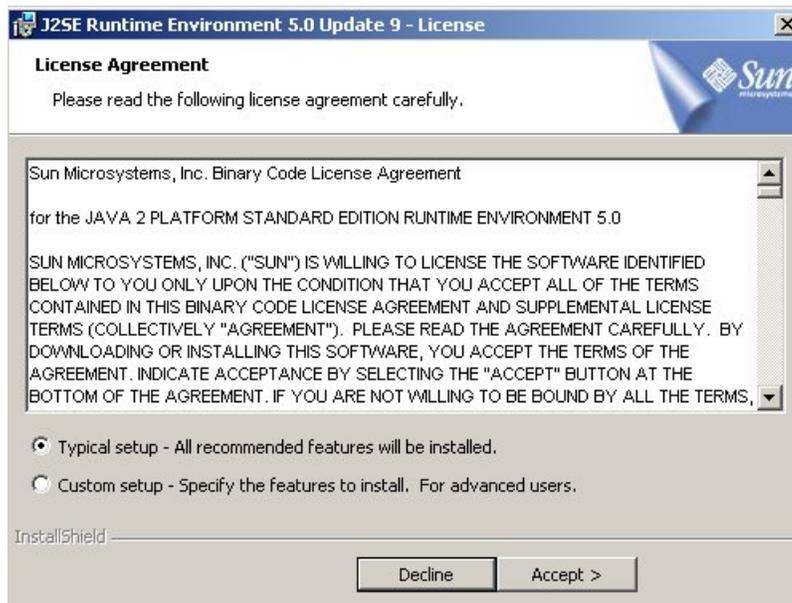
When you have successfully entered the Username and Password, the login process checks for the required Java plug-in. When it finds the Java 1.5 plug-in not present (but you had a previous version of Java installed), the system displays a **Security Warning** window as shown in [Figure 31: Security Warning Window](#) on page 49.

Figure 31: Security Warning Window



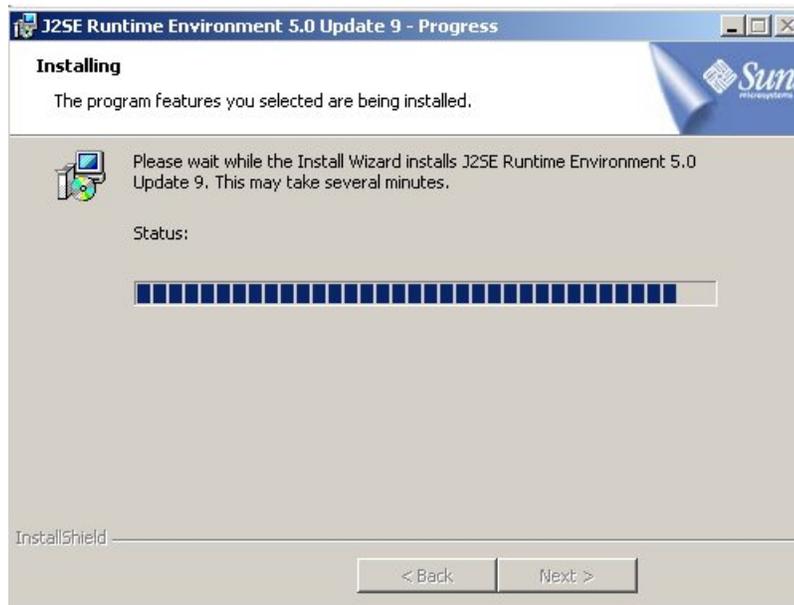
3. Click the **Install** button to begin the process of loading the Java plug-in.
4. Next, the Java installation presents a **License Agreement** screen as shown in [Figure 32: License Agreement](#) on page 50.

Figure 32: License Agreement



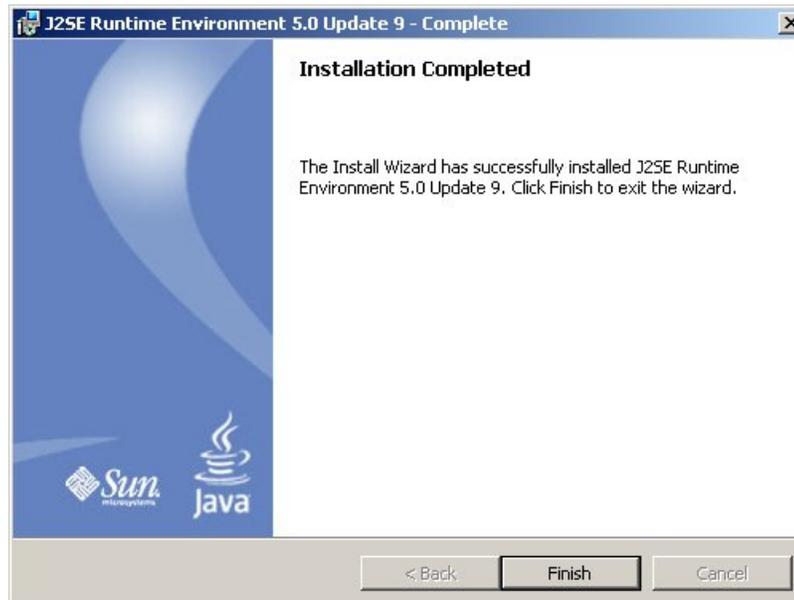
5. Ensure that the **Typical Setup** radio button is selected, and click the **Accept** button to accept the Sun Microsystems agreement.
6. The installation process starts, and a progress window appears as shown in [Figure 33: Java Installation Progress Window](#) on page 50.

Figure 33: Java Installation Progress Window



7. When the installation is complete, the Installation Complete window appears as shown in [Figure 34: Java Installation Complete Window](#) on page 51 .

Figure 34: Java Installation Complete Window



8. The installation is complete. Click the **Finish** button. You return to the browser screen containing the EPAP login screen.

Install Java Policy File

The banner applet makes a network connection to each MPS side. A Java policy file must exist for the banner applet to connect properly. If the Java policy file is not present, you will receive a Violation status (VIOL) for the machine.

Note: The selected browser must be the only browser open on your PC when you modify or create the Java policy file, or else the change does not take effect.

Add Security Parameters to an Existing Java Policy File

To check to see if a Java policy file is already in place, perform the following actions:

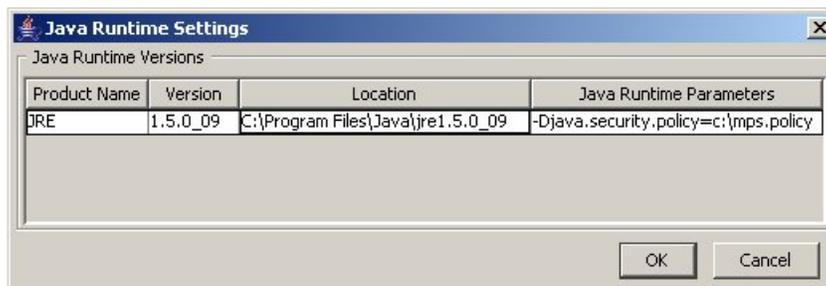
1. From the Windows **Start** menu, select **Control Panel**.
2. Select the **Java Control Panel**. When the **Java Control Panel** appears, click the **Java** tab as shown in [Figure 35: Java Control Panel, Java Tab](#) on page 52.

Figure 35: Java Control Panel, Java Tab



3. Click **View** in the **Java Applet Runtime Settings** pane. The Java Runtime Settings dialog box appears as shown in [Figure 36: Java Runtime Settings Dialog Box](#) on page 52.

Figure 36: Java Runtime Settings Dialog Box



4. Adjust the width of the columns until you can read the contents of the Java Runtime Parameters column (at the far right).

5. Open the policy file indicated in the Java Runtime Parameters column, and insert the following text.

```
grant {  
  {permission java.net.SocketPermission "*:8473", "connect";  
};
```

Create a New Java Policy File

To create a Java policy file:

1. Insert the following text into a file accessible by the workstation:

```
grant {  
  permission java.net.SocketPermission "*:8473", "connect";  
};
```

2. Follow steps 2 through 4 in the procedure described in [Add Security Parameters to an Existing Java Policy File](#) on page 52.
3. In the Java Runtime Parameters column for Java version 1.5, type the path to the file you created in step 1 of this procedure. An example path is shown below.

```
-Djava.security.policy={full_path_to_file}
```

ELAP Configuration and Initialization

Before you can use the ELAP GUI, you must initialize and configure the ELAP software. The ELAP configuration and initialization is performed through the ELAP text-based user interface.

You will connect a local (optional) terminal connected to port 0 of the 8 -port connector box on the MPS frame at each EAGLE 5 ISS. (Refer to the *Installation Manual - EAGLE 5 ISS*.) To begin the initialization, you will log into ELAP A the first time as the “`elapconfig`” user. An automatic configuration is performed on both mated ELAPs.

Note: All network connections and the mate ELAP must be present and verified to allow the initial configuration to complete successfully.

No other user is able to log in to an ELAP until the configuration step is completed for that system.

Errors and Other Messages

The following rules are applicable to configuring the ELAP:

- Mate MPS servers (MPS A and MPS B) must be powered on.
- “Initial Platform Manufacture” for the mate MPS servers must be complete.
- The Sync Network between the mate MPS servers must be operational.
- You must have the correct password for the `elapdev` user on the mate MPS server.

Required Network Address Information

The following information is needed to configure the MPSs at EAGLE 5 ISS A ([Table 6: Information for MPS at EAGLE 5 ISS A](#) on page 54 and EAGLE 5 ISS B [Table 7: Information for MPS at EAGLE 5 ISS B](#) on page 55). Fill in the following tables for reference during the installation procedure.

Table 6: Information for MPS at EAGLE 5 ISS A

Common Information	
MPS A Provisioning Network Address	. . .
MPS B Provisioning Network Address	. . .
Netmask	. . .
Default Router	. . .
Provisioning VIP Address	
Port Forwarding and Static NAT Information (optional)	
MPS A Forwarded HTTP Port	
MPS B Forwarded HTTP Port	
MPS A Forwarded SuExec Port	
MPS B Forwarded SuExec Port	
MPS A Forwarded LSMS Port	7483*
MPS B Forwarded LSMS Port	7483*
MPS A Forwarded Banner Port	
MPS B Forwarded Banner Port	
MPS A Provisioning Static NAT Addr.	. . .
MPS B Provisioning Static NAT Addr.	. . .
* Do not change the default values for these ports	

..

Table 7: Information for MPS at EAGLE 5 ISS B

Common Information	
MPS A Provisioning Network Address	. . .
MPS B Provisioning Network Address	. . .
Netmask	. . .
Default Router	. . .
Port Forwarding and Static NAT Information (optional)	
MPS A Forwarded HTTP Port	
MPS B Forwarded HTTP Port	
MPS A Forwarded SuExec Port	
MPS B Forwarded SuExec Port	
MPS A Forwarded LSMS Port	7483*
MPS A Forwarded LSMS Port	7483*
MPS A Forwarded Banner Port	
MPS B Forwarded Banner Port	
MPS A Provisioning Static NAT Addr.	. . .
MPS B Provisioning Static NAT Addr.	. . .
* Do not change the default values for these ports	

Configuration Menu Conventions

After you have logged into the ELAP user interface with the `elapconfig` user name, the menu appears that corresponds to that user login name. Before going into the details about the Configuration Menu, you need to know a few things about the Menu Format, Prompts and Default Values, and Error Message Format, which are covered next.

Menu Format

The configuration menu has a header format displaying specific information. On the first line, it indicates the MPS Side A or B, with which you are active. On the same line, you are shown the hostname and hostid. The second and third lines show the Platform Version, followed by the Software Version. The last line displays the date and time. See a sample configuration header format in [Figure 37: Configuration Menu Header Format](#) on page 56.

Figure 37: Configuration Menu Header Format

```
MPS Side A:  hostname: mps-t1100-a  hostid: fd0a4767
              Platform Version: 2.0.2-4.0.0_50.26.0
              Software Version: ELAP 1.0.1-4.0.0_50.37.0
              Mon Sep 26 10:57:57 EDT 2005
```

When you are shown a menu, you choose a menu item by entering the number of the item (or “e” for Exit) in response to the Enter Choice prompt that follows the menu, and press Return.

When you choose a menu item, the user interface performs the requested operation. The operation and any associated output for each menu item are described in detail later in this section.

If you enter an invalid choice (such as a letter or a number that is not available for that menu), an error appears. Perform the corrective action described for that error.

Prompts and Default Values

Depending on the menu item that you choose, you might be prompted for data (such as IP addresses) that is required to complete the selected operation. Optional fields are indicated by the text “(optional)” at the end of the prompt. To bypass an optional field without entering a value, press Return.

Default values are indicated by a value enclosed in square brackets at the end of the prompt text: [*default value*]. Example default values are shown in this chapter; they might not be the same as the default values that appear for your system. To accept the default value for a prompt instead of entering a response, press Return.

You can press the Escape key to exit any operation without entering a value for the prompt. The operation is aborted, and you are returned to the menu.

Error Message Format

Invalid menu selections, invalid user input, and failed user interface operations generate error messages on the screen. The error message remains on the screen until you press Return.

All error messages have a unique four-digit error number and associated text. The numbers and text for all error messages generated by the ELAP user interface are listed in the *ELAP Administration Manual*. The possible error messages that can occur for each ELAP user interface menu item are listed in the description of the menu item in this chapter.

Error messages have the following format, where **XXXX** is the unique four-digit error number for the error and *Error text* is the corresponding error text:

```
E
      XXXX
:
      Error text
```

```
Press return to continue
```

Whenever the software must be stopped to perform an operation, you are prompted to stop the software:

```
ELAP software is running. Stop it? [N]: Y
```

However, you must remember that while the ELAP software is stopped, no provisioning updates can be processed by the ELAP.

Overview of ELAP Configuration

When you log into an ELAP with user name “`elapconfig`” after the first initialization of the ELAP, the configuration process begins. (See the details in [Procedure for Configuring ELAPs](#) on page 68.) The configuration process lets you change IP addresses, time zone, and the password for “`elapconfig`”. You can display the host ID and exchange secure shell keys. This section describes each of these items in configuration menu. log into an

Initial “`elapconfig`” User Login

The first time the `elapconfig` user logs in to the system, the text screen is displayed as shown in [Figure 38: Initial Configuration Text Screen](#) on page 57.

Figure 38: Initial Configuration Text Screen

```
Caution: This is the first login of the text user interface. Please
          review the following checklist before continuing. Failure
          to enter complete and accurate information at this time will
          have unpredictable results.
```

1. The mate MPS servers (MPS A and MPS B) must be powered on.
2. "Initial Platform Manufacture" for the mate MPS servers must be complete.
3. The sync network between the mate MPS servers must be operational.
4. You must have the correct password for the ELAPdev user on the mate MPS server.

```
Press return to continue...
```

If all four criteria above are not met, the configuration cannot proceed. Ensuring that the MPS servers are powered on requires a visual check. If the “Initial Platform Manufacture” is not complete, the configuration cannot proceed; furthermore, if the sync network is not operational, the user is notified.

When the four criteria are met, press Return and the process resumes. [Figure 39: Initial Configuration Continues](#) on page 57 shows the continuation of the screen information. The installer enters `y` if the installation is to continue.

Figure 39: Initial Configuration Continues

```
Are you sure you wish to continue? [N]: y
```

Note:

Review the information required for the following section in “*Required Network Address Information* on page 54”. Make certain all required information is obtained and recorded in the tables provided.

Next, the installer is prompted for the `elapdev` user password on the mate MPS server. *Figure 40: Entering the elapdev Password* on page 58 shows sample output that is generated after the correct password is entered.

Figure 40: Entering the elapdev Password

```

Password for ELAPdev@mate:

Keys exchanged.
Verifying that ssh works correctly.
ssh is working correctly.
Building the initial database on slave.
Building the initial database on master.
There was no elap.cfg file. Using default configuration.
Allowing access from slave.
Stopping mysql on master.
Stopping mysql on slave.
Setting up master config file.
Setting up slave config file.
Copying database to slave.
Starting MySQL on master.
Starting MySQL on slave.

```

At this point, the first appearance of the Configuration Menu occurs, and is discussed next.

Text-based Configuration Menu

Following the report appearing in *Figure 40: Entering the elapdev Password* on page 58, the ELAP Configuration Menu is displayed as shown in *Figure 41: ELAP Configuration Menu* on page 58. The `elapconfig` user can now begin configuring the MPS local and remote servers.

Figure 41: ELAP Configuration Menu

```

MPS Side A:  hostname: mps-t1100-a  hostid: 0
              Platform Version: 3.0.2-8.0.0_80.4.0
              Software Version: ELAP 3.0.2-8.0.0_80.4.0
              Wed Apr 16 13:32:15 EDT 2008

```

```

/-----ELAP Configuration Menu-----\
/-----\
| 1 | Display Configuration |
|-----|
| 2 | Configure Network Interfaces Menu |
|-----|
| 3 | Set Time Zone |
|-----|
| 4 | Exchange Secure Shell Keys |
|-----|
| 5 | Change Password |
|-----|
| 6 | Platform Menu |
|-----|
| 7 | Configure NTP Server |
|-----|

```

```

  8 | Mate Disaster Recovery
  ---|-----
  e | Exit
  \-----/

Enter Choice: 2

```

To choose a menu item, enter the number or letter of the menu item in response to the **Enter Choice** prompt that follows the menu item list, and press Return.

Display Configuration

The Display Configuration menu option 1 displays network address information and the time zone. See an example in [Figure 42: Example of Display Configuration Output](#) on page 59.

Figure 42: Example of Display Configuration Output

```

MPS Side A:  hostname: mps-t1100-a  hostid: 0
              Platform Version: 3.0.2-8.0.0_80.4.0
              Software Version: ELAP 3.0.2-8.0.0_80.4.0
              Wed Apr 16 13:40:38 EDT 2008

ELAP A Provisioning Network IP Address = 192.168.61.136
ELAP B Provisioning Network IP Address = 192.168.61.137
Provisioning Network Netmask           = 255.255.255.0
Provisioning Network Default Router    = 192.168.61.250
Provisioning VIP                        = 192.168.61.166
ELAP A Sync Network Address            = 169.254.1.100
ELAP B Sync Network Address            = 169.254.1.200
ELAP A Main DSM Network Address        = 192.168.120.100
ELAP B Main DSM Network Address        = 192.168.120.200
ELAP A Backup DSM Network Address      = 192.168.121.100
ELAP B Backup DSM Network Address      = 192.168.121.200
ELAP A HTTP Port                       = 80
ELAP B HTTP Port                       = 80
ELAP A HTTP SuExec Port                 = 8001
ELAP B HTTP SuExec Port                 = 8001
ELAP A Banner Connection Port           = 8473
ELAP B Banner Connection Port           = 8473
ELAP A Static NAT Address                = Not configured
ELAP B Static NAT Address                = Not configured
ELAP A LSMS Connection Port              = Not configured
ELAP B LSMS Connection Port              = Not configured

Time Zone                                = America/New_York

Press return to continue...

```

Addresses that you choose should not conflict with your internal network addresses. The class C networks you choose should not conflict with the class C network used in your network scheme. [Table 8: Sample IP Addresses Used in Configuration](#) on page 59 shows an example of IP addresses used in the configuration process.

Table 8: Sample IP Addresses Used in Configuration

Provisioning Network Information	MPS A (Local) IP Addresses	MPS B (Local) IP Addresses
ELAP A Provisioning Network IP Address (MPS A)	192.168.61.90	192.168.61.119

Provisioning Network Information	MPS A (Local) IP Addresses	MPS B (Local) IP Addresses
ELAP B Provisioning Network IP Address (MPS B)	192.168.61.91	192.168.61.120
Network Net Mask	255.255.255.0	255.255.255.0
Default Router	192.168.61.250	192.168.61.250
Provisioning VIP Address	192.168.61.166	192.168.61.166

Configure Provisioning Network

The Configure Network Interfaces Menu option 2 of the Configuration Menu displays the submenu shown in [Figure 43: Configure Network Interfaces Menu](#) on page 60. It supports the configuration of all the network interfaces for the ELAP.

Figure 43: Configure Network Interfaces Menu

```

/-----Configure Network Interfaces Menu-\  

|-----|  

| 1 | Configure Provisioning Network |  

|-----|  

| 2 | Configure DSM Network |  

|-----|  

| 3 | Configure Forwarded Ports |  

|-----|  

| 4 | Configure Static NAT Addresses |  

|-----|  

| e | Exit |  

|-----|

```

Enter Choice:

Configure Provisioning Network

The Configure Provisioning Network option 1 of the Configure Network Interfaces Menu configures the ELAP provisioning network. These include the provisioning network's IP address, netmask, and IP address. This information allows the ELAP to communicate with an existing customer network. default router

In response to each prompt, you can enter a dotted decimal IP address or press Return to leave the current value unchanged (the current value is shown in brackets after the prompt text). See [Figure 44: Configure Provisioning Network Output](#) on page 60 for the option 1 output.

Figure 44: Configure Provisioning Network Output

```

Verifying connectivity with mate...
ELAP A provisioning network IP Address [192.168.61.104]: 192.168.61.208
ELAP B provisioning network IP Address [192.168.61.105]: 192.168.61.209
ELAP provisioning network netmask [255.255.255.0]:

```

```
ELAP provisioning network default router [192.168.61.250]:
ELAP local provisioning Virtual IP Address [192.168.61.100]: 192.168.61.215

Please Wait, this may take a while...
```

Configure DSM Network

The Configure DSM Network option **2** of the Configure Network Interfaces Menu prompts you for the ELAP DSM network IP addresses. This information allows the ELAP to communicate with the main and backup DSM networks.

In response to each prompt, you can enter a dotted decimal IP address or press Return to leave the current value unchanged (the current value is shown in brackets after the prompt text).

See [Figure 45: Configure DSM Network](#) on page 61 for the option **2** output.

Figure 45: Configure DSM Network

```
First 3 octets for the ELAP main DSM network [192.168.120]:
First 3 octets for the ELAP backup DSM network [192.168.121]:
First 3 octets for the ELAP loopback DSM network [192.168.123]:
```

Configure Forwarded Ports

The Configure Forwarded Ports option **3** of the Configure Network Interfaces Menu provides the functionality to configure ELAP ports for the Web UI.

Each numbered item of the Configure Forwarded Ports menu allows the user to specify a port number used for remote access to the MPS.

This information should be received from the customer for the MPS and recorded in [Table 7: Information for MPS at EAGLE 5 ISS B](#) on page 55 and [Table 6: Information for MPS at EAGLE 5 ISS A](#) on page 54.

Configure Static NAT Addresses

The Configure Static NAT Addresses option **4** from the Configure Network Interfaces Menu provides the functionality to configure the static NAT addresses of the ELAP.

Each numbered item of the Configure Static NAT Addresses menu allows the user to specify an IP Address used outside of the firewall for remote access to the MPS. The following [Figure 46: Configuring NAT Addresses Prompt](#) on page 61 shows an example of a resulting prompt.

Figure 46: Configuring NAT Addresses Prompt

```
ELAP A Static NAT Address:
```

Select Time Zone

Note: Do not perform the Select the Time Zone function on a running system. Contact Tekelec Technical Services for assistance.

The Select Time Zone option **3** prompts you for the time zone to be used by the ELAP. The time zone can be the zone where the ELAP is located, Greenwich Mean Time, or another zone that is selected by the customer to meet the needs of the system.

Note: The value for the time zone should be obtained from the customer's Information Services department. The default value for the time zone is "US/Eastern".

To select a file in one of the subdirectories, enter a relative path name (such as "US/Eastern") in response to the prompt. See *Select Time Zone Menu* for the option 3 output.

Figure 47: Select Time Zone Menu

```
Press return to continue...
Verifying connectivity with mate...
Are you sure you wish to change the timezone for MPS A and B? [N]: y
Enter a time zone:
```

You must enter a valid UNIX time zone file name. Alternatively, to display a complete list of the valid time zones, simply press Return in response to the prompt, and all valid time zone names are displayed. See the *ELAP Administration Manual - 8.0* for the list that appears when you press the Return key or enter invalid time zone file name.

The time zone change does not take effect until the next time the MPS is rebooted. The Reboot MPS screen is described in the *ELAP Administration Manual - 8.0*.

Exchange Secure Shell Keys

The Exchange Secure Shell Keys option 4 from the ELAP Configuration Menu, enables connections between local and remote ELAPs. The ELAPs exchange encryption keys, which are required to run the secure shell.

The exchange normally occurs automatically during ELAP initialization. Use this menu item only if the exchange must be performed manually.

The elapconfig user must know the password for the ELAPdev@mate.

The exchange normally occurs automatically during ELAP initialization. Use this menu item only if the exchange must be performed manually.

See [Figure 48: Exchange Secure Shell Keys Output](#) on page 62 for the option 4 output.

Figure 48: Exchange Secure Shell Keys Output

```
Are you sure you wish to exchange keys? [N]: y
```

Change Password

The Change Password option 5 from the ELAP Configuration Menu, changes the text-based user interface password for the elapconfig login name for both MPS A and B.

See [Figure 49: Change Password](#) on page 62 for the option 5 output.

Figure 49: Change Password

```
Verifying connectivity with mate...
Are you sure you wish to change the text UI password on MPS A and B? [N]: y
Enter new password for text UI user:
Re-enter new password:
```

```
Press return to continue...
```

Platform Menu and Options

The ELAP Platform Menu option 6, from the ELAP Configuration Menu, accesses the Platform menu so that the `elapconfig` user can access and manage platform functions shown next. See [Figure 50: Platform Menu Output](#) on page 63 for the option 8 output.

Figure 50: Platform Menu Output

```
MPS Side A:  hostname: mps-t1100-a  hostid: fd0a4767
              Platform Version: 2.0.2-4.0.0_50.26.0
              Software Version: ELAP 1.0.1-4.0.0_50.37.0
              Mon Sep 26 10:57:57 EDT 2005
```

```
/-----ELAP Platform Menu-\
/-----\
|  1 | Initiate Upgrade |
|----|-----|
|  2 | Eject CD         |
|----|-----|
|  3 | Reboot MPS      |
|----|-----|
|  4 | Halt MPS        |
|----|-----|
|  5 | MySQL Backup    |
|----|-----|
|  6 | RTDB Backup     |
|----|-----|
|  e | Exit            |
\-----/
```

```
Enter choice:
```

Initiate Upgrade

The Initiate Upgrade menu option 1 initiates an upgrade on the selected ELAP. For upgrade procedures, contact [Customer Care Center](#) on page 4.

Eject CD

The Eject CD menu option 2 initiates an ejection of the CD media on the selected ELAP. The default, as shown next, is 'BOTH'.

```
Eject CD tray of MPS A, MPS B or BOTH? [BOTH]:
```

Reboot MPS

The Reboot MPS menu option 3 initiates a reboot of either MPS or both. The default, as shown below, is BOTH.

Note: The `elapconfig` user can abort rebooting the MPS by pressing the **Escape** key at the displayed prompt.

```
Reboot MPS A, MPS B or [BOTH]:
```



CAUTION

CAUTION: Rebooting the MPS stops all ELAP processes. Databases cannot be updated until MPS is fully booted.

Halt MPS

The Halt MPS menu option 4 initiates a halt of one MPS or both. The default, as shown below, is BOTH.



CAUTION

CAUTION: Halting an MPS stops all ELAP processes. Selecting the default (halt both MPS A and MPS B) requires a person to be physically present in order to reboot MPS and allow for further access!

Note: The `elapconfig` user can abort the MPS Halt by pressing the **Escape** key at the displayed prompt.

MySQL Backup

The MySQL Backup menu option 5 backs up the MySQL database. The output is shown below.

Note: ELAP software must be stopped or MySQL backup will abort and return to the **ELAP Platform Menu**.

```
Are you sure you want to back up the MySQL database on MPS A? [N]: y
Connecting to local MySQL server...
Getting read lock...
Tarring the NPDB...
Disconnecting from local MySQL server...
```

RTDB Backup

The RTDB Backup menu option 6 backs up the RTDB database. The output is shown below.

Note: ELAP software must be stopped or RTDB backup will abort and return to the **ELAP Platform Menu**.

```
Are you sure you want to back up the RTDB database on MPS A to
"/var/TKLC/appl/free/rtddbBackup_mps-t1100-a_20050926110224.tar"? [N]: y
```

ELAP Platform Menu Exit

The Exit menu option `e` exits from the ELAP Platform Menu and returns to the ELAP Configuration Menu.

Configure NTP Server and Options

The Configure NTP Server option 7 allows for the display, addition, and removal of an external NTP server. See [Figure 51: Configure NTP Server Output](#) on page 65 for the option 7 output.

Figure 51: Configure NTP Server Output

```

/----ELAP Configure NTP Server Menu--\
/-----\
| 1 | Display External NTP Server |
|---|-----|
| 2 | Add External NTP Server   |
|---|-----|
| 3 | Remove External NTP Server|
|---|-----|
| e | Exit                       |
\-----/

Enter Choice:

```

Display External NTP Server

The Display External NTP Server menu option 1 displays External NTP Server information. If a server is present, the server name and IP address are displayed. If an NTP Server is not present, the following is displayed.

```
There are no External NTP Servers. Press return to continue...
```

Add External NTP Server

The Add External NTP Server menu option 2 adds an External NTP Server. The output below is an example of the addition of an External NTP Server.

Note: The IP address must be a valid address for an External NTP Server.

```
Are you sure you wish to add new NTP Server? [N]: yEnter the ELAP NTP Server IP
Address: 192.168.61.69Verifying NTP Server. It might take up to 1 minute.
External NTP Server [server 192.168.61.69 prefer] has been added. Press return
to continue...Verifying NTP Server. It might take up to 1 minute. External NTP
Server [server 192.102.61.91 prefer] has been added.
```

Remove External NTP Server

The Remove External NTP Server menu option 3 removes an External NTP Server. If a server is present, selecting the Remove External NTP Server removes the server. If an NTP Server is not present, the following appears.

```
There are no External NTP Servers. Press return to continue...
```

ELAP Configure NTP Server Menu Exit

The ELAP Configure NTP Server Menu Exit menu option e exits the ELAP Configure NTP Server Menu, and returns to the ELAP Configuration Menu.

Exit

The Exit menu option e exits the ELAP Configuration menu.

ELAP Configuration Procedure

Initialization and configuration are provided through a text-based user interface (UI) described in this chapter. The user accesses the text-based configuration procedure by means of the product UI.

The first time user `elapconfig` logs into MPS A, the system performs an auto-configuration on both MPS ELAP pairs. The sync network and main and backup DSM networks are initialized to their default values, described in the *ELAP Administration Manual - 8.0* and defined in the *Installation Manual - EAGLE 5 ISS*. Various internal configuration parameters are also set to their default values. The installer must perform initial configuration on MPS A on EAGLE 5 ISS A and MPS A on EAGLE 5 ISS B.

Configuration Terms and Assumptions

- The initial configuration steps assume that each MPS has previously undergone successful Initial Platform Manufacture (IPM).
- The network paths must be present and verified before the MPS servers are ready for ELAP configuration.
- Initial configuration can be implemented on only the MPS A side of EAGLE 5 ISS A and MPS A side of EAGLE 5 ISS B. Attempting to perform initial configuration on MPS B of EAGLE 5 ISS A is not allowed, and the `elapconfig` user will be notified. The attempted configuration will be aborted with no impact on either MPS A or B.

After the initial configuration of MPS A on EAGLE 5 ISS A and MPS A on EAGLE 5 ISS B, both ELAPs should be operational unless the system failed to successfully initialize during reboot or the configured values for the Sync and/or DSM networks conflict with other equipment in the network. Tekelec recommends that you do not change the default network values.

- The provisioning values displayed for the following initialization and configuration steps are example values only.
- Default values can be accepted just by pressing the Return key at the prompt; default values are shown enclosed in brackets [].
- It is the customer's decision about the timing and frequency of performing a back-up of his databases. Of course, databases should be backed up when they are initially populated with data; however, the priority that the customer assigns to data and time lost in restoring it will dictate the frequency of database back-up.
- Adding an NTP server is optional. Additionally, only one NTP server is needed to provide time synchronization for all the MPS servers on both EAGLE 5 ISS pairs.
- The ELAP terms 'local' and 'remote' are relative with respect to the ELAP configuration software. In other words, if the installer is running the configuration software on the physical MPS (that is, the MPS that the installer is physically on-site and has his terminal connected to), the configuration software refers to that MPS as 'local'. However if the installer connects through the network into the MPS A on EAGLE 5 ISS B, the configuration software executing at EAGLE 5 ISS B sees itself as 'local', referring to MPS that the installer is physically connected to as the 'remote'.

Remember that the 'local' MPS is whichever MPS A that the configuration software is being executed on, regardless of where the user is physically located.

The MPS of EAGLE 5 ISS A is the first MPS to which the installer physically connects and on which initial configuration of the ELAPs is always begun.

To avoid confusion of these relative terms, the MPS A on EAGLE 5 ISS A is considered to be the on-site MPS to which the installer has the physical connection. This document refers to the MPS to which the installer does not have the physical connection as MPS A on EAGLE 5 ISS B.

Configuration Symbols

During the Configuration Procedure, the installer will initialize and configure the MPSs to perform various functions. Special instructions are required occasionally for an MPS on EAGLE 5 ISS A, an MPS on EAGLE 5 ISS B. To assist the installer, this manual uses these symbols to indicate individual instructions to be performed for those specific MPSs.

Table 9: MPS Configuration Symbols

MPS Symbol	Symbol Description
	This symbol indicates installation instructions to be performed specifically for the MPSs (MPS A and MPS B) on EAGLE 5 ISS A.
	This symbol indicates installation instructions to be performed specifically for the MPSs (MPS A and MPS B) on EAGLE 5 ISS B.

Initial Setup and Connecting to MPSs

Installation personnel may choose to employ various methods for connecting to an MPS. The ELAP software requires that an MPS be configured from side A. This procedure describes a likely method for connecting to EAGLE 5 ISS A and then EAGLE 5 ISS B. Installers require that all console output be captured.

Connecting to EAGLE 5 ISS A

To prepare for the configuration of the MPS on EAGLE 5 ISS A, the installer connects directly to the MPS at EAGLE 5 ISS A. Use the following method to connect to MPS B of EAGLE 5 ISS A.

1. Use the PPP utility to connect the modem located in the OOBM card in server A.
(For information about setting up the PPP utility, refer to the *ELAP Administration Manual - 8.0*.)
2. When the prompt appears, enter the following command to start a secure shell session with an ELAP server:

```
ssh elapconfig@<server_IP_address>
```

where **<server_IP_address>** is the IP address of the MPS B at EAGLE 5 ISS A.

3. This will access the ELAP text interface.

The **elapconfig** username and a password provided by your system administrator are required to continue.

Connecting to EAGLE 5 ISS B

To prepare for the configuration of the MPS on EAGLE 5 ISS B, the installer must first complete the connection to and configuration of the MPS on EAGLE 5 ISS A. The installer is then able to use a secure shell session to MPS at EAGLE 5 ISS B to configure it.

The installer can now use a secure shell session from the system prompt to the MPS A on EAGLE 5 ISS B, using the IP address shown in [Table 7: Information for MPS at EAGLE 5 ISS B](#) on page 55 .

```
ssh 192.168.61.119 Trying 192.168.61.119... Connected to 192.168.61.119.
Escape character is '^]'. SunOS 5.7
```

Procedure for Configuring ELAPs

Perform the configuration procedure by following these steps in the text-based user interface. After you have connected to an MPS (as described in [Initial Setup and Connecting to MPSs](#) on page 67), you can perform this procedure to configure the ELAPs in your network.

Note: Initial configuration cannot be performed through the GUI. The IP addresses required for browser connectivity are not defined until the initial configuration, using the text-based UI, is completed.

Using the set up and connection described previously, the installer connects to an MPS to perform configuration. In a typical installation, the installer connects directly to the MPS at EAGLE 5 ISS A to configure it, then uses `ssh` to connect to the MPS at EAGLE 5 ISS B and configure it.

1. Upon connecting to the MPS on EAGLE 5 ISS A, login to the ELAP.

- a) Login as `elapconfig`.

A caution displays.

```
SunOS 5.7
mpsa-f0c7c3 console login: elapconfig
Password:
Caution: This is the first login of the text user interface. Please
review the following checklist before continuing. Failure
to enter complete and accurate information at this time will
have unpredictable results.

    1. The mate MPS servers (MPS A and MPS B) must be powered on.
    2. "Initial Platform Manufacture" for the mate MPS servers
       must be complete.
    3. The sync network between the mate MPS servers must be
       operational.
    4. You must have the correct password for the ELAPdev user on
       the mate MPS server.

Press return to continue..
```

- b) Evaluate the conditions of the Caution notice. When the conditions are satisfied, press **Return** to continue.

Upon pressing **Return** to continue, you can abort or continue with the initial configuration.

```
Are you sure you wish to continue? [N]: y
```

Note: Pressing the **Return** accepts the default value **n**. To continue with the configuration, enter **y**.

- c) Press **y**.
Upon selection **y**, the configuration software executes on the MPSs on EAGLE 5 ISS B. While the MPSs on EAGLE 5 ISS B were formerly referred to as 'remote', remember that the configuration software now considers the same MPS pair now to be 'local' (for more information, refer to [Configuration Terms and Assumptions](#) on page 66).
- d) Enter the elapdev user password on the mate MPS server to confirm the secure shell keys are successfully exchanged.

The example shows the output generated when the correct password is entered, the secure shell keys are successfully exchanged, and the UI database is set up on MPS A and MPS B at this site.

```
Password for ELAPdev@mate:
Keys exchanged.
Verifying that ssh works correctly.
ssh is working correctly.
Building the initial database on slave.
Building the initial database on master.
There was no elap.cfg file. Using default configuration.
Allowing access from slave.
Stopping mysql on master.
Stopping mysql on slave.
Setting up master config file.
Setting up slave config file.
Copying database to slave.
Starting MySQL on master.
Starting MySQL on slave.
```

A successful configuration file setup results in the initial display of the **ELAP Configuration Menu** and its associated header information.

The server designation of MPS A at this site is displayed as well as hostname, hostid, Platform Version, Software Version, and the date.

```
MPS Side A:  hostname: mps-t1100-a  hostid: a8c0683d
              Platform Version: 3.0.2-8.0.0_80.4.0
              Software Version: ELAP 3.0.2-8.0.0_80.7.0
              Wed Apr 16 13:44:58 EDT 2008
```

```
/-----ELAP Configuration Menu-----\
/-----\
| 1 | Display Configuration |
|---|-----|
| 2 | Configure Network Interfaces Menu |
|---|-----|
| 3 | Set Time Zone |
|---|-----|
| 4 | Exchange Secure Shell Keys |
|---|-----|
| 5 | Change Password |
|---|-----|
```

```

-----\
 6 | Platform Menu
-----\
 7 | Configure NTP Server
-----\
 8 | Mate Disaster Recovery
-----\
 e | Exit
-----\

Enter Choice: 1

```

2. Choose option **1**, Display Configuration, to view ELAP A and ELAP B Provisioning Network IP addresses, the Time Zone, and other values for the MPS on EAGLE 5 ISS A.

```

MPS Side A:  hostname: mps-t1100-a  hostid: 0
              Platform Version: 3.0.2-8.0.0_80.4.0
              Software Version: ELAP 3.0.2-8.0.0_80.4.0
              Wed Apr 16 13:44:58 EDT 2008
ELAP A Provisioning Network IP Address = 192.168.61.136
ELAP B Provisioning Network IP Address = 192.168.61.137
Provisioning Network Netmask          = 255.255.255.0
Provisioning Network Default Router    = 192.168.61.250
Provisioning VIP                       = 192.168.61.166
ELAP A Sync Network Address           = 169.254.1.100
ELAP B Sync Network Address           = 169.254.1.200
ELAP A Main DSM Network Address        = 192.168.120.100
ELAP B Main DSM Network Address        = 192.168.120.200
ELAP A Backup DSM Network Address      = 192.168.121.100
ELAP B Backup DSM Network Address      = 192.168.121.200
ELAP A HTTP Port                      = 80
ELAP B HTTP Port                      = 80
ELAP A HTTP SuExec Port                = 8001
ELAP B HTTP SuExec Port                = 8001
ELAP A Banner Connection Port         = 8473
ELAP B Banner Connection Port         = 8473
ELAP A Static NAT Address              = Not configured
ELAP B Static NAT Address              = Not configured
ELAP A LSMS Connection Port            = Not configured
ELAP B LSMS Connection Port            = Not configured

Time Zone                               = America/New_York

Press return to continue...

```

a) Press Return to return to the **ELAP Configuration Menu**.

3. Choose option **2**, Configure Network Interfaces Menu, from the **ELAP Configuration Menu**.

```

/-----\
/-----\
 1 | Display Configuration
-----\
 2 | Configure Network Interfaces Menu
-----\
 3 | Set Time Zone
-----\
 4 | Exchange Secure Shell Keys
-----\
 5 | Change Password
-----\

```

```

 6 | Platform Menu
---|-----
 7 | Configure NTP Server
---|-----
 8 | Mate Disaster Recovery
---|-----
 e | Exit
\-----/

Enter Choice: 2

```

- Choose option 1, Configure Provisioning Network from the Configure Network Interfaces Menu.

The **Configure Provisioning Network Menu** allows you to accept the default IP address values presented by the configuration software for ELAP A and ELAP B provisioning network and network netmask, or to enter specific IP values previously received from the customer for the MPS.

```

/-----Configure Network Interfaces Menu-\  

\-----/\br/>
 1 | Configure Provisioning Network  

---|-----  

 2 | Configure DSM Network  

---|-----  

 3 | Configure Forwarded Ports  

---|-----  

 4 | Configure Static NAT Addresses  

---|-----  

 e | Exit  

\-----/

Enter Choice: 1

```

Refer to the information recorded in [Table 6: Information for MPS at EAGLE 5 ISS A](#) on page 54 and [Table 7: Information for MPS at EAGLE 5 ISS B](#) on page 55 for the correct addresses.

Note: No default value is provided for the ELAP provisioning network default router. This value must be received from the customer.

Information for the submenu for configuring communications networks displays.

```

Verifying connectivity with mate...
Enter the ELAP A provisioning network IP Address [192.168.61.90]:
Enter the ELAP B provisioning network IP Address [192.168.61.91]:
Enter the ELAP provisioning network netmask [255.255.255.0]:
Enter the ELAP provisioning network default router IP Address: 192.168.54.250
ELAP local provisioning Virtual IP Address [192.168.61.100]:
Please Wait, this may take a while...

```

- Press **Return**, to return to the **Configure Network Interfaces Menu**.

- If there is a known network address conflict, continue with the next step.
- If there is not a known network address conflict, continue with [Step 6](#) on page 72

- Choose option 2, Configure DSM Network, from the **Configure Network Interfaces Menu**.

```

/-----Configure Network Interfaces Menu-\  

\-----/\

```

```

 1 | Configure Provisioning Network
---|-----
 2 | Configure DSM Network
---|-----
 3 | Configure Forwarded Ports
---|-----
 4 | Configure Static NAT Addresses
---|-----
 e | Exit
\-----/

```

Enter Choice: 2

The Configure DSM Network choice automatically adds the DSM network IP address to the list of known hosts.

- a) Accept default IP address octets for the ELAP main DSM network and the ELAP backup DSM network presented by the configuration software unless a known network conflict exists.

```

First 3 octets for the ELAP main DSM network [192.168.120]:
First 3 octets for the ELAP backup DSM network [192.168.121]:
First 3 octets for the ELAP loopback DSM network [192.168.123]:

```

Upon accepting the default value or entering a specific ELAP backup DSM network octet IP address value, you are returned to the **Configure Network Interfaces Menu**.

- If the MPS is separated from GUI workstations and provisioning systems by a port forwarding firewall, continue with the next step.
- If the MPS is separated from GUI workstations and provisioning systems by a port forwarding firewall, skip all steps related to option 3. Continue with [Step 7](#) on page 73.

6. Choose option 3, Configure Forwarded Ports, from the **Configure Network Interfaces Menu**.

```

/-----Configure Forwarded Ports Menu-----\
/-----\
 1 | Change ELAP A HTTP Port
---|-----
 2 | Change ELAP B HTTP Port
---|-----
 3 | Change ELAP A HTTP SuExec Port
---|-----
 4 | Change ELAP B HTTP SuExec Port
---|-----
 5 | Change ELAP A Banner Connection Port
---|-----
 6 | Change ELAP B Banner Connection Port
---|-----
 7 | Change ELAP A LSMS Connection Port
---|-----
 8 | Change ELAP B LSMS Connection Port
---|-----
 e | Exit
\-----/

```

Enter choice: 1

- a) Enter the correct option number for the port information to be entered.
Refer to the information recorded in [Table 6: Information for MPS at EAGLE 5 ISS A](#) on page 54 and [Table 7: Information for MPS at EAGLE 5 ISS B](#) on page 55 for the correct information.

Note: The LSMS is not capable of changing the LSMSports it can connect to on the MPS. Therefore, the default values for options 7 through 8 on the Configure Forwarded Ports Menu should not be changed.

```
ELAP A HTTP Port [80]:
```

- b) Enter the appropriate information and press return once to return to the **Configure Forwarded Ports Menu**.
 - c) Enter the option number or enter **e** to return to the **Configure Network Interfaces Menu**. The installer returns to the Configure Network Interfaces Menu.
7. Choose option **4**, Configure Static NAT Addresses from the **Configure Network Interfaces Menu**.

```

/-----Configure Network Interfaces Menu-\  

/-----\  

| 1 | Configure Provisioning Network |\  

| 2 | Configure DSM Network |\  

| 3 | Configure Forwarded Ports |\  

| 4 | Configure Static NAT Addresses |\  

| e | Exit |\  

\-----\  

Enter Choice: 4

```

8. Enter option **1** or **2** Configure Static NAT Addresses Menu. Each numbered item of the **Configure Static NAT Addresses Menu** allows you to specify an IP Address used outside of the firewall for remote access to the MPS.

```

/-----Configure Static NAT Addresses Menu-\  

/-----\  

| 1 | Change ELAP A Static NAT Address |\  

| 2 | Change ELAP B Static NAT Address |\  

| e | Exit |\  

\-----\  


```

- a) Enter a valid NAT IP address from [Table 6: Information for MPS at EAGLE 5 ISS A](#) on page 54 and [Table 7: Information for MPS at EAGLE 5 ISS B](#) on page 55.

```
ELAP A Static NAT Address:
```

- b) Choose option **e** on the **Configure Static NAT Addresses Menu** to return to the **Configure Network Interfaces Menu**.
- c) Choose option **e** (Exit), from the **Configure Network Interfaces Menu**, to return to the **ELAP Configuration Menu**.
 - If the time zone is not correct for this installation, as shown in the output of the Display Configuration [Step 2](#) on page 70, continue with the next step.
 - If the time zone is correct for this installation, as shown in the output of the Display Configuration [Step 2](#) on page 70, skip all steps related to option 3. Continue with [Step 11](#) on page 75.

9. Choose option 3, Set Time Zone, on the **ELAP Configuration Menu**.

Note: Obtain the value for the time zone from the customer's Information Services department. The default value for the time zone is **US/Eastern**.

```

/-----ELAP Configuration Menu-----\
/-----\
| 1 | Display Configuration |
|-----|
| 2 | Configure Network Interfaces Menu |
|-----|
| 3 | Set Time Zone |
|-----|
| 4 | Exchange Secure Shell Keys |
|-----|
| 5 | Change Password |
|-----|
| 6 | Platform Menu |
|-----|
| 7 | Configure NTP Server |
|-----|
| 8 | Mate Disaster Recovery |
|-----|
| e | Exit |
|-----\
\-----/

Enter Choice: 3

```

An important Caution statement is displayed.

```

Caution: This action requires a reboot of the affected MPS servers to
          activate the change. Operation of the ELAP software before
          the MPS servers are rebooted may have unpredictable
          consequences.

```

Press return to continue...

- a) Press **Return** to continue.
You are prompted for confirmation on setting the time zone for MPS A and MPS B at his site.
- b) Enter **y** to confirm the change.
Pressing **Return** accepts the default of **n** (no) and the action is aborted.

```

Are you sure you wish to change the timezone for MPS A and B? [N]: y

```

When the affirmative response **y** is given to change the time zone, the following prompt is displayed. The time zone can be the zone where the ELAP is located, Greenwich Mean Time, or another zone that is selected by the customer to meet the needs of the system. If the time zone is known, it can be entered at the prompt. If the exact time zone value is not known, press **Return**, and a list of the valid names is displayed.

```

Enter a time zone file (relative to /usr/share/lib/zoneinfo):

```

If an incorrect time zone is entered or if only **Return** is pressed, a list of all available time zone values is displayed. The installer can select a value from this table. The time zone change does not take effect until the next time the MPS is rebooted. For more information on valid time zones, refer to the ELAP Administration Manual - 8.0.

Upon setting the time zone successfully, you are returned to the **ELAP Configuration Menu**.

- If you want to exchange secure shell keys, continue with the next step.

Note: Although the exchange of ELAP Secure Shell (SSH) Keys is performed automatically by the configuration software at the start of the ELAP configuration (*Substep d* on page 69), exchange of SSH keys with the LSMS (*Step 14* on page 77) must be performed manually in order for the ELAP to receive bulk downloads from the LSMS.

- If you do not want to exchange SSH keys, skip this step and continue with *Step 15* on page 79.

10. Enter option 4, Exchange Secure Shell Keys, from the ELAP Configuration Menu.

```

/-----ELAP Configuration Menu-----\
/-----\
| 1 | Display Configuration                |
|-----|
| 2 | Configure Network Interfaces Menu    |
|-----|
| 3 | Set Time Zone                       |
|-----|
| 4 | Exchange Secure Shell Keys          |
|-----|
| 5 | Change Password                     |
|-----|
| 6 | Platform Menu                       |
|-----|
| 7 | Configure NTP Server                 |
|-----|
| 8 | Mate Disaster Recovery              |
|-----|
| e | Exit                                 |
\-----/

```

Enter Choice: 4

The Exchange Secure Shell Keys Menu displays.

Verifying connectivity with mate...

```

MPS Side A:  hostname: bonaire-a  hostid: a8c0d03d
              Platform Version: 3.0.3-8.0.0_80.8.0
              Software Version:  ELAP 3.0.12-8.0.0_80.12.0
              Fri Jul 25 09:29:35 EDT 2008

```

```

/-----Exchange Secure Shell Keys Menu-----\
/-----\
| 1 | Exchange Keys with Mate              |
|-----|
| 2 | Exchange Keys with Remote            |
|-----|
| 3 | Exchange Keys with Mate as Root User |
|-----|
| 4 | Exchange Keys with LSMS             |
|-----|
| e | Exit                                 |
\-----/

```

Enter Choice:

11. Enter 1, Exchange Keys with Mate.

Upon entering **1**, you are asked to confirm the SSH key exchange.

```
Are you sure you wish to exchange keys? [N]: Y
```

- a) Enter **Y** to continue.
You are prompted for the elapdev password.
- b) Enter the elapdev password to continue.

A prompt provides notification that SSH is working. You are returned to the **Exchange Secure Shell Keys Menu**.

```
ssh is working correctly.

MPS Side B:  hostname: bonaire-b  hostid: a8c0d13d
              Platform Version: 3.0.3-8.0.0_80.8.0
              Software Version:  ELAP 3.0.13-8.0.0_80.14.0
              Mon Jul 28 10:21:15 EDT 2008

/-----Exchange Secure Shell Keys Menu-----\
|-----|-----|-----|-----|-----|-----|
|  1  | Exchange Keys with Mate |-----|-----|-----|-----|
|-----|-----|-----|-----|-----|-----|
|  2  | Exchange Keys with Remote |-----|-----|-----|-----|
|-----|-----|-----|-----|-----|-----|
|  3  | Exchange Keys with Mate as Root User |-----|-----|-----|-----|
|-----|-----|-----|-----|-----|-----|
|  4  | Exchange Keys with LSMS |-----|-----|-----|-----|
|-----|-----|-----|-----|-----|-----|
|  e  | Exit |-----|-----|-----|-----|
|-----|-----|-----|-----|-----|-----|

Enter Choice: 2
```

12. Enter 2, Exchange Keys with a Remote ELAP.

You are prompted to confirm the exchange.

```
Are you sure you wish to exchange keys with remote? [N]:
```

- a) Enter **Y** to continue.
You are prompted for the IP address.

```
Remote IP Address:
```

- b) Enter the IP address of the remote ELAP.
You are prompted for the elapdev password.

```
The server does not know of 192.168.66.98.
Will just exchange host keys for the name given!
Password of elapdev:
```

- c) Enter the elapdev password.

A prompt provides notification that host keys were exchanged and SSH is working. You are returned to the **Exchange Secure Shell Keys Menu**.

```
The server does not know of 192.168.66.98.
Will just exchange host keys for the name given!
ssh is working correctly.
```

```

MPS Side B:  hostname: bonaire-b  hostid: a8c0d13d
              Platform Version: 3.0.3-8.0.0_80.8.0
              Software Version: ELAP 3.0.13-8.0.0_80.14.0
              Mon Jul 28 10:21:15 EDT 2008

/-----Exchange Secure Shell Keys Menu-----\
|-----|
| 1 | Exchange Keys with Mate |
|-----|
| 2 | Exchange Keys with Remote |
|-----|
| 3 | Exchange Keys with Mate as Root User |
|-----|
| 4 | Exchange Keys with LSMS |
|-----|
| e | Exit |
|-----|
\-----/

Enter Choice: 3

```

13. Enter 3, Exchange Keys with a mate ELAP as a root user.

You are prompted to confirm the exchange.

```
Are you sure you wish to exchange keys as root? [N]:
```

a) Enter **Y** to continue.

You are prompted to enter the root password.

```
Password of root:
```

b) Enter the root password.

A prompt provides notification that host keys were exchanged and SSH is working. You are returned to the **Exchange Secure Shell Keys Menu**.

```

ssh is working correctly.

MPS Side B:  hostname: bonaire-b  hostid: a8c0d13d
              Platform Version: 3.0.3-8.0.0_80.8.0
              Software Version: ELAP 3.0.13-8.0.0_80.14.0
              Mon Jul 28 10:21:15 EDT 2008

/-----Exchange Secure Shell Keys Menu-----\
|-----|
| 1 | Exchange Keys with Mate |
|-----|
| 2 | Exchange Keys with Remote |
|-----|
| 3 | Exchange Keys with Mate as Root User |
|-----|
| 4 | Exchange Keys with LSMS |
|-----|
| e | Exit |
|-----|
\-----/

Enter Choice: 4

```

14. Enter 4, Exchange Keys with LSMS.

Note: This procedure exchanges SSH keys between the two ELAP servers and ONE OF THE LSMS SERVERS. Consequently, **THIS PROCEDURE MUST BE PERFORMED FOR THE**

LSMS SERVER A (lsmspri) and REPEATED FOR THE LSMS SERVER B (lsmssec). Failure to perform this procedure for both LSMS servers can result in failure of the ELAP servers to receive SERVDI bulkloads from the LSMS servers.

Note: You will need the IP addresses for both LSMS server host names (lsmspri and lsmssec) as well as the lsmsadm password to complete this procedure.

You are prompted to confirm the exchange.

```
Are you sure you wish to exchange keys with LSMS? [N]:
```

a) Enter **Y** to continue.

You are prompted to enter the LSMS IP address.

```
LSMS IP Address:
```

b) Enter the IP address for the desired LSMS server.

You are prompted to enter the lsmsadm password.

```
The server does not know of 192.168.60.4.
Will just exchange host keys for the name given!
Password of lsmsadm:
```

c) Enter the lsmsadm password.

A prompt provides notification that keys were exchanged (between ELAP A and the selected LSMS server) and SSH is working. You are prompted to enter the lsmsadm password again for exchange of keys between ELAP B and the selected LSMS server.

```
The server does not know of 192.168.60.4.
Will just exchange host keys for the name given!
ssh is working correctly.
The server does not know of 192.168.60.4.
Will just exchange host keys for the name given!
Password of lsmsadm:
```

d) Enter the lsmsadm password.

A prompt provides notification that keys were exchanged (between ELAP B and the selected LSMS server) and SSH is working. You are returned to the **Exchange Secure Shell Keys Menu**.

```
The server does not know of 192.168.60.4.
Will just exchange host keys for the name given!
ssh is working correctly.
```

```
MPS Side B:  hostname: bonaire-b  hostid: a8c0d13d
              Platform Version: 3.0.3-8.0.0_80.8.0
              Software Version: ELAP 3.0.13-8.0.0_80.14.0
              Mon Jul 28 10:21:15 EDT 2008
```

```

/-----Exchange Secure Shell Keys Menu-----\
|-----|
| 1 | Exchange Keys with Mate |
|-----|
| 2 | Exchange Keys with Remote |
|-----|
| 3 | Exchange Keys with Mate as Root User |
|-----|
| 4 | Exchange Keys with LSMS |
|-----|
| e | Exit |
|-----|

```

```

\-----/
Enter Choice: 4

```

Note: The SSH keys must be exchanged between the ELAP servers and both LSMS servers (LSMS server A and LSMS server B).

- If you have only exchanged SSH keys with one LSMS server, go to [Step 14.e](#) on page 79.
- If you have exchanged SSH keys with both LSMS server A and B (lsmspri and lsmsscc), go to [Step 14.f](#) on page 79.

- e) Repeat [Step 14](#) on page 77 to exchange keys with the second LSMS server.
 f) Choose option **e** on the **Exchange Secure Shell Keys Menu** to return to the **ELAP Configuration Menu**.

- If you need to change the text-based UI password for the MPSs at this site, continue with the next step.
- If you do not need to change the text-based UI password for the MPSs at this site, skip all steps related to option **5** and continue with [Step 16](#) on page 80.

15. Enter option **5**, Change Password, from the **ELAP Configuration Menu** to change the text-based user interface password for the elapconfig login name for both MPS A and B at this site.

```

/-----ELAP Configuration Menu-----\
/-----\
1 | Display Configuration
-----
2 | Configure Network Interfaces Menu
-----
3 | Set Time Zone
-----
4 | Exchange Secure Shell Keys
-----
5 | Change Password
-----
6 | Platform Menu
-----
7 | Configure NTP Server
-----
8 | Mate Disaster Recovery
-----
e | Exit
\-----/

```

```
Enter Choice: 5
```

- a) Confirm the action of changing the password for both the MPS A and MPS B servers at this site.

Pressing **Return** accepts the default of **n** (no) and aborts the action to the change the password. Entering **y** invokes a prompt for the new password, followed by the re-entry of the password to confirm the entry.

```

Verifying connectivity with mate...
Are you sure you wish to change the text UI password on MPS A and B? [N]:
y
Enter new password for text UI user:
Re-enter new password:
Press return to continue ...

```

- b) Enter the new password, confirm entry, and press **Return**.
Successful entry of the new password returns the installer to the ELAP Configuration Menu.

- If you need to add an NTP server, continue with the next step.
- If you do not need to add an NTP server skip all steps related to option 7 and continue with [Step 19](#) on page 82

16. Enter option 7, Configure NTP Server Menu, from the ELAP Configuration Menu to add an NTP Server.

```

/-----ELAP Configuration Menu-----\
/-----\
| 1 | Display Configuration                |
|-----|
| 2 | Configure Network Interfaces Menu   |
|-----|
| 3 | Set Time Zone                      |
|-----|
| 4 | Exchange Secure Shell Keys         |
|-----|
| 5 | Change Password                   |
|-----|
| 6 | Platform Menu                     |
|-----|
| 7 | Configure NTP Server               |
|-----|
| 8 | Mate Disaster Recovery            |
|-----|
| e | Exit                               |
\-----/
Enter Choice: 7

```

- a) Enter option 2, Add External NTP Server, from the ELAP Configure NTP Server Menu.

```

/-----ELAP Configure NTP Server Menu-\
/-----\
| 1 | Display External NTP Server        |
|-----|
| 2 | Add External NTP Server           |
|-----|
| 3 | Remove External NTP Server        |
|-----|
| e | Exit                               |
\-----/
Enter Choice: 2

```

- b) Confirm the action of adding a new NTP Server.
Pressing **Return** accepts the default of **n** (no) and aborts the action to add an external NTP server.

- c) Enter **y** to add the IP address of the NTP server.

Note: The installer should now enter the same IP address for the NTP server that was previously added to the MPS A and B servers on EAGLE 5 ISS A. This action allows the one NTP server to keep all MPS servers in synchronization.

```

Are you sure you wish to add new NTP Server? [N]: y
Enter the ELAP NTP Server IP Address: 192.168.61.69
Verifying NTP Server. It might take up to 1 minute.

```

```
External NTP Server [server 192.168.61.69 prefer]
has been added.
Press return to continue...
Verifying NTP Server. It might take up to 1 minute.
External NTP Server [server 192.102.61.91 prefer] has been added.
Press return to continue...
```

Note: All NTP Server IP addresses shown are only examples.

The display shows the server verification occurring. The installer receives a confirmation of a successful addition of the NTP server.

- To confirm successful addition of the NTP server, continue with the next step.
- Press **Return** to return to the **ELAP Configure NTP Server Menu**.

17. Enter option **1**, Display External NTP Server from the ELAP Configure NTP Server Menu, to confirm successful addition of the NTP server.

```
/-----ELAP Configure NTP Server Menu-\
/-----\
| 1 | Display External NTP Server |
|---|-----|
| 2 | Add External NTP Server   |
|---|-----|
| 3 | Remove External NTP Server|
|---|-----|
| e | Exit                       |
\-----/
Enter Choice: 1
```

The output allows you to verify that the External NTP Server IP address is correct.

```
External NTP Server [server 192.168.61.69 prefer ]
Press return to continue...
```

- a) Press **Return** to return to the ELAP Configure NTP Server Menu.

```
/-----ELAP Configure NTP Server Menu-\
/-----\
| 1 | Display External NTP Server |
|---|-----|
| 2 | Add External NTP Server   |
|---|-----|
| 3 | Remove External NTP Server|
|---|-----|
| e | Exit                       |
\-----/
Enter Choice: e
```

- b) Enter option **e** to exit the ELAP Configure NTP Server Menu and return to the ELAP Configuration Menu.
You are returned to the ELAP Configuration Menu.

Note: During configuration of MPSs on EAGLE 5 ISS B, if the time zone was changed ([Step 9](#) on page 74) and if the Backup Provisioning Network ([Step 6](#) on page 72) was configured on either MPS, both MPS pairs on EAGLE 5 ISS A and on EAGLE 5 ISS B must be rebooted.

- If you do not need to reboot the MPS pairs on EAGLE 5 ISS A and on EAGLE 5 ISS B, continue with the next step.

- If you must reboot the MPS pairs on EAGLE 5 ISS A and on EAGLE 5 ISS B, continue with [Step 19](#) on page 82.
18. Enter option **e** to exit the **ELAP Configuration Menu**.
Configuration is complete.
 19. Enter option **6**, Platform Menu, from the **ELAP Configuration Menu**.

```

/-----ELAP Configuration Menu-----\
/-----\
| 1 | Display Configuration                |
|---|-----|
| 2 | Configure Network Interfaces Menu   |
|---|-----|
| 3 | Set Time Zone                       |
|---|-----|
| 4 | Exchange Secure Shell Keys         |
|---|-----|
| 5 | Change Password                    |
|---|-----|
| 6 | Platform Menu                      |
|---|-----|
| 7 | Configure NTP Server                |
|---|-----|
| 8 | Mate Disaster Recovery              |
|---|-----|
| e | Exit                                |
\-----/

Enter Choice: 6

```

20. Enter option **3**, Reboot MPS, from the ELAP Platform Menu.

```

/-----ELAP Platform Menu-\
/-----\
| 1 | Initiate Upgrade                    |
|---|-----|
| 2 | Eject CD                           |
|---|-----|
| 3 | Reboot MPS                          |
|---|-----|
| 4 | Halt MPS                            |
|---|-----|
| 5 | MySQL Backup                        |
|---|-----|
| 6 | RTDB Backup                         |
|---|-----|
| e | Exit                                |
\-----/

Enter Choice: 3

```

Reboot MPS A, MPS B or [BOTH]:

- a) At the prompt, press **Return** (default value of **BOTH**) to reboot MPS A and MPS B.

When the rebooting of the present MPS server pair on EAGLE 5 ISS B ends, the Platform Menu may re-appear; however, the connection to the MPS server will be closed, and you are returned to the system prompt.

The console logon appears at the system prompt signifying the ELAP initial configuration is complete.

Note: The console logon is preceded by many lines of reboot output.

The initial configuration of MPSs on EAGLE 5 ISS B is now complete. Both MPSs on EAGLE 5 ISS A and MPSs on B are now configured and rebooted.

MPS Health Check Procedure

Run the `syscheck` utility to obtain the operational status of the MPS platform with the following procedure. Refer to the *ELAP Administration Manual* for more details and information about logins and permissions. For more information about the `syscheck` utility, go to the *MPS Platform Software And Maintenance - T1100 Manual*.

1. Login to the **User Interface** screen of the ELAP GUI as `elapplatform`.
The main menu displays, [Figure 52: Main Menu View](#) on page 83.

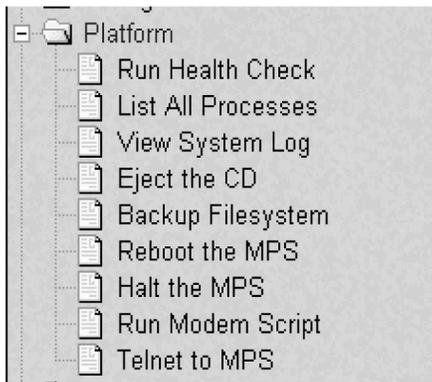
Figure 52: Main Menu View



Check the banner information above the menu to verify that you are logged into the correct ELAP.

2. If it is necessary to switch to another ELAP, select **Select Mate** from the main menu.
The Platform folder opens, [Figure 53: Platform Folder Open View](#) on page 83.

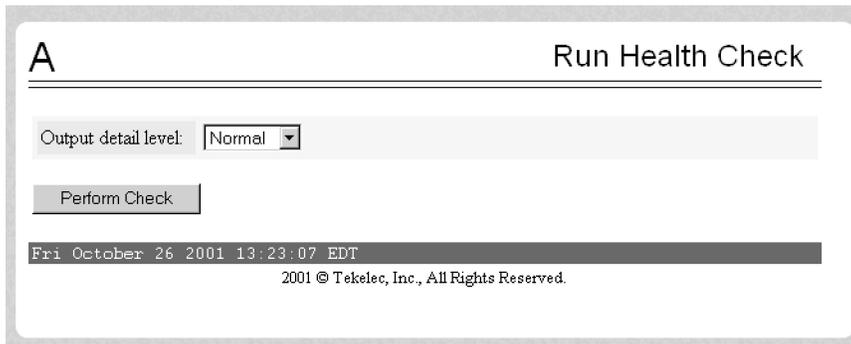
Figure 53: Platform Folder Open View



3. When the GUI shows you are logged into the desired ELAP, select **Platform** ► **Run Health Check**.

The Run Health Check dialog opens, [Figure 54: Run Health Check View](#) on page 84.

Figure 54: Run Health Check View



4. On the **Run Health Check** screen, use the pull-down menu to select **Normal** or **Verbose** output detail level.
5. Click the **Perform Check** button to run the system health check on the selected MPS.
The system health check output data displays.

You have now completed this procedure.

EMS Configuration Component

Use the following procedures to manage TekPath or ELAP EMS configuration components:

- [Creating an EMS Configuration Component](#) on page 85
- [Modifying an EMS Configuration Component](#) on page 89
- [Viewing an EMS Configuration Component](#) on page 91
- [Deleting an EMS Configuration Component](#) on page 92

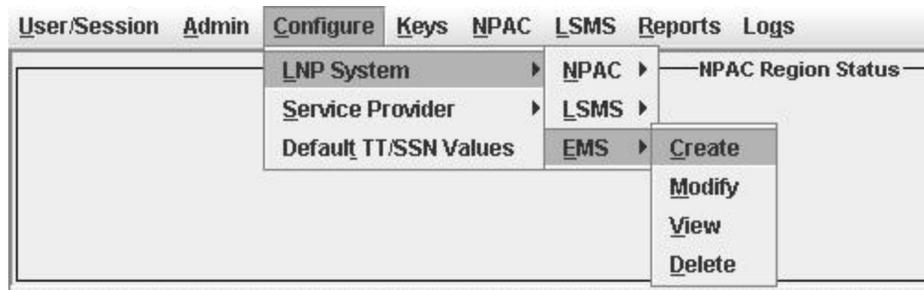
Creating an EMS Configuration Component

For each network element to be supported by the LSMS, create an EMS configuration component using the following procedure.

Note: For each EMS configuration created, you must perform a bulk download to the associated EMS/network element. Refer to the LSMS-Eagle 5 ISS LNP Database Synchronization Manual for bulk loading procedures.

1. Log into the LSMS as a user in the `lsmsadm` or `lsmsall` group.
2. From the LNP System menu, shown in [Figure 55: LNP System Menu – Create EMS](#) on page 85, select **Configure** ► **LNP System** ► **EMS** ► **Create**.

Figure 55: LNP System Menu – Create EMS



The EMS Configuration Component window, [Figure 56: Create LNP System EMS Address Info Tab](#) on page 85 displays. The window usually opens with the **Address Info** tab displayed; if the **Address Info** tab is not displayed, click its tab to display it.

Figure 56: Create LNP System EMS Address Info Tab

3. Ensure that the radio button for an ELAP MPS or a TekPath MPS is selected. For an ELAP MPS, enter the IP addresses for MPS A and MPS B (enter a value from 0 to 255 in each of the first three octets and a value from 0 to 254 in the forth octet). For a TekPath MPS, enter the IP address for MPS A only.
4. Select one of the following radio buttons for the **Verify MPS with PING** field to specify whether the LSMS uses PING to monitor the connectivity between the LSMS and the MPS.

Note: With either selection, the LSMS always monitors connectivity with the keep alive function.

- **Enabled** to monitor the MPS by sending PINGs over the UDP port. This selection requires an additional port to be open (which can be a security concern), but supports previously available function.
- **Disabled** to monitor the MPS using only the keepalive function. This selection reduces the number of ports required to be open inbound to the ELAP network. Security is increased when the number of open ports is decreased.

Note: The LSMS/EMS PING Enhancement feature provides the following functionality:

- Prevents intermediate devices (for example, routers and switches) from closing idle HSOP connections
- Detects low level network faults that were previously not detectable using the TCP/IP stack alone.

5. Click the **Component Info** tab, shown in [Figure 58: Create LNP System EMS Contact Info](#) on page 88.

Figure 57: Create LNP System EMS Component Info

6. Enter the **Component Info** data as follows (all fields in this tab must contain data):

- *Owner ID* – ID of the network element owner (maximum 20 alphanumeric characters)
- *Platform Type* – hardware platform of the network element (maximum 20 alphanumeric characters)
- *Platform Supplier* – name of the supplier of the network element hardware platform (maximum 20 alphanumeric characters)
- *Platform SW Release* – release level of the software running on the network element platform (maximum 20 alphanumeric characters)
- *Platform Model* – model number of the network element platform (maximum 20 alphanumeric characters)
- *CLLI* – CLLI code of the network element (maximum 11 numeric and uppercase alphabetic characters)
- *Mate CLLI* – CLLI of the mate EMS component (maximum 11 numeric and uppercase alphabetic characters)
- *PC* – point code of the EMS component (must contain three 3-digit octets; first octet must have a value from 1 to 255; last two octets must have a value from 0 to 255; second octet must not be 001 if the first octet has a value from 1 to 5)
- *Mate PC* – point code of the mate EMS component (must contain three 3-digit octets; first octet must have a value from 1 to 255; last two octets must have a value from 0 to 255; second octet must not be 001 if the first octet has a value from 1 to 5)
- *LNP Capability PC* – LNP capability point code of the network element (must contain three 3-digit octets; first octet must have a value from 1 to 255; last two octets must have a value from 0 to 255; second octet must not be 001 if the first octet has a value from 1 to 5)

7. Click the **Contact Info** tab, shown in *Figure 57: Create LNP System EMS Component Info* on page 86.

Figure 58: Create LNP System EMS Contact Info

8. All fields in this tab are optional. If you wish to enter the **Contact Info** data, do so as follows:
- *Name* – name of the person to contact for network element information (maximum 40 alphanumeric characters)
 - *Email* – email address of the network element contact person (maximum 60 alphanumeric characters)
 - *Street* – street address of the network element contact person (maximum 40 alphanumeric characters)
 - *City* – city address of the network element contact person (maximum 20 alphanumeric characters)
 - *State* – state address of the network element contact person (two-letter uppercase abbreviation). If you use the *Province* field, enter -- (the default).
 - *ZIP Code* – the postal zip code of the network element contact person (five numeric characters)
 - *Province* – the province of the network element contact person (two-letter uppercase abbreviation). If you use the *State* field, enter -- (the default).
 - *Country* – country of the network element contact person (maximum 20 alphanumeric characters).
 - *Phone Number* – phone number of the network element contact person (ten numeric characters required).
 - *FAX Number* – FAX number of the network element contact person (ten numeric characters required).
 - *Pager Number* – pager number of the network element contact person (ten numeric characters required)

- *Pager PIN* – pager PIN number of the network element contact person (ten numeric characters maximum)
9. When finished, click **OK** to apply the changes.
 - If the **Update Successful** dialog, [Figure 59: Update Successful Dialog](#) on page 89 appears, click **OK**. The GUI returns to the main console window.

Figure 59: Update Successful Dialog



- When a mandatory field is empty or a field is not properly configured, the **Field Required** [Figure 60: Field Required Dialog](#) on page 89 dialog displays.

Figure 60: Field Required Dialog



Click **OK** and correct the appropriate field.

Repeat this step until you receive an **Update Successful** notification.

You have now completed this procedure.

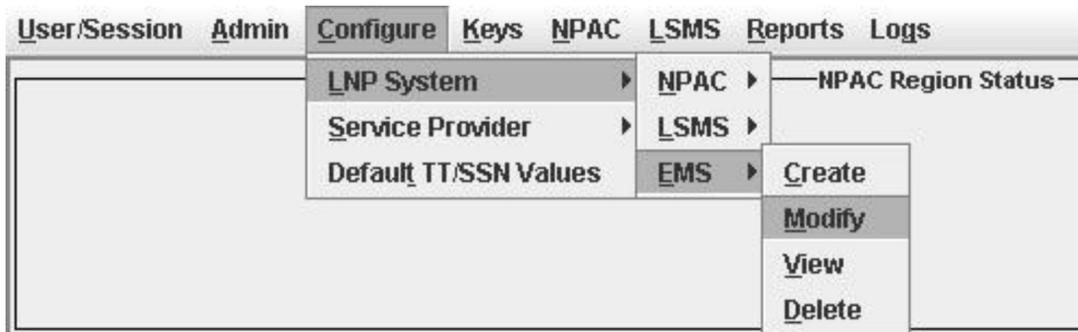
Modifying an EMS Configuration Component

To modify an existing EMS configuration component, use the following procedure.

Note: For each EMS configuration created, you must perform a bulk download to the associated EMS/network element. Refer to the LSMS-Eagle 5 ISS LNP Database Synchronization Manual for bulk loading procedures.

1. Log into the LSMS as a user in the `lsmsadm` or `lsmsall` group.
2. Click the **EMS status** icon for the EMS you wish to modify so that the icon is highlighted.
3. From the **Main Menu**, select **Configure** ► **LNP System** ► **EMS** ► **Modify**, as shown in [Figure 61: LNP System Menu – Modify EMS](#) on page 89.

Figure 61: LNP System Menu – Modify EMS



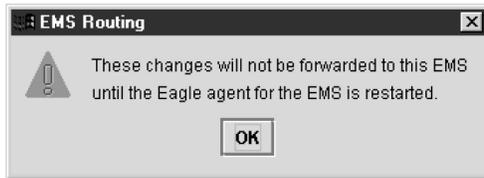
The **Modify LNP System EMS** window, [Figure 62: Modify LNP System EMS Window](#) on page 90, appears.

Figure 62: Modify LNP System EMS Window

The window usually opens with the **Address Info** tab displayed; if the **Address Info** tab is not displayed, click its tab to display it.

4. Modify the EMS data as required.
See [Creating an EMS Configuration Component](#) on page 85 for detailed field information.
5. Click **OK**.
The **EMS Routing** dialog appears, [Figure 63: EMS Routing Dialog](#) on page 90 .

Figure 63: EMS Routing Dialog



Click **OK**.

The **Update Successful** dialog displays, [Figure 64: Update Successful Dialog](#) on page 91.

Figure 64: Update Successful Dialog



You have completed this procedure.

If a mandatory field is empty or a field is not properly configured, the **More Fields Needed** message is displayed, [Figure 65: More Fields Needed Dialog](#) on page 91.

Figure 65: More Fields Needed Dialog



Click **OK** and correct the appropriate field.

Repeat this step until you receive an **Update Successful** notification.

Note: Changes do not take effect until the `eagleagent` is restarted (refer to *Manually Verifying and Restarting the Eagle Agents* in the *LSMS Maintenance Manual*).

Viewing an EMS Configuration Component

To view EMS configuration component information, use the following procedure.

1. Log into the LSMS as a user in the `lsmsview`, `lsmsuser`, `lsmsuext`, or `lsmsadm` group.
2. Click the **EMS status** icon for the EMS you wish to view (highlight the icon).
3. From the **Main Menu**, select **Configure** ► **LNP System** ► **EMS** ► **View**.

The **View LNP System EMS** dialog displays, [Figure 66: View LNP System EMS Dialog](#) on page 91.

Figure 66: View LNP System EMS Dialog

4. Click on any of the tabs to view additional information.
For more information about the meaning of the fields on any of the tabs, see [Creating an EMS Configuration Component](#) on page 85.

Note: You cannot modify information in any of the tabs.

5. When finished viewing, click **OK**.

You have now completed this procedure.

Deleting an EMS Configuration Component

To delete an EMS configuration component, use the following procedure.

Note: The deletion of the EMS configuration component does not take effect until the LSMS is idled and restarted (refer to “Idling an Active Server” and “Starting or Restarting an Idle Server” in the *LSMS Maintenance Manual*).

1. Log into the LSMS as a user in the `lsmsadm` or `lsmsall` group.
2. Click the **EMS Status** icon for the EMS you wish to delete (highlight the icon).
3. From the **Main Menu**, select **Configure** ► **LNP System** ► **EMS** ► **Delete**.

The **Delete LNP EMS** dialog displays, [Figure 67: Delete LNP System EMS Dialog](#) on page 92.

Figure 67: Delete LNP System EMS Dialog

4. View the information in this window to verify that this is the EMS you wish to delete. Click on any of the tabs to view additional information. For more information about the meaning of the fields on any of the tabs, see [Creating an EMS Configuration Component](#) on page 85. You cannot modify information in any of the tabs.
5. Click **OK** or **Cancel**.
 - If you click **Cancel**, you are returned to the LSMS console window.
 - If you click **OK**, the **Update Successful** dialog displays, [Figure 68: Update Successful Dialog](#) on page 93.

Figure 68: Update Successful Dialog



6. Click **OK**.

You have completed this procedure.

EMS Routing

EMS routing information enables the LSMS to send subscription information to the proper network elements. The EMS routing function allows you to modify or view the routing info that you defined using the TN Filters and GTT Groups (see Chapter 4 of the *LSMS Database Administration Manual*).

Managing Bulk Load from the LSMS

This section describes how to perform a bulk load, view bulk load log files, and understand bulk load error messages.

Bulk Load Procedure

Use the following procedure to manage a bulk load from the LSMS user interface.

Note: Before starting this procedure, contact the [Customer Care Center](#) on page 4 to be readily available for assistance if you encounter any problems while performing this procedure.

1. Perform the following substeps to ensure that no NPA Splits will activate during the bulk download procedure:
 - a) As `lsmsadm`, enter the following `lsmsdb` commands to output the counts for both Subscription Version and NumberPoolBlock objects:

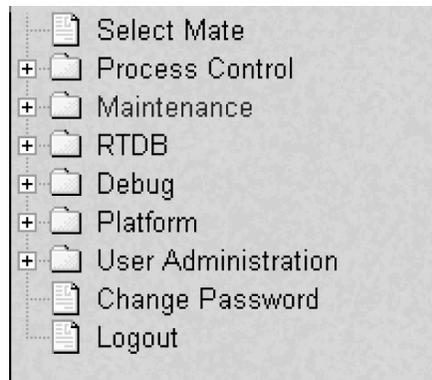
```
% cd $LSMS_DIR/tools
% lsmsdb -c counts | grep SubscriptionVersion
1,012,345 ... CanadaDB.SubscriptionVersion
5,434,123 ... MidAtlanticDB.SubscriptionVersion
7,111,222 ... MidwestDB.SubscriptionVersion
6,333,999 ... NortheastDB.SubscriptionVersion
8,044,000 ... SoutheaststDB.SubscriptionVersion
4,999,800 ... SouthwestDB.SubscriptionVersion
6,500,000 ... WestCoastDB.SubscriptionVersion
5,250,500 ... WesternDB.SubscriptionVersion
% lsmsdb -c counts | grep NumberPoolBlock
1,205 ..... CanadaDB.NumberPoolBlock
10,400 ..... MidAtlanticDB.NumberPoolBlock
8,005 ..... MidwestDB.NumberPoolBlock
4,000 ..... NortheastDB.NumberPoolBlock
7,500 ..... SoutheaststDB.NumberPoolBlock
1,225 ..... SouthwestDB.NumberPoolBlock
7,700 ..... WestCoastDB.NumberPoolBlock
5,500 ..... WesternDB.NumberPoolBlock
```

- b) Total the counts listed in the first column of the output from both commands in substep a. Divide this total by 2 million, to determine the estimated number of hours for the bulk load.
 - c) Generate an NPA Split Report.
Select **Pending** for Status and **All NPAC Regions** for NPAC Region. For information about creating and viewing NPA Split Data Reports, refer to the *LSMS Database Administration Manual*.

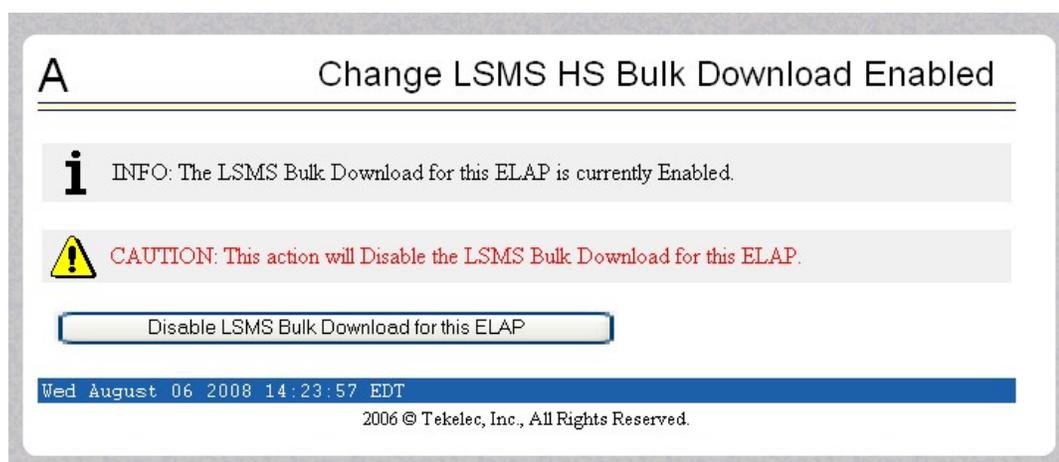
- d) Determine if NPA Splits are scheduled to be activated during the time the Bulk Load is to be performed:
 - If no Pending NPA Splits were listed in the report in substep c, or if none of the Pending NPA Splits has a PDP Start Date that occurs within the time period required to complete the Bulk Load, go to [Step 2](#) on page 95.
 - If any Pending NPA Split has a PDP Start Date that occurs within the time period required to complete the Bulk Load, continue with next substep.
 - e) Determine the date on which you want the NPA Splits to be activated.
This should be the next day after the expected completion of the Bulk Load Procedure (based on the start date/time anticipated and the estimated length of the Bulk Load procedure, from substep b). For example, if the Bulk Load is estimated to require 24 hours to complete and the Bulk Load planned to be performed starting at 12 noon on April 1st, the NPA Split should be postponed until April 3rd.
 - f) Postpone the NPA Split (refer to the *LSMS Database Administration Manual*).
2. Ensure that the network element is prepared to receive a bulk load by doing the following:
 - a) Connect your web browser to the ELAP user interface (for more information, refer to the *EAGLE 5 ISS ELAP Administration Manual*).
 - b) Log in with the user name and password for a user who is authorized to access the menu items shown in this procedure.

The ELAP GUI is displayed, as shown in [Figure 69: ELAP Main Menu](#) on page 95 .

Figure 69: ELAP Main Menu

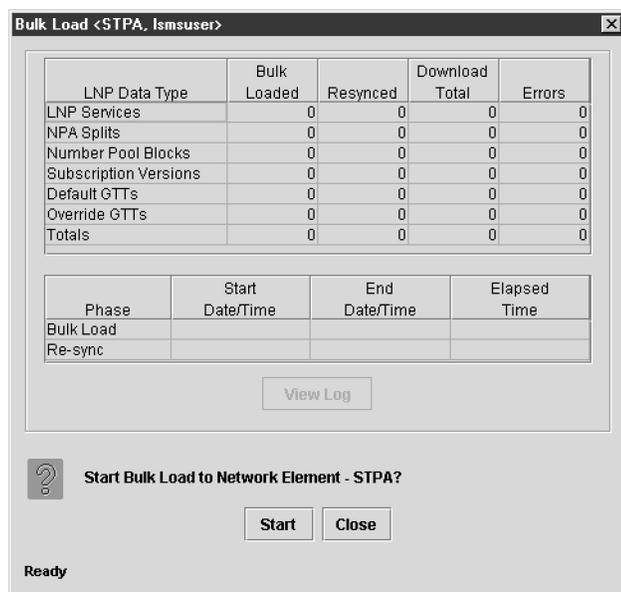


- c) Select **Maintenance > LSMS HS Bulk Download > Change Enabled**.
The window shown in [Figure 70: Enabling Change HS Bulk Download](#) on page 95 displays.
- Figure 70: Enabling Change HS Bulk Download**



- d) If the information field indicates that the Bulkload for the ELAP is currently enabled, click the Disable Bulkload for this ELAP button and this will allow the audit.
3. At the LSMS, log in as a member of the `lsmsuser`, `lsmsuext`, or `lsmsall` user group.
 4. Start the Bulk Load window using either of the following:
 - a) From the **Main Menu** on the **LSMS Console** window, select **LSMS > LNP Database Synchronization > Bulk Load > <CLLI>**, where **<CLLI>** is the Common Language Location Identifier for the network element that requires the bulk load.
 - b) Right-click the **LSMS Console** window's EMS status icon that corresponds to the network element requiring the bulk load, and select **LNP Database Synchronization ► Bulk Load**. The **Bulk Load** window displays. An example of this window is shown in [Figure 71: Bulk Load Window](#) on page 96.

Figure 71: Bulk Load Window



5. To initiate the bulk load, click the **Start** button.

The **Start** button is replaced by the **Abort** button, and the **View Log** button becomes selectable. Progress is indicated by start time, elapsed time, numbers of successful and failed update commands, and status reported in the status field at the bottom of the window. When the bulk load phase completes (as indicated in the status field and by a value appearing in the End Date/Time field for the Bulk Load phase), the Re-sync phase begins and progress continues to be indicated in the same ways. All other buttons become nonselectable. [Table 10: Fields in Bulk Load Window](#) on page 97 shows the meaning of each of the fields that appears in this window.

Table 10: Fields in Bulk Load Window

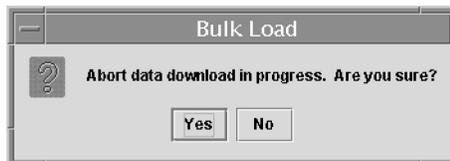
Field	Description	Possible Values
Bulk Loaded	Total number of LNP commands that were successfully transmitted and applied to the NE's LNP database during the initial download phase of the bulk load operation.	0 — 99,999,999
Resynced	Total number of LNP commands that were successfully transmitted and applied to the NE's LNP database during the resynchronization phase of the bulk load operation.	0 — 99,999,999
Download Total	Total number of LNP commands that were successfully transmitted and applied to the NE's LNP database during initial download and the resynchronization phases of the bulk load operation.	0 — 99,999,999
Errors	Total number of commands that were successfully transmitted but rejected by the NE during the initial download and the resynchronization phases of the bulk load operation.	0 — 99,999,999
Bulk Load Start Date/Time	Time at which the initial download phase of the bulk	MM/DD hh:mm:ss ¹

Field	Description	Possible Values
	load operation was started by the user.	
Bulk Load End Date/Time	Time at which the initial download phase of the bulk load operation completed successfully or terminated abnormally.	MM/DD hh:mm:ss ¹
Bulk Load Elapsed Date/Time	Amount of time the initial download phase of the bulk load operation took to complete or the amount of time it ran before the user aborted it.	MM/DD hh:mm:ss ¹ [A F] ²
Re-sync Start Date/Time	Time at which the resynchronization phase of the bulk load operation was started by the user.	MM/DD hh:mm:ss ¹
Re-sync End Date/Time	Time at which the resynchronization phase of the bulk load operation completed successfully (with or without command rejections at the NE) or terminated abnormally.	MM/DD hh:mm:ss ¹
Re-sync Elapsed Date/Time	Amount of time the resynchronization phase of the bulk load operation took to complete or the amount of time it ran before the user aborted it.	hh:mm:ss ¹ [A F] ²
Status	Appears as text at the bottom left of the window to indicate the current status of the resynchronization operation.	Varies
<p>1 MM indicates month, range 01—12 DD indicates day, range 01—31 hh indicates hour, range 00—23 mm indicates minute, range 00—59</p>		

Field	Description	Possible Values
	ss indicates second, range 00—59	
	2 A is appended at the end of the time if the operation is aborted.	
	F is appended at the end of the time if the operation fails.	

The time required to download a database from the LSMS to the network element varies depending on the number of records provisioned in the database and the quality of the transmission and connections. To view the bulk load log file, see [Bulk Load Log File](#) on page 106. To abort during either the bulk load phase or the resynchronization phase of an electronic bulk load is in progress, click the **Abort** button. A confirmation dialog displays, as shown in [Figure 72: Abort Bulk Load Operation Dialog](#) on page 99.

Figure 72: Abort Bulk Load Operation Dialog



Click the **Yes** button to immediately terminate the operation in progress. Go to [Step 7](#) on page 99 as if the bulk load had completed.

Click the **No** button to close the **Abort** confirmation dialog and return back to the main **Bulk Load** window with no other effect.

- a) Click the **Yes** button to immediately terminate the operation in progress. Go to [Step 7](#) on page 99 as if the bulk load had completed.
 - b) Click the **No** button to close the **Abort** confirmation dialog and return back to the main **Bulk Load** window with no other effect.
6. When the bulk load operation completes, the information dialog shown in [Figure 73: Bulk Load Complete Information Dialog](#) on page 99 displays.

Figure 73: Bulk Load Complete Information Dialog



Click **OK**.

7. When the bulk load operation completes or is aborted, the **Abort** and **Close** buttons are replaced by **Commit** and **Discard** buttons, as shown in [Figure 74: Bulk Load Complete](#) on page 99.

Figure 74: Bulk Load Complete

Bulk Load <STPA, Ismsall>

LNP Data Type	Bulk Loaded	Resynced	Download Total	Errors
LNP Services	6	0	6	0
NPA Splits	1	0	1	0
Number Pool Blocks	1	0	1	0
Subscription Versions	1	0	1	0
Default GTTs	1	0	1	0
Override GTTs	1	0	1	0
Totals	11	0	11	0

Phase	Start Date/Time	End Date/Time	Elapsed Time
Bulk Load	10/23 14:18:46	10/23 14:20:07	00:01:21
Re-sync	10/23 14:20:08	10/23 14:20:08	00:00:00

 **Commit or Discard data downloaded to the NE?**

Please wait...

Commit before you click the **Discard** button, you can view the bulk load log file by clicking the **View Log** button (for more information about the file, including how to view it at other times, see [Bulk Load Log File](#) on page 106). To conclude the bulk load operation, you must click one of the following buttons:

Click the **Discard** button to end the bulk load application (closing the **Bulk Load** window) and to send the NE a discard command that results in changes to the ELAP's RTDB that cannot be undone. (For whatever reason you are performing this procedure, the ELAP's RTDB is now in a state of requiring database maintenance, but the bulk load application is no longer running.)

Note: On the active MPS, verify that the DB Status is Coherent and the RTDB Level is greater than zero before copying the newly downloaded database to the mated ELAP.

8. The NE operator must continue with the following steps to cause the LNP database to be distributed and return the NE to normal operation as follows:
 1. Copy the newly restored RTDB to its mate ELAP's RTDB, as described in [Copy RTDB from Remote on ELAP 8.0](#) on page 114.
 2. Distribute the data to the Service Module cards, as described in [Distributing an RTDB LNP Database to Service Module Cards](#) on page 125.

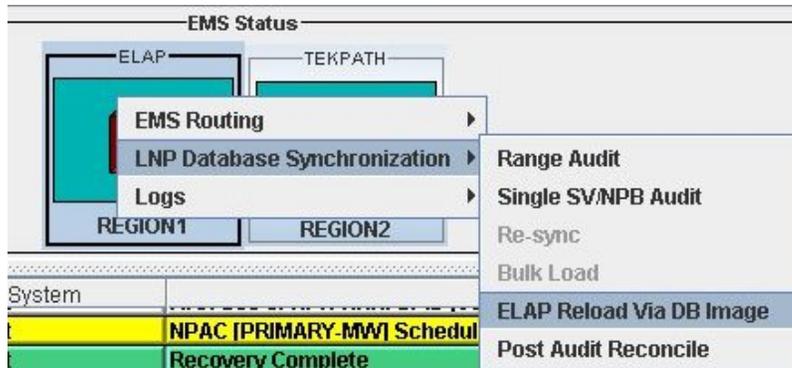
Support ELAP Reload Via Database Image Function

The Support ELAP Reload via Database Image (SERVDI) function performs bulk data downloads (BDD) that significantly reduces the time needed to reload an ELAP database. SERVDI is included with the optional 384 Million Records feature.

The SERVDI function is executed on the LSMS system and creates an RTDB LNP 384 million records database image file directly from the LSMS LNP databases. See [Figure 75: ELAP Reload Via DB Image Function](#) on page 101. The SERVDI download file must be transferred to the ELAP

system backup directory. Once transferred, the file is activated by using the restore from backup process in the ELAP GUI.

Figure 75: ELAP Reload Via DB Image Function



SERVDI Bulk Download

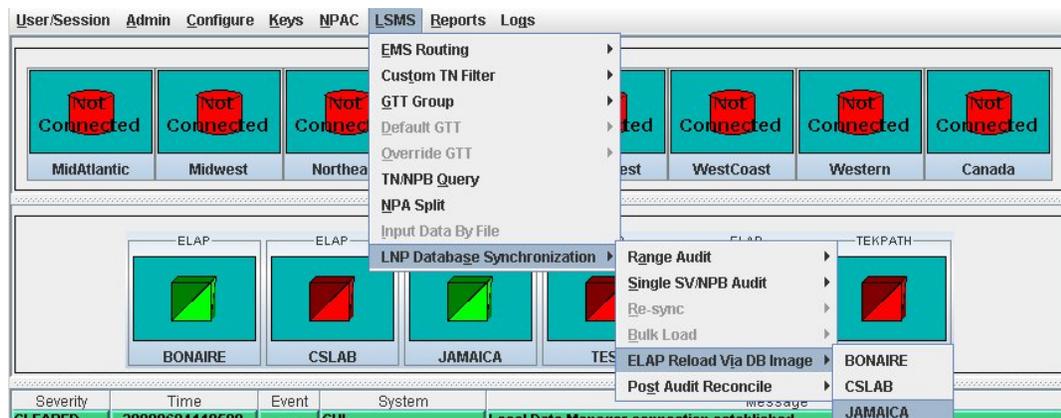
Use the following procedure to perform an ELAP bulk download from the LSMS.

Note: SERVDI is part of the additional-cost, optional 384 Million Records feature. Contact Tekelec Customer Care Center for more information.

Note: The LSMS bulk download SERVDI creates the bulkload file, but cannot send it to the active ELAP unless the Secure Shell Keys (SSKs) have been exchanged. This procedure is part of the ELAP configuration procedure, and is illustrated in the *ELAP Administration Manual - 384 Million TNs*, and the *LNP Feature Activation Guide*. Once this step is complete, the SERVDI bulk download can be sent from the LSMS to the active ELAP.

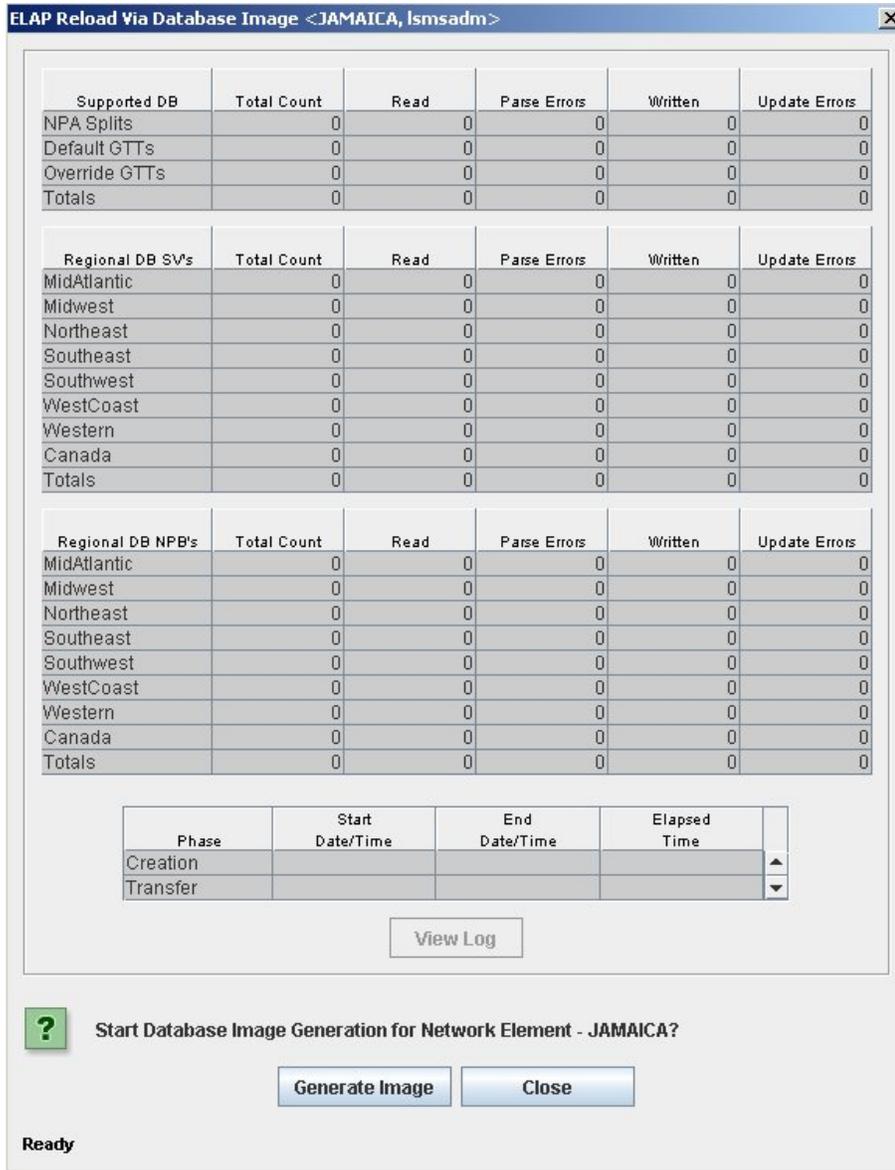
1. Log in to the LSMS GUI as a member of the permission group that is authorized to perform this operation.
2. From the LSMS Console window, select **LSMS > LNP Database Synchronization > ELAP Reload Via DB Image > <CLLI>** where <CLLI> is the ELAP network element that requires the bulk download.

Figure 76: ELAP Reload Via DB Image



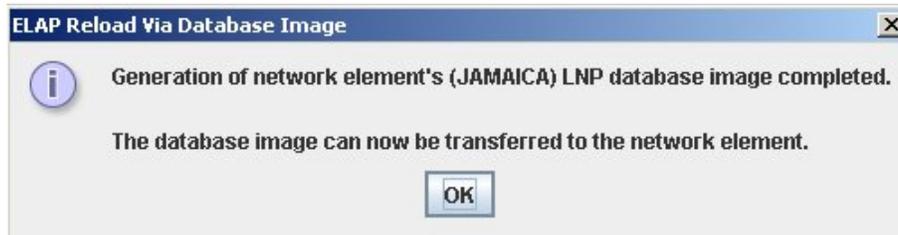
3. Click **Generate Image**.

Figure 77: Generate Image



4. The LSMS creates a database file of the ELAP database image. When the process completes, a confirmation dialog appears.

Figure 78: Database Image Completed



Click **OK** to continue.

Note: If necessary, you can stop the bulk download process before the database image is complete. To stop the bulk download process, click **Abort**. A confirmation dialog appears. Click **Yes** to terminate the bulk download in progress. Click **No** to continue with the bulk download.

Figure 79: Abort Bulk Download

ELAP Reload Via Database Image <JAMAICA, lmsadm>

Supported DB	Total Count	Read	Parse Errors	Written	Update Errors
NPA Splits	0	0	0	0	0
Default GTTs	0	0	0	0	0
Override GTTs	0	0	0	0	0
Totals	0	0	0	0	0

Regional DB SV's	Total Count	Read	Parse Errors	Written	Update Errors
MidAtlantic	94990709	200000	0	60000	0
Midwest	14500000	240000	0	100000	0
Northeast	11165590	260000	0	80000	0
Southeast	13020000	160000	0	40000	0
Southwest	59000000	140000	0	20000	0
WestCoast	95000000	280000	0	100000	0
Western	95200000	240000	0	100000	0
Canada	0	0	0	0	0
Totals	382876299	1520000	0	500000	0

Regional DB NPB's	Total Count	Read	Parse Errors	Written	Update Errors
MidAtlantic	0	0	0	0	0
Midwest	0	0	0	0	0
Northeast	0	0	0	0	0
Southeast	0	0	0	0	0
Southwest	0	0	0	0	0
WestCoast	0	0	0	0	0
Western	0	0	0	0	0
Canada	0	0	0	0	0
Totals	0	0	0	0	0

Phase	Start Date/Time	End Date/Time	Elapsed Time
Creation	06/04 12:03:23		00:00:27
Transfer			

[View Log](#)

i Click 'Abort' to Stop Operation.

[Abort](#) [Close](#)

Generating database image, please wait...

Figure 80: Abort Confirmation

ELAP Reload Via Database Image

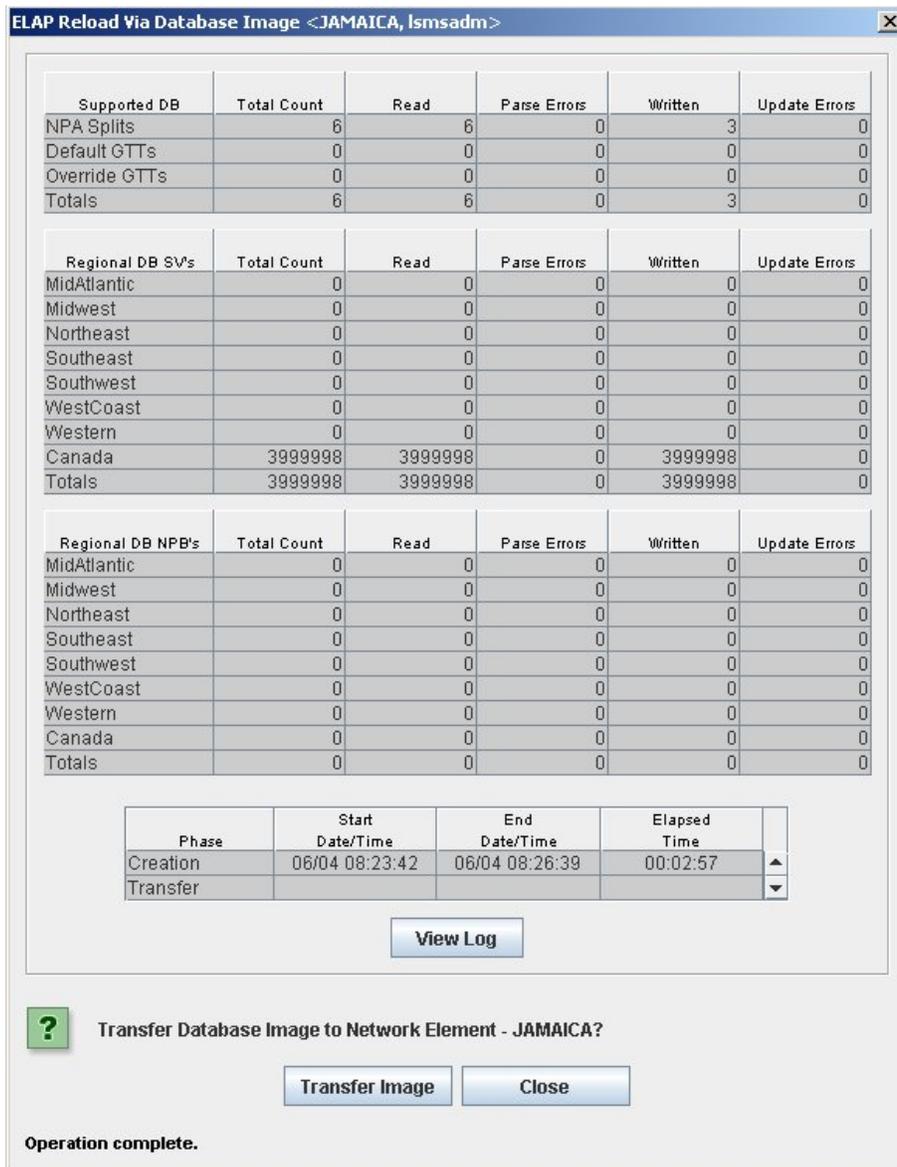
? Aborting this operation will terminate the ELAP database image generation prior to completion. The ELAP database image generation will have to be restarted and completed prior to transferring it to the NE.

Abort operation in progress?

[Yes](#) [No](#)

5. Click **Transfer Image** to transfer the bulk download to the ELAP.

Figure 81: Transfer Database Image to ELAP



When the transfer completes, a confirmation dialog appears. Click **OK** to continue.

Figure 82: Image Transfer Complete



6. Click **Close** to return to the main LSMS Console window.

In order to complete this process, you must reload the ELAP database using the file generated in [Step 4](#) on page 102. For more information about how to reload an ELAP database, refer to the procedure, [Restore RTDB on ELAP 8.0](#) on page 111.

Bulk Load Log File

This section describes the following topics:

- [Viewing the Bulk Load Log File](#) on page 106
- [Bulk Load Log File Contents](#) on page 107

Viewing the Bulk Load Log File

After a resynchronization has begun, you can view the electronic bulk load log file by clicking the **View Log** button. The browser window displays the log file `LsmsBulkload.log.<MMDD>`. The file is located in the directory `/usr/local/LSMS/logs/<CLLI>`. **<CLLI>** is the Common Language Location Identifier of the network element receiving the bulk load. **<MMDD>** is the timestamp that contains month and day that the file was created.

You can also use one of the following methods to open the window shown in [Figure 83: Open Log Files Window](#) on page 106 to browse for this log:

- Select **Logs > Other...** from the main menu of the **LSMS Console** window.
- Click on the **LSMS Console** window's **EMS Status** icon that corresponds to the network element receiving the bulk load so that the icon is highlighted. Right-click and select **Logs > LNP Database Synchronization > Bulk Load**.

The Open Log Files window displays.

Figure 83: Open Log Files Window



Scroll down to find the folder that has the **<CLLI>** name for the NE that was bulk loaded. Double-click the folder name, and then double-click the file name `LsmsBulkload.log.<MMDD>` that corresponds to the month and day you desire.

Note: Log files are maintained for seven days and then automatically removed from the LSMS.

Bulk Load Log File Contents

When a bulk load is started, the bulk load log file for that day is appended (if this is the first bulk load of the day, the file is created). For each bulk load performed on that day, the bulk load log file contains information similar to the information displayed on the Bulk Load main window, such as start and end times for the bulk load, and numbers of successes and failures in various LNP categories.

The bulk load log file contains the following sections:

- Header Section
- Bulk Load Section
- Resynchronization Section
- Summary Section
- Download Commit/Discard Section

See Appendix C of the *LNP Database Synchronization Manual - LSMS with EAGLE 5 ISS* for more information on these sections.

Figure 84: Example Bulk Load Log File on page 107 shows an example of a bulk load log file.

Figure 84: Example Bulk Load Log File

```
Wed Oct 31 14:02:03 GMT 2001

Username: lsmsall
NE CLLI: STPB

-----

Wed Oct 31 14:02:02 GMT 2001
Connection established with network element (192.168.61.202:1030)

Bulk download started on Wed Oct 31 14:02:13 GMT 2001

Bulk download completed on Wed Oct 31 14:02:27 GMT 2001

      LNP Services           6 Downloaded           0 errors
      NPA Splits             1 Downloaded           0 errors
      Number Pool Blocks     2 Downloaded           0 errors
      Subscription Versions 1004 Downloaded        0 errors
      Default GTTs           1 Downloaded           0 errors
      Override GTTs          1 Downloaded           0 errors
      Total                   1015 Downloaded        0 errors

Re-sync started on Wed Oct 31 14:02:29 GMT 2001

New NE LNP Database Time Stamp: Wed Oct 31 14:02:30 GMT 2001
```

Re-sync completed on Wed Oct 31 14:02:30 GMT 2001

NPA Splits	0 Downloaded	0 errors
Number Pool Blocks	0 Downloaded	0 errors
Subscription Versions	0 Downloaded	0 errors
Default GTTs	0 Downloaded	0 errors
Override GTTs	0 Downloaded	0 errors
Total	0 Downloaded	0 errors

Commit completed on Wed Oct 31 14:02:48 GMT 2001.

Username: lsmsall
NE CLI: STPB

Bulk download started on Wed Oct 31 15:04:54 GMT 2001

Bulk download completed on Wed Oct 31 15:05:09 GMT 2001

LNP Services	6 Downloaded	0 errors
NPA Splits	1 Downloaded	0 errors
Number Pool Blocks	2 Downloaded	0 errors
Subscription Versions	1004 Downloaded	0 errors
Default GTTs	1 Downloaded	0 errors
Override GTTs	1 Downloaded	0 errors
Total	1015 Downloaded	0 errors

Re-sync started on Wed Oct 31 15:05:19 GMT 2001

New NE LNP Database Time Stamp: Wed Oct 31 15:05:20 GMT 2001

Re-sync completed on Wed Oct 31 15:05:20 GMT 2001

NPA Splits	0 Downloaded	0 errors
Number Pool Blocks	0 Downloaded	0 errors
Subscription Versions	0 Downloaded	0 errors
Default GTTs	0 Downloaded	0 errors
Override GTTs	0 Downloaded	0 errors
Total	0 Downloaded	0 errors

Discard completed on Wed Oct 31 15:10:55 GMT 2001.

Bulk Load Error Messages

For a listing of error messages that can appear on the GUI, along with explanation of possible cause and suggested recovery, see Appendix A in the *LNP Database Synchronization Manual - LSMS with EAGLE 5 ISS*.

Copying One RTDB from Another RTDB

This section describes the procedures for copying an EAGLE LNP Application Processor (ELAP) Real Time Database (RTDB) from another ELAP RTDB to reload a corrupted or backlevel RTDB. For more information about when to perform the procedures in this section, see *The LNP Database Synchronization Manual, Choosing a Database Maintenance Procedure*.

The following procedures are covered by this section:

- [Restore RTDB on ELAP 8.0](#) on page 111
- [Copy RTDB from Remote on ELAP 8.0](#) on page 114

Restore RTDB on ELAP 8.0

In previous versions of ELAP, databases were copied from the mate. The Copy from Mated ELAP function is no longer supported with the 384 Million LNP Records feature. If you have purchased the 384 Million Records feature and are running on ELAP 8.0, follow the procedures for Restore RTDB on ELAP 8.0 in place of the previous process to copy the RTDB from the mated ELAP.

ELAP 8.0 uses a Distributed Replicated Block Device (DRBD) to replicate the database, which provides significantly faster download times. The DRBD replicates the database by using a snapshot image of the database. This new function, Support ELAP Reload Via Database Image, or SERVDI, is executed on the LSMS for the bulk download, and the process is completed with the procedure to restore the RTDB. See [Restore RTDB on ELAP 8.0](#) on page 111 for the detailed procedure.

For more information on the SERVDI function, see [SERVDI Bulk Download](#) on page 101.

Copy RTDB from Remote on ELAP 8.0

With the 384 Million LNP Records feature, it is no longer necessary to stop the software before performing this procedure. ELAP 8.0 uses a snapshot image of the database to replicate the database, making this a significantly faster process.

After completing the Copy RTDB from Remote procedure, the database must be restored to make the transferred file the active RTDB. See [Restore RTDB on ELAP 8.0](#) on page 111 for the procedure to restore the RTDB.

Verifying RTDB Status

Before or after executing the Copy One RTDB to Another RTDB procedure, verify the status of the RTDBs using either or both of the following methods:

- [Verifying RTDB Status at the EAGLE 5 ISS Terminal](#) on page 109
- [Verifying RTDB Status at the ELAP User Interface](#) on page 110

Verifying RTDB Status at the EAGLE 5 ISS Terminal

To verify the status of the ELAP RTDBs at the EAGLE 5 ISS terminal, enter the `rept-stat-db:db=mps` command.

The command output displays database timestamp (DBTS) of both ELAP RTDBs in the RTDB-EAGLE field, as shown in bold in the following example. The DBTS indicates the last time an update was received by this RTDB from the LSMS. If the two DBTS values are not the same, the RTDB with the lower DBTS may need database maintenance.

```
tekelecstp 02-10-29 08:55:54 NZST EAGLE 39.0.0.0
      ELAP A ( ACTV )
      C BIRTHDATE                LEVEL      EXCEPTION
```

```

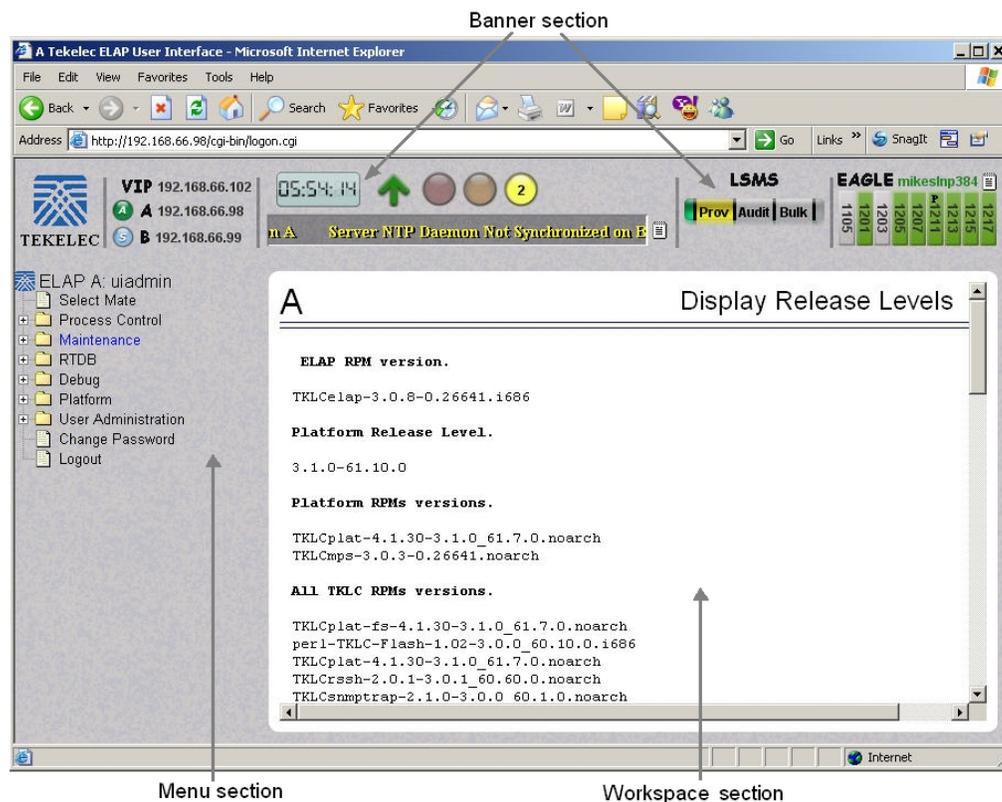
-----
RTDB          Y 02-10-29 08:20:04      12345      -
RTDB-EAGLE   Y 02-10-29 08:20:04      12345      -
-----
-
                                     ELAP B ( STDBY )
C BIRTHDATE                                LEVEL      EXCEPTION
-----
RTDB          Y 02-10-29 08:20:04      12345      -
RTDB-EAGLE   Y 02-10-29 08:20:04      12345      -
-----
;
    
```

Verifying RTDB Status at the ELAP User Interface

To verify the status of ELAP RTDBs at the ELAP user interface (view the status of the databases), perform the following procedure.

1. Open a browser window and connect your web browser to the ELAP GUI (for more information about connecting to the ELAP GUI, refer to the *ELAP Administration Manual*).
Log in with the user name and password for a user who is authorized to access the menu items shown in this procedure. The ELAP GUI is displayed, [Figure 85: ELAP Main Screen](#) on page 110 .

Figure 85: ELAP Main Screen



2. From the Main Menu, select **RTDB > View RTDB Status**.

The ELAP GUI workspace displays the RTDB status, as shown in [Figure 86: ELAP RTDB Status](#) on page 111.

Figure 86: ELAP RTDB Status

Local RTDB Status			
DB Status:	Coherent	Audit Enabled:	Yes
RTDB Level:	8708	RTDB Birthday:	09/26/2005 20:44:35 GMT
Counts:	TNs=8708, NPANXXs=778, LRNs=2, SPs=2, MRs=8, MRGroups=2		
Reload:	None		

Mate RTDB Status			
DB Status:	Coherent	Audit Enabled:	Yes
RTDB Level:	8708	RTDB Birthday:	09/26/2005 20:44:44 GMT
Counts:	TNs=8708, NPANXXs=778, LRNs=2, SPs=2, MRs=8, MRGroups=2		
Reload:	None		

Note the values displayed for DB Level and DB Birthday for both the local RTDB and the mate RTDB.

3. To verify that both RTDBs are ready for normal service, ensure that:
 - a) The status for both RTDBs displays
 - b) Both RTDBs are coherent
 - c) Both RTDBs have the same birthday
 - d) Both RTDBs have the same level (if provisioning is occurring, the levels might be different by a very small number)

If you are not sure how to interpret the status of the RTDBs, contact the [Customer Care Center](#) on page 4.

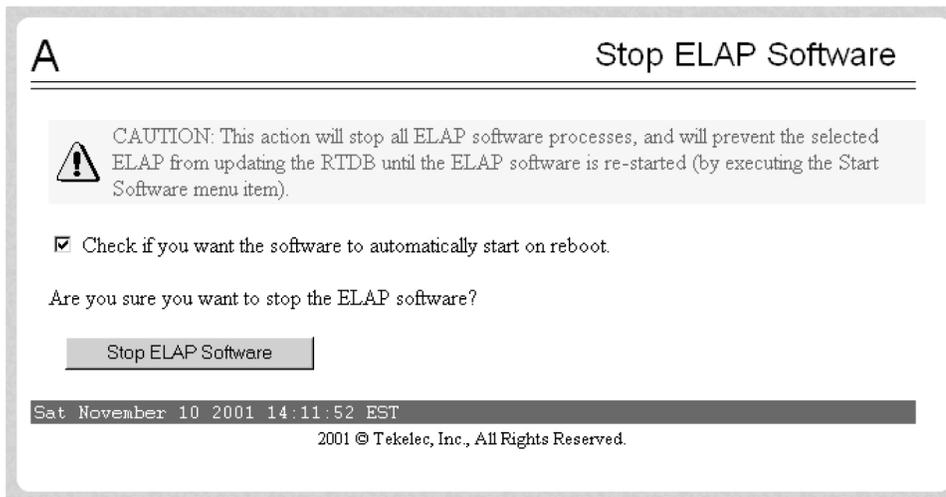
You have now completed this procedure.

Restore RTDB on ELAP 8.0

Follow these steps to restore the RTDB from a backup file after performing a bulk download.

1. Open a browser window and connect your web browser to the ELAP GUI (for more information about connecting to the ELAP GUI, refer to the *ELAP Administration Manual*).
2. Log in with the user name and password for an authorized user.
3. From the ELAP GUI menu, select **Process Control** ► **Stop Software** to ensure that no other updates are occurring. The screen shown in [Figure 87: Stopping Software on the ELAP GUI](#) on page 111 displays. Click the **Stop ELAP Software** button.

Figure 87: Stopping Software on the ELAP GUI



After the software on the selected ELAP has stopped, the screen shown in [Figure 88: Stop ELAP Software - Success](#) on page 112 is displayed.

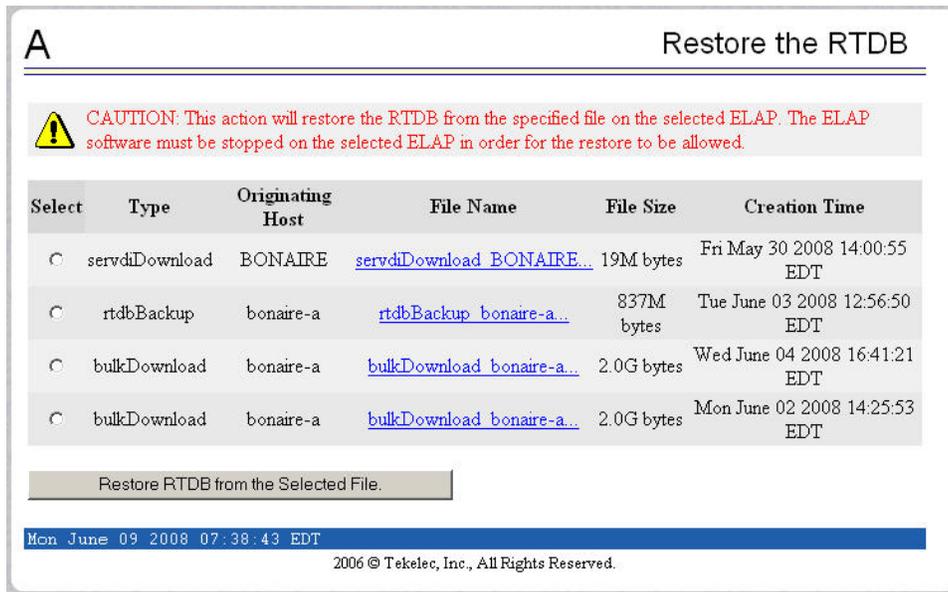
Figure 88: Stop ELAP Software - Success



4. Select RTDB ► Maintenance ► Restore RTDB.

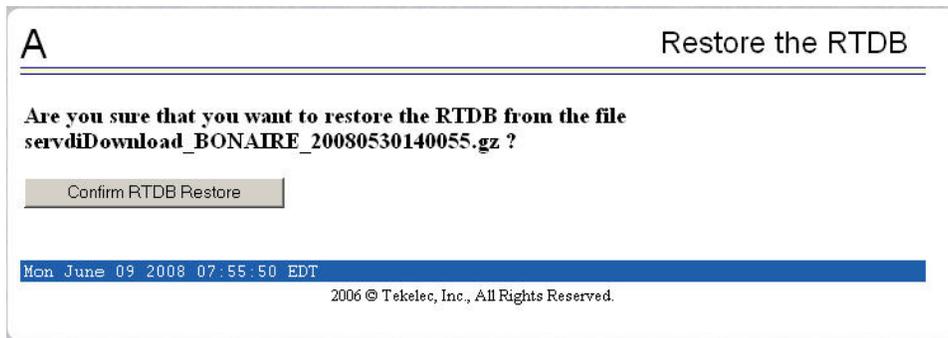
The Restore the RTDB screen displays, [Figure 89: Restore the RTDB](#) on page 112.

Figure 89: Restore the RTDB



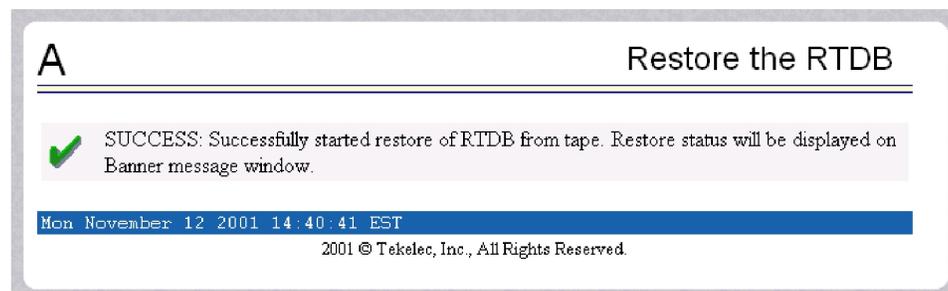
5. Select the appropriate file to restore and click the **Restore RTDB from the Selected File** button.
6. To confirm restoring the file, click the **Confirm RTDB Restore** button on the confirmation dialog, *Figure 90: Confirm RTDB Restore* on page 113.

Figure 90: Confirm RTDB Restore



7. After the file is successfully restored, the screen shown in *Figure 91: Successful RTDB Restoration* on page 113 displays.

Figure 91: Successful RTDB Restoration



Copy RTDB from Remote on ELAP 8.0

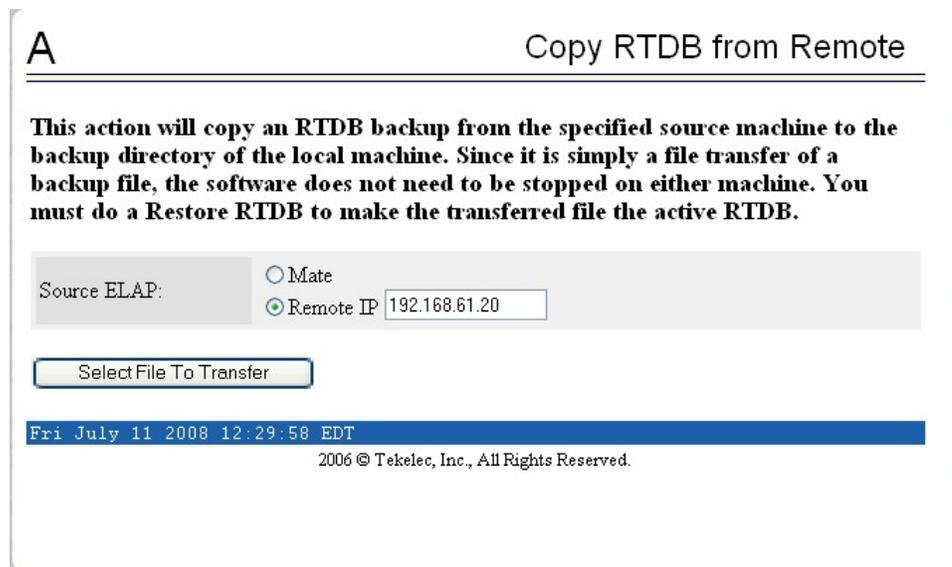
With the 384 Million Records feature on ELAP 8.0, it is no longer necessary to stop the software before performing this procedure. You must restore the RTDB to make the transferred file the active RTDB.

Follow these steps to copy the RTDB from a remote ELAP to the local ELAP.

1. Open a browser window and connect your web browser to the ELAP GUI (for more information about connecting to the ELAP GUI, refer to the *ELAP Administration Manual*).
2. Log in with the user name and password for a user who is authorized to access the menu items shown in this procedure.
3. From the ELAP GUI menu, select **RTDB ► Maintenance ► Copy from Remote**.

The Copy RTDB from Remote screen displays, [Figure 92: Copy RTDB from Remote](#) on page 114.

Figure 92: Copy RTDB from Remote



4. To copy the local RTDB, choose the source to reload. If you are selecting a Remote IP address, enter the address in the text field. Click the **Select File To Transfer** button.
5. Select the appropriate file from the screen that opens, as shown in [Figure 93: Copy RTDB from Remote Selection](#) on page 114. Click the **Copy the selected remote RTDB backup** button.

Figure 93: Copy RTDB from Remote Selection

A Copy RTDB from Remote

Backup files on 192.168.61.20:

Select	Type	Originating Host	File Name	File Size	Creation Time
<input type="radio"/>	rtdbBackup	fiji-a	rtdbBackup fiji-a...	854M bytes	Fri July 11 2008 12:25:43 EDT
<input type="radio"/>	servdiDownload	BONAIRE	servdiDownload BONAIRE...	854M bytes	Tue June 24 2008 12:38:12 EDT
<input type="radio"/>	rtdbBackup	bonaire-b	rtdbBackup bonaire-b...	19M bytes	Mon June 23 2008 15:48:45 EDT

Copy the selected remote RTDB backup.

Fri July 11 2008 12:30:53 EDT

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After the reload is complete, a confirmation message displays.

To reload the RTDB, follow the procedure as shown in [Restore RTDB on ELAP 8.0](#) on page 111.

Activating the LNP Feature on the EAGLE 5 ISS

The 384 Million LNP Records feature is a quantity feature that increases the LNP capacity from 228 million LNP numbers and number blocks to 384 million LNP numbers and number pool blocks per EAGLE 5 ISS node. This feature also provides up to 200,000 LRNs and 350,000 NPA-NXX numbers on a single node. The 384 Million LNP Records feature requires ELAP version 8.0 and LSMS version 11.0.

The LNP feature is activated with the `enable-ctrl-feat` command specifying the feature access key and part number of the desired LNP telephone number quantity up to 384 million records. The assigned quantity can be verified with the `rtrv-ctrl-feat` command.



CAUTION

CAUTION:

The 384 Million Records feature does not support DSM cards. Only E5-SM4G cards can be used for this feature. All DSM cards must be removed to enable this quantity. See the LNP Hardware and Part Number Configuration Table, [Table 2: LNP Hardware and Part Number Configuration Table](#) on page 17 for specific card requirements and compatibility matrix.

Before the LNP feature can be activated, or before the quantity of LNP telephone numbers can be increased, Service Module cards with the correct amount of memory must be configured in the EAGLE 5 ISS. See [Table 2: LNP Hardware and Part Number Configuration Table](#) on page 17 for the Service Module card requirements. [Table 2: LNP Hardware and Part Number Configuration Table](#) on page 17 also contains the part numbers of the LNP telephone quantities that are specified with the `enable-ctrl-feat` command. For more information on the Service Module cards, go to the *Hardware Manual - EAGLE 5 ISS*.

The feature access key is based on the feature part number and the serial number of the EAGLE 5 ISS, making the feature access key site-specific.

The `enable-ctrl-feat` command enables the LNP telephone number quantity by inputting the feature access key and the part number corresponding to the desired LNP telephone number quantity with these parameters:

:fak

The feature access key provided by Tekelec. The feature access key contains 13 alphanumeric characters and is not case sensitive.

:partnum

The Tekelec-issued part number associated with the LNP telephone number quantity, without the dashes. See [Table 2: LNP Hardware and Part Number Configuration Table](#) on page 17.

The `enable-ctrl-feat` command requires a valid serial number for the EAGLE 5 ISS is configured in the database, and that this serial number is locked. This can be verified with the `rtrv-serial-num` command. The EAGLE 5 ISS is shipped with a serial number in the database, but the serial number is not locked. The serial number can be changed, if necessary, and locked once the EAGLE 5 ISS is on-site, by using the `ent-serial-num` command. The `ent-serial-num` command uses these parameters.

:serial

The serial number assigned to the EAGLE 5 ISS. The serial number is not case sensitive.

:lock

Specifies whether or not the serial number is locked. This parameter has only one value, `yes`, which locks the serial number. Once the serial number is locked, it cannot be changed.

Note: To enter and lock the EAGLE 5 ISS's serial number, the `ent-serial-num` command must be entered twice, once to add the correct serial number to the database with the `serial` parameter, then again with the `serial` and the `lock=yes` parameters to lock the serial number. You should verify that the serial number in the database is correct before locking the serial number. The serial number can be found on a label affixed to the control shelf (shelf 1100).

The LNP ELAP Configuration feature must be enabled and turned on before the LNP telephone number quantity can be enabled.

The LNP ELAP Configuration feature is enabled with the `enable-ctrl-feat` command, and turned on with the `chg-ctrl-feat` command. The `chg-ctrl-feat` command uses these parameters:

:partnum

The Tekelec-issued part number specified in the `enable-ctrl-feat` command. The part number for the LNP ELAP Configuration feature is 893010901.

:status=on

Enables the LNP ELAP Configuration feature.

Note: Once the LNP feature is enabled for a specific quantity with the `enable-ctrl-feat` command, that quantity cannot be reduced. The LNP and LNP ELAP Configuration features cannot be disabled, and cannot be enabled with the temporary feature access key. The `chg-ctrl-feat` command cannot be specified for an LNP telephone number quantity. The LNP telephone number quantity and the LNP ELAP Configuration feature must be purchased before

you can enable that quantity or the LNP ELAP Configuration feature with the `enable-ctrl-feat` command. If you are not sure if you have purchased the desired LNP telephone number quantity or the LNP ELAP Configuration feature, or do not have the feature access key for the LNP telephone number quantity being enabled or the LNP ELAP Configuration feature, contact your Tekelec Sales Representative or Account Representative.



CAUTION

CAUTION: It is recommended that the ELAP is connected to the EAGLE 5 ISS before LNP telephone number data is loaded onto the ELAP and before the LNP telephone number quantity is enabled on the EAGLE 5 ISS. When the LNP telephone number quantity is enabled on the EAGLE 5 ISS, the feature key and quantity information is sent to the ELAP, resulting in the ELAP database quantity being the same as the LNP telephone number quantity on the EAGLE 5 ISS. If the ELAP database quantity is larger than the LNP telephone number quantity on the EAGLE 5 ISS, the ELAP RTDB is not loaded onto the entire set of Service Module cards on the EAGLE 5 ISS. Some of the Service Module cards load the ELAP RTDB to provide a restricted level of GTT/LNP service. The remainder of the Service Module cards are put into a restricted state. UIM 1323 is generated at the EAGLE 5 ISS. To avoid this situation, make sure that the LNP telephone number quantity configured on the EAGLE 5 ISS in this procedure is greater than the ELAP database quantity.

Note: This procedure is performed on the EAGLE 5 ISS.

1. Display the status of the EAGLE 5 ISS's database by entering the `rept-stat-db` command.

```
tekelecstp 08-08-29 08:38:25 NZST EAGLE 39.2.0
DATABASE STATUS: >> OK <<
      TDM 1114 ( ACTV )
      C LEVEL      TIME LAST BACKUP      C LEVEL      TIME LAST BACKUP
      -----
FD BKUP Y   1   08-05-29 08:20:13 NZST Y   11   08-05-29 08:20:13 NZST
FD CRNT Y   11
      MDAL 1117
      -----
RD BKUP Y   1 08-05-29 15:44:20 NZST
;
```

The database is backed up to the fixed disk and a removable cartridge before the LNP feature is activated. The removable cartridge that contains the database must be inserted in the removable cartridge drive. If the `RDBKUP` field of the `rept-stat-db` output contains dashes, the removable cartridge drive does not contain a removable cartridge. If dashes are shown in the `RDBKUP` field, insert the removable cartridge that contains the database into the removable cartridge drive. If the removable cartridge is not the cartridge that contains the database, replace the removable cartridge with the one that contains the database.

2. Back up the database using the `chg-db:action=backup:dest=fixed` command.

A text-based output displays. The active Maintenance and Administration Subsystem Processor (MASP) message 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.
```

3. Back up the database to the removable cartridge using the `chg-db:action=backup:dest=remove` command.

These messages appear:

```
BACKUP (REMOVABLE) : MASP B - Backup starts on active MASP.
BACKUP (REMOVABLE) : MASP B - Backup to removable cartridge complete.
```

4. Display the status of the databases by entering the `rept-stat-db` command.

```
tekelecstp 02-10-29 08:55:54 NZST EAGLE 39.2.0
DATABASE STATUS: >> OK <<
      TDM 1114 ( ACTV )          TDM 1116 ( STDBY )
      C LEVEL      TIME LAST BACKUP      C LEVEL      TIME LAST BACKUP
-----
FD BKUP Y 11 08-05-29 08:20:13 NZST Y 11 08-05-29 08:20:13 NZST
FD CRNT Y 12
      MDAL 1117
-----
RD BKUP Y 1 08-05-29 15:44:20 NZST
      ELAP A ( ACTV )
      C BIRTHDATE          LEVEL      EXCEPTION
-----
RTDB      Y 08-05-29 08:20:13      12345      -
RTDB-EAGLE 08-05-29 08:20:13 12345 -
-
      ELAP B ( STDBY )
      C BIRTHDATE          LEVEL      EXCEPTION
-----
RTDB      Y 08-05-29 08:20:13      12345      -
RTDB-EAGLE 08-05-29 08:20:13 12345 -
;
```

- If the databases are not coherent after [Step 2](#) on page 117 and [Step 3](#) on page 117 are performed, stop performing this procedure and contact the [Customer Care Center](#) on page 4.
 - If the databases are coherent after [Step 2](#) on page 117 and [Step 3](#) on page 117 are performed, remove the removable cartridge from the removable cartridge drive and store the removable cartridge in a secure place.
5. Display a summary report of all of the device trouble notifications in the EAGLE 5 ISS by entering the `rept-stat-trbl` command.

```
rlghncxa03w 07-08-01 16:07:48 GMT EAGLE5 37.0.0
SEQN UAM AL DEVICE ELEMENT TROUBLE TEXT
3540.0203 ** SLK 1201,A lsn1 REPT-LKF: lost data
3541.0203 ** SLK 1201,B lsn4 REPT-LKF: lost data
3542.0203 ** SLK 1202,A lsn2 REPT-LKF: lost data
3543.0203 ** SLK 1202,B lsn4 REPT-LKF: lost data
3544.0202 ** SLK 1203,A lsn3 REPT-LKF: HWP - too many link interrupts
3545.0202 ** SLK 1203,A1 lsn4 REPT-LKF: HWP - too many link interrupts
3545.0202 ** SLK 1203,B2 lsname489 REPT-LKF: HWP - too many link interrupts
0021.0318I** LSN lsn1 REPT-LKSTO: link set prohibited
0022.0318 ** LSN lsn2 REPT-LKSTO: link set prohibited
0023.0318 ** LSN lsn3 REPT-LKSTO: link set prohibited
0010.0318 ** LSN lsn4 REPT-LKSTO: link set prohibited
0029.0308 *C SYSTEM Node isolated due to SLK failures
```

If any alarms are shown in the `rept-stat-trbl` output, stop performing this procedure and contact the [Customer Care Center](#) on page 4.

6. Display the status of the cards in the EAGLE 5 ISS by entering the `rept-stat-card` command.

```
rlghncxa03w 07-08-01 12:57:21 GMT EAGLE5 37.0.0
CARD  VERSION      TYPE  APPL    PST      SST      AST
1102  123-001-000    TSM   GLS     IS-NR    Active   -----
1113  123-002-000    GPSM  EOAM    IS-NR    Active   -----
1114  -----        TDM   ----- IS-NR    Active   -----
1115  -----        GPSM  EOAM    IS-NR    Active   -----
1116  -----        TDM   ----- IS-NR    Active   -----
1117  -----        MDAL  ----- IS-NR    Active   -----
1201  123-002-000    LIMDS0 SS7ANSI IS-NR    Active   -----
1203  123-002-000    LIMDS0 SS7ANSI IS-NR    Active   -----
1301  123-001-000    DSM   VSCCP   IS-NR    Active   -----
1303  123-001-000    DSM   VSCCP   IS-NR    Active   -----
1305  123-002-000    DSM   VSCCP   IS-NR    Active   -----
1307  123-001-000    DSM   VSCCP   IS-NR    Active   -----
1311  123-001-000    DSM   VSCCP   IS-NR    Active   -----
1313  123-001-000    LIMDS0 SS7ANSI IS-NR    Active   -----
1314  123-001-000    LIMDS0 SS7ANSI IS-NR    Active   -----
1317  123-001-000    DCM   STPLAN  IS-NR    Active   -----
```

If the status of any of the cards shown in the `rept-stat-card` output is not IS-NR, stop performing this procedure and contact the [Customer Care Center](#) on page 4.

7. Display the status of the Service Module Cards running the VSCCP application by entering the `rept-stat-sccp` command.

```
tk1c1190601 08-10-01 16:31:14 EST EAGLE 40.0.0
CARD  VERSION      PST      SST      AST      MSU  CPU
-----  -----  -----  -----  -----  -----  -----
1205 P 126-027-000  IS-NR    Active   -----  0%   5%
1317  126-027-000  IS-NR    Active   -----  0%   5%
2213  126-027-000  IS-NR    Active   -----  0%   5%
2215  126-027-000  IS-NR    Active   -----  0%   6%
2217  126-027-000  IS-NR    Active   -----  0%   5%
2317  126-027-000  IS-NR    Active   -----  0%   5%
1105  126-027-000  IS-NR    Active   -----  0%   6%
-----  -----  -----  -----  -----  -----  -----
SCCP Service Average MSU Capacity = 0%   Average CPU Capacity = 5%
Command Completed.
```

Note: The `rept-stat-sccp` 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-sccp` command, see the `rept-stat-sccp` command description in the *EAGLE 5 ISS Commands Manual*.

Note: If the `rtrv-ctrl-feat` output ([Substep a](#) on page 20 in the *Activating the LNP Feature Overview* on page 20) shows any control features, skip [Step 8](#) on page 119 through [Step 11](#) on page 120, and go to [Step 12](#) on page 120. If the `rtrv-ctrl-feat` output shows only the IPGWx Signaling TPS feature with a quantity of 200 and the HC-MIM SLK Capacity feature with a quantity of 64, [Step 8](#) on page 119 through [Step 11](#) on page 120 must be performed.

8. Display the serial number in the database with the `rtrv-serial-num` command.

```
rlghncxa03w 07-08-01 21:15:37 GMT EAGLE5 37.0.0
System serial number = ntxxxxxxxxxxxxxxxx

System serial number is not locked.
```

```
rlghncxa03w 07-08-01 21:15:37 GMT EAGLE5 37.0.0
Command Completed
```

Note: If the serial number is correct and locked, skip [Step 9](#) on page 120, [Step 10](#) on page 120, and [Step 11](#) on page 120, and go to [Step 12](#) on page 120. If the serial number is correct but not locked, skip [Step 9](#) on page 120 and [Step 10](#) on page 120, and go to [Step 11](#) on page 120. If the serial number is not correct, but is locked, the LNP ELAP Configuration feature cannot be enabled and the remainder of this procedure cannot be performed. Contact the [Customer Care Center](#) on page 4 to get an incorrect and locked serial number changed. The serial number can be found on a label affixed to the control shelf (shelf 1100).

9. Enter the correct serial number into the database using the `ent-serial-num` command with the serial parameter.

```
ent-serial-num:serial=<EAGLE 5 ISS's correct serial number>
```

```
rlghncxa03w 07-08-28 21:15:37 GMT EAGLE5 37.0.0
ENT-SERIAL-NUM: MASP A - COMPLTD
```

10. Verify that the serial number entered into [Step 9](#) on page 120 was entered correctly using the `rtrv-serial-num` command.

```
rlghncxa03w 07-08-28 21:15:37 GMT EAGLE5 37.0.0
System serial number = nt00001231
System serial number is not locked.
rlghncxa03w 07-08-28 21:15:37 GMT EAGLE5 37.0.0
Command Completed
```

If the serial number was not entered correctly, repeat [Step 9](#) on page 120 and [Step 10](#) on page 120 and re-enter the correct serial number.

11. Lock the serial number in the database by entering the `ent-serial-num` command with the `lock=yes` parameter.
 - Use the serial number shown in [Step 8](#) on page 119, if the serial number shown in [Step 8](#) on page 119 is correct.
 - Use the serial number shown in [Step 10](#) on page 120, if the serial number was changed in [Step 9](#) on page 120.

```
ent-serial-num:serial=<EAGLE 5 ISS's serial number>:lock=yes
```

```
rlghncxa03w 07-08-28 21:15:37 GMT EAGLE5 37.0.0
ENT-SERIAL-NUM: MASP A - COMPLTD
```

Note: If the `rtrv-ctrl-feat` output ([Substep a](#) on page 20 in the [Activating the LNP Feature Overview](#) on page 20) shows the LNP ELAP Configuration feature is enabled and on, skip [Step 12](#) on page 120, [Step 13](#) on page 121 and [Step 14](#) on page 121, and go to [Step 15](#) on page 121.

Note: If the LNP ELAP Configuration feature is enabled and but not on, skip this step and go to [Step 13](#) on page 121.

12. Enable the LNP ELAP Configuration feature by entering this command.

```
enable-ctrl-feat:partnum=893010901:fak=<LNPELAP Configuration feature
access key>
```

```
rlghncxa03w 07-08-01 21:15:37 GMT EAGLE5 37.0.0
ENABLE-CTRL-FEAT: MASP B - COMPLTD
```

Note: The feature access key is provided by Tekelec. If you do not have the LNP ELAP Configuration feature access key, contact your Tekelec Sales Representative or Account Representative.

When the `enable-ctrl-feat` command has successfully completed, a text-based output displays.

- Turn the LNP ELAP Configuration feature on by entering this command.

```
chg-ctrl-feat:partnum=893010901:status=on
```

When the `chg-ctrl-feat` command has successfully completed, a text-based output displays.

```
rlghncxa03w 07-08-01 21:15:37 GMT EAGLE5 37.0.0
CHG-CTRL-FEAT: MASP B - COMPLTD
```

- Verify the changes by entering the `rtrv-ctrl-feat` command.

```
rtrv-ctrl-feat:partnum=893010901
```

```
rlghncxa03w 07-08-01 21:16:37 GMT EAGLE5 37.0.0
The following features have been permanently enabled:
Feature Name          Partnum    Status    Quantity
LNP ELAP Configuration 893011012 on        ----
```

- Enable the LNP telephone number quantity using the `enable-ctrl-feat` command with the part number of the desired quantity (shown in [Table 2: LNP Hardware and Part Number Configuration Table](#) on page 17 in [The LNP Solution](#) on page 16) and the feature access key for that quantity.

```
enable-ctrl-feat:partnum=893011012:fak=<LNP telephone number quantity
feature access key>
```

```
rlghncxa03w 07-08-01 21:15:37 GMT EAGLE5 37.0.0
ENABLE-CTRL-FEAT: MASP B - COMPLTD
```

Note: Make sure that the LNP telephone number quantity configured in this step is greater than the ELAP telephone number quantity. The ELAP telephone number quantity can be verified by performing the [Verifying RTDB Status at the ELAP User Interface](#) on page 110 procedure. If the telephone number quantity on the ELAP is greater than the LNP telephone number quantity configured in this step, the ELAP RTDB is not loaded onto the entire set of Service Module cards on the EAGLE 5 ISS. Some of the Service Module cards load the ELAP RTDB to provide a restricted level of GTT/LNP service. The remainder of the Service Module cards are put into a restricted state. UIM 1323 is generated at the EAGLE 5 ISS.

Note: The feature access key is provided by Tekelec. If you do not have the feature access key for the desired LNP telephone number quantity, contact your [Customer Care Center](#) on page 4.

- Verify the changes by entering the `rtrv-ctrl-feat` command with the part number specified in [Step 15](#) on page 121.

```
rtrv-ctrl-feat:partnum=893011012
```

```
rlghncxa03w 07-08-01 21:16:37 GMT EAGLE5 37.0.0
The following features have been permanently enabled:
Feature Name          Partnum    Status    Quantity
LNP TNs              893011012 on        96000000
```

17. Verify the changes to the Service Module Card running the VSCCP application by entering the `rept-stat-sccp` command.

```
tklcl1170501 08-10-18 10:16:24 EST EAGLE5 40.0.0
CARD  VERSION      PST           SST           AST           MSU  CPU
                USAGE  USAGE
-----
1217  126-030-000  IS-NR        Active        -----      100%  45%
1317  126-030-000  IS-NR        Active        -----      100%  51%
2217  126-030-000  IS-NR        Active        -----      100%  42%
3201  126-030-000  IS-NR        Active        -----       54%  25%
3203  126-030-000  IS-NR        Active        -----       55%  25%
3205  126-030-000  IS-NR        Active        -----       57%  27%
3207  126-030-000  IS-NR        Active        -----       69%  29%
3211  126-030-000  IS-NR        Active        -----       85%  35%
3213  126-030-000  IS-NR        Active        -----       94%  37%
3215  126-030-000  IS-NR        Active        -----       86%  35%
3217  126-030-000  IS-NR        Active        -----       74%  31%
4217  126-030-000  IS-NR        Active        -----       64%  28%
4317  126-030-000  IS-NR        Active        -----      100%  41%
5117  126-030-000  IS-NR        Active        -----      100%  40%
5317  126-030-000  IS-NR        Active        -----       56%  25%
6101 P 126-030-000  IS-NR        Active        -----       57%  32%
6103  126-030-000  IS-NR        Active        -----       63%  27%
6105  126-030-000  IS-NR        Active        -----       69%  37%
6107  126-030-000  IS-NR        Active        -----       66%  29%
6111  126-030-000  IS-NR        Active        -----       59%  27%
6113  126-030-000  IS-NR        Active        -----       55%  34%
6115  126-030-000  IS-NR        Active        -----       55%  26%
6117  126-030-000  IS-NR        Active        -----       54%  26%
1105  126-030-000  IS-NR        Active        -----       55%  26%
1107  126-030-000  IS-NR        Active        -----       55%  26%
-----
SCCP Service Average MSU Capacity = 71%   Average CPU Capacity = 32%
Command Completed.
```

In the `rept-stat-sccp` output, the primary state (PST) of the card should be IS-NR, and dashes should be shown in the AST column.

Note: The `rept-stat-sccp` 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-sccp` command, see the `rept-stat-sccp` command description in the *EAGLE 5 ISS Commands Manual*.

18. Display a summary report of all of the device trouble notifications in the EAGLE 5 ISS by entering the `rept-stat-trbl` command.

```
rlghncxa03w 07-08-01 16:07:48 GMT EAGLE5 37.0.0
SEQN UAM  AL  DEVICE      ELEMENT      TROUBLE TEXT
3540.0203 **  SLK 1201,A  lsn1        REPT-LKF: lost data
3541.0203 **  SLK 1201,B  lsn4        REPT-LKF: lost data
3542.0203 **  SLK 1202,A  lsn2        REPT-LKF: lost data
3543.0203 **  SLK 1202,B  lsn4        REPT-LKF: lost data
3544.0202 **  SLK 1203,A  lsn3        REPT-LKF: HWP - too many link interrupts
3545.0202 **  SLK 1203,A1 lsn4        REPT-LKF: HWP - too many link interrupts
```

```

3545.0202 ** SLK 1203,B2 lsname489 REPT-LKF: HWP - too many link interrupts
0021.0318I** LSN lsn1 REPT-LKSTO: link set prohibited
0022.0318 ** LSN lsn2 REPT-LKSTO: link set prohibited
0023.0318 ** LSN lsn3 REPT-LKSTO: link set prohibited
0010.0318 ** LSN lsn4 REPT-LKSTO: link set prohibited
0029.0308 *C SYSTEM Node isolated due to SLK failures

```

If any alarms are shown in the `rept-stat-trbl` output, stop performing this procedure and contact the [Customer Care Center](#) on page 4.

19. Display the overall status of the ELAP subsystem running on the MPS (Multi-Purpose Server) by entering the `rept-stat-mps` command.

```

rlghncxa03w 04-01-07 10:23:93 EST EAGLE 37.0
          VERSION      PST          SST          AST
ELAP A      027-015-000  OOS-MT      Fault        Standby
CRITICAL PLATFORM ALARM DATA = No Alarms
MAJOR PLATFORM ALARM DATA = h'0123456789ABCDEF
MINOR PLATFORM ALARM DATA = h'0123456789ABCDEF
CRITICAL APPLICATION ALARM DATA = No Alarms
MAJOR APPLICATION ALARM DATA = h'0123456789ABCDEF
MINOR APPLICATION ALARM DATA = No Alarms
ALARM STATUS = ** 0371 Major Platform Failure(s)

          VERSION      PST          SST          AST
ELAP B      027-015-000  OOS-MT      Fault        Active
CRITICAL PLATFORM ALARM DATA = No Alarms
MAJOR PLATFORM ALARM DATA = No Alarms
MINOR PLATFORM ALARM DATA = No Alarms
CRITICAL APPLICATION ALARM DATA = h'0123456789ABCDEF
MAJOR APPLICATION ALARM DATA = h'0123456789ABCDEF
MINOR APPLICATION ALARM DATA = No Alarms
ALARM STATUS = *C 0373 Critical Application Failure(s)

CARD PST          SST          LNP STAT
1106 P IS-NR      Active       ACT
1201 IS-ANR      Active       SWDL
1205 OOS-MT-DSBLD Manual       -----
1302 OOS-MT      Isolated    -----
1310 IS-ANR      Standby     SWDL

CARD 1106 ALARM STATUS = No Alarms
DSM PORT A: ALARM STATUS = No Alarms
DSM PORT B: ALARM STATUS = No Alarms
CARD 1201 ALARM STATUS = No Alarms
DSM PORT A: ALARM STATUS = ** 0084 IP Connection Unavailable
DSM PORT B: ALARM STATUS = ** 0084 IP Connection Unavailable
CARD 1205 ALARM STATUS = No Alarms
DSM PORT A: ALARM STATUS = ** 0084 IP Connection Unavailable
DSM PORT B: ALARM STATUS = ** 0084 IP Connection Unavailable
CARD 1302 ALARM STATUS = ** 0013 Card is isolated from the system
DSM PORT A: ALARM STATUS = ** 0084 IP Connection Unavailable
DSM PORT B: ALARM STATUS = ** 0084 IP Connection Unavailable
CARD 1310 ALARM STATUS = No Alarms
DSM PORT A: ALARM STATUS = ** 0084 IP Connection Unavailable
DSM PORT B: ALARM STATUS = ** 0084 IP Connection Unavailable

```

```
Command Completed.
;
```

If any alarms are shown in the `rept-stat-mps` output, stop performing this procedure and contact the [Customer Care Center](#) on page 4.

20. Backup the new changes using the `chg-db:action=backup:dest=fixed` command. A text-based output is displayed. 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.
```

21. Display the status of the databases with the `rept-stat-db` command.

```
tekelecstp 02-10-29 08:39:24 NZST EAGLE 30.0.0
DATABASE STATUS: >> OK <<
      TDM 1114 ( ACTV )                TDM 1116 ( STDBY)
      C LEVEL  TIME LAST BACKUP      C LEVEL  TIME LAST BACKUP
      - - - - -
FD BKUP Y   11  02-10-29 08:20:13 NZST Y   11  02-10-29 08:20:13 NZST
FD CRNT Y   11
      MDAL 1117
      - - - - -
RD BKUP Y    1  02-10-24 15:44:20 NZST

ELAP A  ( ACTV )
      C  BIRTHDATE                    LEVEL      EXCEPTION
      - - - - -
      RTDB                Y  02-10-29 08:20:04      12345      -
      RTDB-EAGLE          Y  02-10-29 08:20:04      12345      -
      -
ELAP B  ( STDBY )
      C  BIRTHDATE                    LEVEL      EXCEPTION
      - - - - -
      RTDB                Y  02-10-29 08:20:04      12345      -
      RTDB-EAGLE          Y  02-10-29 08:20:04      12345      -
;
```

If the databases are not coherent, or if ELAP A and B do not have the same birthdate, contact the [Customer Care Center](#) on page 4. If the databases are coherent, and if ELAP A and B have the same birthdate, this procedure is finished.

You have completed this procedure.

Distributing the LNP Database after LSMS-Based Operation or RTDB Copy

The network element has multiple copies of the LNP database. Synchronization operations are performed on one database. After an RTDB copy or a synchronization operation initiated from the LSMS GUI, the remaining NE LNP databases must be synchronized with the newly synchronized NE database in one of the following ways:

- Automatic Data Distribution

After the following LNP database synchronization operations, data is distributed automatically from the network element's newly synchronized LNP database to all other LNP databases at the network element:

- Automatic resynchronization (see "Automatic Resynchronization Process" in the *LNP Database Synchronization Manual - LSMS with EAGLE 5 ISS*)
- Reconcile (see "Audit and Reconcile Overview" in the *LNP Database Synchronization Manual - LSMS with EAGLE 5 ISS*)
- Network Element Database is not Required after Copying an RTDB from its Mate ELAP
If network element's database synchronization is accomplished only by copying an RTDB from its mate ELAP's RTDB (but not when copying from the mate RTDB is performed after copying an RTDB from the remote mated network element or after a bulk load from the LSMS), it is not necessary to distribute the data to the Service Module cards because they are already synchronized with the RTDB that was used to restore from. Therefore, after the copy, the Service Module cards are now synchronized with both RTDBs.
- Other Network Element Database Distribution

After other LNP database synchronization operations, the network element main LNP database must be distributed by operator intervention to other LNP databases within the network element (both the mate RTDB and the Service Module cards). See [Distributing an RTDB LNP Database to Service Module Cards](#) on page 125.

Distributing an RTDB LNP Database to Service Module Cards

This section describes how to distribute the LNP database to the Service Module cards after the RTDB has been updated by one of the following actions:

- Copied from an RTDB on the mated network element (see [Copying One RTDB from Another RTDB](#) on page 108)
- Updated by one of the following operations sent from the LSMS:
 - Bulk loaded from the LSMS (see [Managing Bulk Load from the LSMS](#) on page 94)
 - Support ELAP reload via database image (SERVDI) bulk download from the LSMS (see [SERVDI Bulk Download](#) on page 101)

Distributing an RTDB LNP Database to a Service Module Card

Perform the following procedure to distribute the data from the ELAP's LNP database to the Service Module cards.

1. Distribute the imported LNP database onto each Service Module card, which will also silence the LNP database alarms.

Use one of the following methods:

- a) Method A loads the imported LNP database onto one Service Module card at a time by reloading each Service Module.

This method allows the global title translation and LNP functions to continue running while the new LNP database is being loaded. When the Service Module card is reinitializing, its database goes temporarily out of service for the period of time that it takes to reload the

database on the Service Module card. The time required to reload the database depends upon the size of the database and can take as long as 23 minutes for an LNP database containing 384 million LNP subscriptions

- b) Method B loads the imported LNP database onto all Service Module cards in the EAGLE 5 ISS by reinitializing all the Service Module cards at once.



CAUTION

CAUTION: This method not only loads the imported LNP database onto the Service Module cards at the same time, but takes all the Service Module cards out of service and the LNP subsystem will be offline. This method should only be used in emergency situations.

Method A: Perform steps **a** and **b** in this method for each Service Module card, one Service Module card at a time.

1. Take the Service Module card out of service with the `rmv-card` command specifying the location of the Service Module card. If there is only one Service Module card in the EAGLE 5 ISS, the `force=yes` parameter must be specified with the `rmv-card` command. For this example, enter this command:

```
rmv-card:loc=1301
```

After successful completion of this command, the EAGLE 5 ISS returns the following output:

```
rlghncxa03w 06-08-01 11:11:28 GMT Eagle5 39.0
Card has been inhibited.
```

2. Return the Service Module card to service with the `alw-card` command with the location of the Service Module card and the option `data=persist` to allow a warm restart if possible. This command validates that the LNP database on the specified Service Module card is correct. If the LNP database is correct, no further loading is required. If the LNP database is not correct, it is automatically reloaded from the RTDB; loading may require up to an hour. For this example, enter this command:

```
alw-card:loc=1301:data=persist
```

After successful completion of this command, the EAGLE 5 ISS returns the following output:

```
rlghncxa03w 06-06-01 11:11:28 GMT Eagle5 39.0.0
Card has been allowed.
```

3. When the Service Module card is returned to service, the major alarm is silenced and UAM 0431, LNP database has been corrected, is generated. For this example, this message is generated:

```
rlghncxa03w 06-08-01 11:11:28 GMT Eagle5 39.0
0012.0431 CARD 1301 DSM LNP database has been corrected
```

4. Repeat steps 1 and 2 of Method A for the other Service Module cards in the EAGLE 5 ISS.

If any of the Service Module cards continue to boot, contact the [Customer Care Center](#) on page 4.

Method B: Load the imported LNP database onto all Service Module cards in the EAGLE 5 ISS by reinitializing all the Service Module cards at once by entering the following command:

```
init-card:appl=vsccp
```



CAUTION

This command initializes all the Service Module cards at once and not only loads the imported LNP database onto the Service Module cards at the same time, but takes all the Service Module cards out of service and the LNP subsystem will be offline. This method should only be used in emergency situations.

Note: A more graceful way of initializing the Service Module cards is to reroute all global title translation traffic, including LNP traffic, to the mate network element using the `inh-map-ss` command. The `inh-map-ss` command takes the mated application subsystem out of service. When the mated application subsystem is out of service, all global title translation traffic, including LNP traffic, is rerouted to the mate network element.

The mated application subsystem must be inhibited with the `inh-map-ss` command before the Service Module cards are reinitialized with the `init-card:appl=vsccp` command. After the `init-card:appl=vsccp` command has finished executing and all the Service Module cards have reinitialized, return the mated application subsystem to service with the `alw-map-ss` command.

When the imported database has been loaded onto each Service Module card, UAM 0431 is displayed for each Service Module card showing that the UAM 0429 has been cleared and the database on the Service Module card matches the database on the MASPs. This is an example of UAM 0431.

```
rlghncxa03w 06-08-01 11:11:28 GMT Eagle5 39.0
0012.0431 CARD 1301 DSM LNP database has been corrected
```

If any of the Service Module cards continue to boot, contact the [Customer Care Center](#) on page 4.

- Verify that the Service Module cards are in-service by entering the `rept-stat-sccp` command. The state of the Service Module cards, shown in the `PST` field of the `sccp` command output, should be `IS-NR` (in-service normal). This is an example of the possible output:

```
tk1c1091301 08-08-18 23:44:59 EST EAGLE5 40.0.0
CARD VERSION PST SST AST MSU CPU
USAGE USAGE
-----
1212 101-001-000 IS-NR Active ALMINH 45% 30%
1301 P 101-001-000 IS-NR Active ----- 35% 40%
1305 ----- OOS-MT Isolated ----- 0% 0%
2112 ----- OOS-MT-DSBLD Manual ----- 0% 0%
-----
SCCP Service Average MSU Capacity = 28% Average CPU Capacity = 40%
Command Completed.
;
```

If the state of any Service Module card is not `IS-NR`, contact the [Customer Care Center](#) on page 4.

Note: The `rept-stat-sccp` 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-sccp` command, see the `rept-stat-sccp` command description in the *EAGLE 5 ISS Commands Manual*.

Disabling Bulk Load

If you have distributed a restored the RTDB LNP data to the Service Module cards (as described in [Distributing an RTDB LNP Database to Service Module Cards](#) on page 125) after an LSMS-initiated procedure, perform the following procedure.

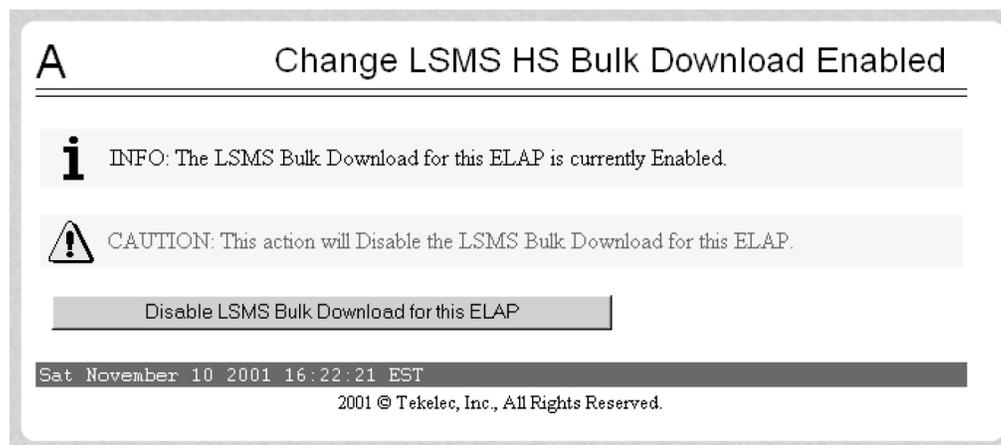
1. If you do not already have a browser window connected to the ELAP, open a browser window and connect your web browser to the ELAP graphical user interface (for more information about connecting to the ELAP GUI, refer to the *ELAP Administration Manual*).

Log in with the user name and password of a user who is authorized to access the menu items shown in this procedure.

2. Select **Maintenance** ► **LSMSHS Bulk Download** ► **Change Enabled**.

The Change LSMS HS Bulk Download Enabled dialog opens, [Figure 94: Change LSMS HS Bulk Download Enabled Dialog](#) on page 128.

Figure 94: Change LSMS HS Bulk Download Enabled Dialog



The information field should show that the LSMS Bulk Download for this ELAP is currently enabled.

3. Click the **Disable LSMSHS Bulk Download for this ELAP** button.

You have completed this procedure.

Manually Verifying and Restarting the Eagle Agents on the LSMS

This procedure explains how to verify that an Eagle agent has started on the LSMS. It also explains how to stop and start the agent, using the `eagle` command.

The Eagle Agent application (`eagleagent`) is responsible for:

- Subscribing to the broadcast channels to receive all NPAC and local data updates
- Connecting with a single EAGLE 5 ISS node using the HSOP (High Speed Operations Protocol) protocol and forwarding LNP updates to the EAGLE 5 ISS
- Filtering LNP data based on the provisioned filter information before forwarding it to the EAGLE 5 ISS (for more information, refer to [EMS Routing](#) on page 94)
- Performing automatic resynchronization with an EAGLE 5 ISS node upon connection establishment (for more information, refer to the *LNP Database Synchronization Manual - LSMS with EAGLE 5 ISS*)

One instance of the *eagleagent* process exists for each supported EAGLE 5 ISS node.

1. Log into the LSMS as **root** on the active server.
2. Enter the following command to display the status of all LSMS

```
processes:/opt/TKLCplat/bin/syscheck -v local lsmshc proc_app
```

```
Running modules in class lsmshc...
proc_app: --- Checking Processes on Active ---
proc_app: OK Found: 1 Expected: 1 -> Eagle Agent (DOG)
proc_app: OK Found: 1 Expected: 1 -> Eagle Agent (E1080403)
proc_app: OK Found: 1 Expected: 1 -> Eagle Agent (E1091202)
proc_app: OK Found: 1 Expected: 1 -> Eagle Agent (E1091203)
proc_app: OK Found: 1 Expected: 1 -> NPAC Agent (Canada)
proc_app: OK Found: 1 Expected: 1 -> NPAC Agent (MidAtlantic)
proc_app: OK Found: 1 Expected: 1 -> NPAC Agent (Midwest)
proc_app: OK Found: 1 Expected: 1 -> NPAC Agent (Northeast)
proc_app: OK Found: 1 Expected: 1 -> NPAC Agent (Southeast)
proc_app: OK Found: 1 Expected: 1 -> NPAC Agent (Southwest)
proc_app: OK Found: 1 Expected: 1 -> NPAC Agent (WestCoast)
proc_app: OK Found: 1 Expected: 1 -> NPAC Agent (Western)
proc_app: OK Found: 1 Expected: 1 -> MySQL Server process
(safe_mysqlld)
proc_app: OK Found: 1 Expected: 1 -> LSMS Local Data Manager
(supman)
proc_app: OK Found: 1 Expected: 1 -> LSMS Local Services Manager
(lsman)
proc_app: OK Found: 1 Expected: 1 -> Logger Daemon (lsmslogd)
proc_app: OK Found: 1 Expected: 1 -> Report Manager (reportman)
proc_app: OK Found: 1 Expected: 1 -> RMTTP Agent (rmttpagent)
proc_app: OK Found: 1 Expected: 1 -> RMTTP Manager (rmttpmgr)
proc_app: OK Found: 1 Expected: 1 -> Service Assurance Agent (sacw)
proc_app: OK Found: 1 Expected: 1 -> Surveillance Agent (survMon)
proc_app: OK Found: 1 Expected: 1 -> Sentry process (sentryd)
proc_app: Return string: "OK"
OK
The log is available at:
-->/opt/TKLCplat/log/syscheck/syscheck-log
```

If a line similar to the one shown in bold above appears for each supported EAGLE 5 ISS node, you have completed the procedure. If, instead, a line similar to the following line appears, one of these processes has failed; perform the remaining steps of this procedure to restart the processes:

```
* proc: FAILURE:: Found: 0 Expected: 1 -> Eagle Agent (STPA)
```

3. Enter the following command to change the login name to **lsmsadm:su - lsmsadm**

4. Start the Eagle agent by entering the following command at the active server, where <CLLI> is the Common Language Location Identifier (such as STPA in the example above) for the EAGLE 5 ISS node:

```
$LSMS_DIR/install/eagle start <CLLI>
```
5. Verify that the Eagle agent has started by repeating [Step 2](#) on page 129.
If the Eagle agent fails to start, contact the [Customer Care Center](#) on page 4.

You have now completed this procedure.

Chapter 3

LNP Services Configuration

Topics:

- *LNP Services Configuration.....132*
- *LNP Query Service (LNPQS) Details.....143*
- *Adding an LNP Service.....150*
- *Removing an LNP Service.....156*
- *Changing an LNP Service.....157*
- *Adding a Subsystem Application.....161*
- *Removing a Subsystem Application.....164*
- *Changing a Subsystem Application.....167*
- *Changing LNP Options.....169*
- *Configuring the Triggerless LNP Feature.....174*
- *Increasing the LRN and NPANXX Quantities on the EAGLE 5 ISS.....182*
- *Activating the LNP Short Message Service (SMS) Feature.....184*
- *Clearing a Temporary FAK Alarm.....187*
- *Deactivating the LNP Short Message Service Feature.....188*
- *Changing the LNP Telephone Number Alarm Thresholds.....189*
- *Increasing LNP Telephone Number Quantity on EAGLE 5 ISS.....190*
- *Activating the ITU TCAP LRN Query (LRNQT) Feature.....193*

This chapter contains the procedures used to configure the LNP services, subsystem applications, options, map translation types, increase LRN and NPANXX quantities, and activate the LNP short message service feature.

LNP Services Configuration

This chapter contains the procedures for configuring these elements of the LNP feature.

- LNP services
- LNP subsystem applications
- LNP options
- Mapping LNP translation types
- The Triggerless LNP feature
- Increasing the LRN and NPANXX Quantities on the EAGLE 5 ISS
- Activating and Deactivating the LNP Short Message Service (SMS) feature.
- Activating the ITU TCAP LRN Query (LRNQ) feature

Message Relay Details

Message relay is an enhancement to the existing global title translation feature and performs the following functions.

- Extraction of the 10-digit dialed number from the TCAP portion of the message – If the MSU contains a 6-digit called party address, message relay gets the 10-digit dialed number from the TCAP portion of the MSU.
- Increased number of translations – For each 10-digit dialed number, up to 6 translations are available. The previous limit was 270,000 total translations. The number of dialed numbers that can be entered depends on the hardware, but the minimum hardware configuration supports 500,000 dialed numbers, so 3 million translations can be entered on the minimum hardware configuration. The maximum hardware configuration supports 2 million dialed numbers, so 12 million message relay translations can be entered on the maximum hardware configuration.
- Replacement of the global title address – Message relay provides the option of replacing the global title address in the called party address with the location routing number associated with the ported dialed number.

Message relay is performed in the following stages:

1. The message arrives at the EAGLE 5 ISS route-on-gt. The EAGLE 5 ISS performs 6-digit (NPANXX) translation. The result of this translation indicates if message relay is required. If it is required, the result of this translation also gives the default data that may be used in stage 3.
2. If stage 1 indicates that message relay is required, the EAGLE 5 ISS performs 10-digit message relay. If the 10-digit number is found, the translation data for the 10-digit number is used to route the message.
3. If the 10-digit number is found and the number has a location routing number assigned to it, the EAGLE 5 ISS checks for message relay override data. If there is override data for the location routing number, the EAGLE 5 ISS uses this override data to route the message.
4. If no location routing number is assigned, or the location routing number does not have override data, the EAGLE 5 ISS uses the data assigned to the 10-digit number.

5. If the location routing number has override data but not for the requested translation type or service, and the service portability option is on (shown in the `SERVPORT` field in the LNP options table), then the EAGLE 5 ISS uses the data assigned to the 10-digit number. If the service portability option is not on, then the message is discarded and UIM and UDTS messages are generated.
6. If no data is assigned to the 10-digit number, and the service portability option is on, then the EAGLE 5 ISS uses the default data from stage 1 to route the message. If the service portability option is not on, then the message is discarded and UIM and UDTS messages are generated.
7. If the 10-digit number is not found, the dialed number is not ported, and the default data from stage 1 is used to route the message.

It's possible that message relay is required, but no default data exists for the NPANXX. This is because EAGLE 5 ISS creates an NPANXX entry when the NPAC sends down a ported subscriber record for a nonported NPANXX. Normally, data is provisioned in the following order:

1. The NPANXX default data is entered.
2. The NPANXX is marked as portable (the value of the `mr` parameter is `yes`).
3. The NPAC sends down information for ported subscribers in the portable NPANXX.

However, it is possible that step 3 can occur before step 1. In this case, if a message arrives for the ported subscriber, the EAGLE 5 ISS routes the message according to the subscriber data entered by the NPAC.

- The 10-digit number is found in the subscription record. The location routing number has a matching entry in the override table. If override data exists for the requested service, the location routing number override global title translation is used. If location routing number override data exists, but not for the requested translation type, and the service portability option is not on, then the result is no translation, the message is discarded, and UIM and UDTS messages are generated. If the service portability option is on, then the NPAC global title translation data is used.
- The 10-digit number is found in the subscription record. The location routing number does not have a matching entry in the override table. If NPAC global title translation data exists, the NPAC global title translation is used. If NPAC global title translation data does not exist for the 10-digit number, and the service portability option is not on, then the result is no translation, the message is discarded, and UIM and UDTS messages are generated. If the service portability option is on, then the NPANXX global title translation data is used.

If a message arrives for a nonported subscriber in that NPANXX, and normal global title translation information is defined for the message, the message is routed using the normal global title translation data. But if a message arrives for a nonported subscriber in that NPANXX, and no normal global title translation information is defined for the message, the message is discarded, and UIM and UDTS messages are generated.

Table 11: LNP Message Relay on page 134 shows the result of the 10-digit message relay processing, and the processing required to route a message.

Table 11: LNP Message Relay

Ported MR NPANXX	Ported TN	LNP Message Relay Processing	NPAC GTT Data for any Service
No	No	Nonported subscriber. See Table 13: LNP Message Relay - Nonported Subscribers on page 137.	N/A
No (See Note).	Yes	Ported subscriber.	Yes - See Table 12: LNP Message Relay - Ported Subscribers on page 135.
			No - See Table 13: LNP Message Relay - Nonported Subscribers on page 137.
Yes	No	Nonported subscriber. See Table 13: LNP Message Relay - Nonported Subscribers on page 137.	N/A
Yes	Yes	Ported subscriber.	Yes - See Table 12: LNP Message Relay - Ported Subscribers on page 135.
			No - See Table 13: LNP Message Relay - Nonported Subscribers on page 137.
<p>Ported MR NPANXX - An MR NPANXX that is marked portable</p> <p>Ported TN - A subscription record that is found for a 10-digit number, the location routing number is assigned or NPAC global title translation data is defined for service (translation type).</p> <p>Note: The EAGLE 5 ISS creates an NPANXX entry, if none exists, when it receives a ported subscriber record.</p>			

[Table 12: LNP Message Relay - Ported Subscribers](#) on page 135 lists possible combinations for NPAC and override global title translation data provisioning, and the resulting action of

message relay for ported subscribers. Message relay data exists for the 10-digit number and service.

Table 12: LNP Message Relay - Ported Subscribers

TN GTT DATA defined for 10-Digit Number and Service (TT)	LRN Override GTT DATA defined for 10-Digit Number and Service (TT)	LRN Override GTT DATA defined for 10-Digit Number	Service Portability	LNP Message Relay Action
No	No	No See Note 1.	No	The message is discarded. The "No Translation Available" UIM and UDTS messages are generated if return on error is set.
No	No	No See Note 1.	Yes	The message is routed using NPANXX or normal global title translation data. See Table 13: LNP Message Relay - Nonported Subscribers on page 137.
No	Yes	N/A	N/A	The message is routed using the location routing number override global title translation data.
No	N/A	Yes See Note 2.	No	The message is discarded. The "No Translation Available" UIM and UDTS messages are generated if return on error set.

TN GTT DATA defined for 10-Digit Number and Service (TT)	LRN Override GTT DATA defined for 10-Digit Number and Service (TT)	LRN Override GTT DATA defined for 10-Digit Number	Service Portability	LNP Message Relay Action
No	N/A	Yes See Note 2.	Yes	The message is routed using NPANXX or normal global title translation data. See Table 13: LNP Message Relay - Nonported Subscribers on page 137.
Yes	No	No See Note 1.	N/A	The message is routed using the NPAC global title translation data.
Yes	Yes	N/A	N/A	The message is routed using the location routing number override global title translation data.
Yes	N/A	Yes See Note 2.	Yes	The message is routed using the NPAC global title translation data.
Yes	N/A	Yes See Note 2.	No	The message is discarded, The "No Translation Available" UIM and UDTS messages are generated if return on error set.
Notes:				
1. The 10-digit number has a location routing number assigned, but the location routing number has no matching entry in the override table.				

TN GTT DATA defined for 10-Digit Number and Service (TT)	LRN Override GTT DATA defined for 10-Digit Number and Service (TT)	LRN Override GTT DATA defined for 10-Digit Number	Service Portability	LNP Message Relay Action
2. The 10-digit number has a location routing number override global title translation data assigned, but not for the requested service (translation type).				

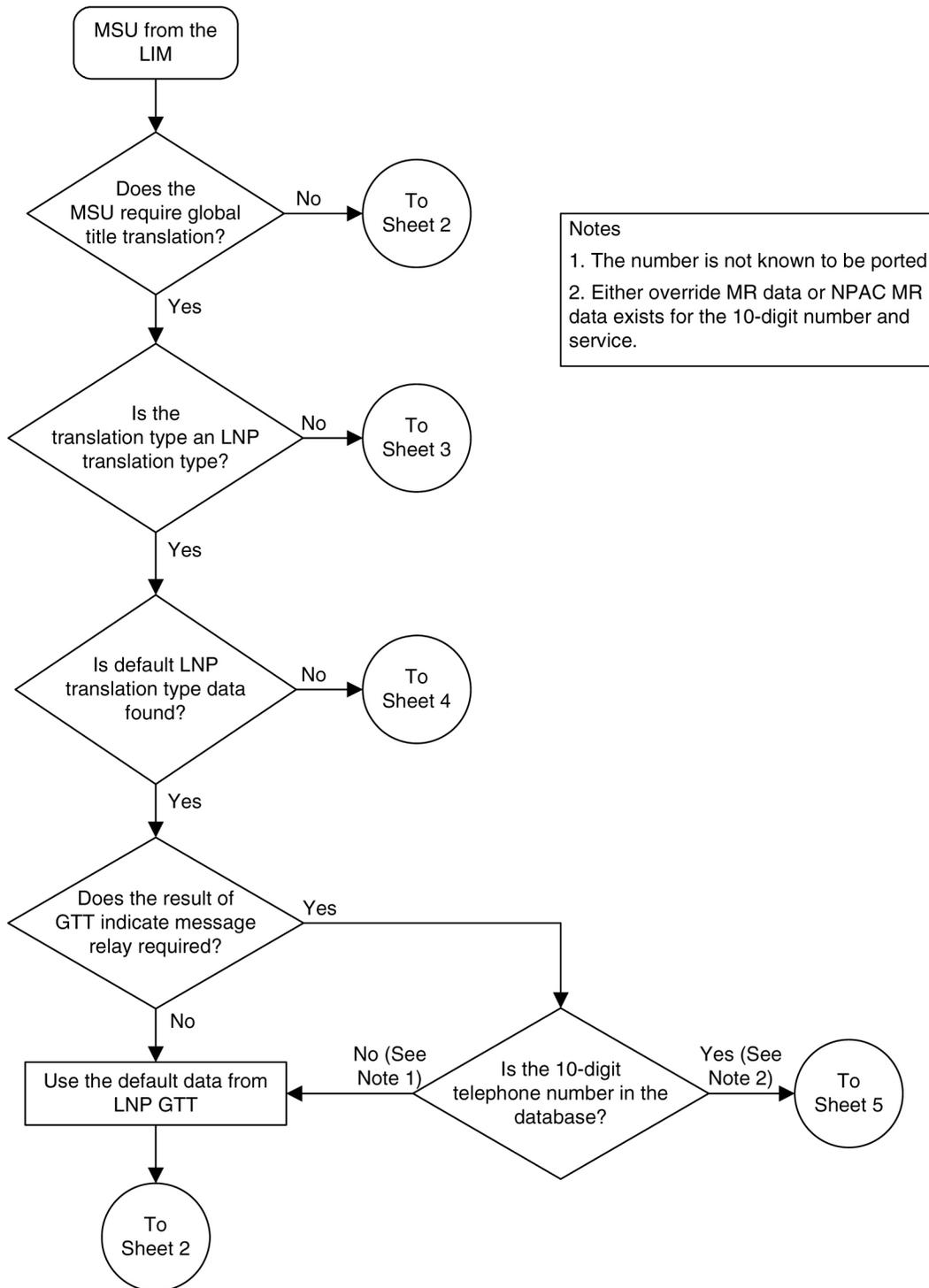
Table 13: LNP Message Relay - Nonported Subscribers on page 137 lists possible combinations for traditional and LNP default global title translation data provisioning and the resulting action of message relay for nonported subscribers. The message relay data does not exist for the 10-digit number and service.

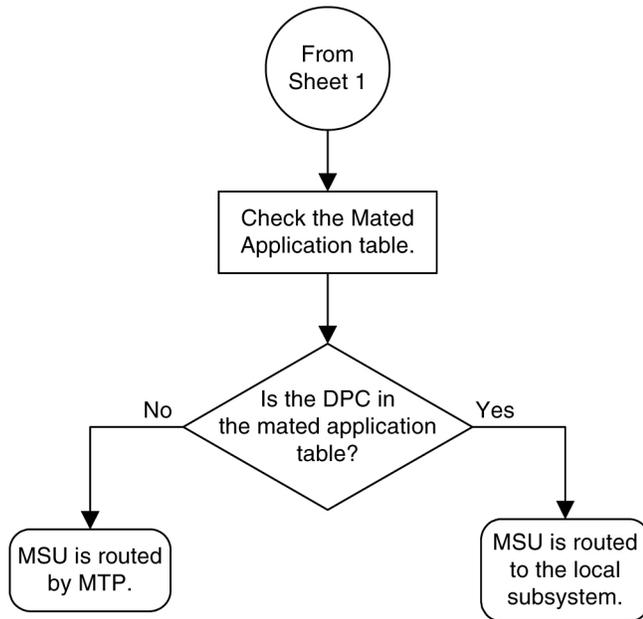
Table 13: LNP Message Relay - Nonported Subscribers

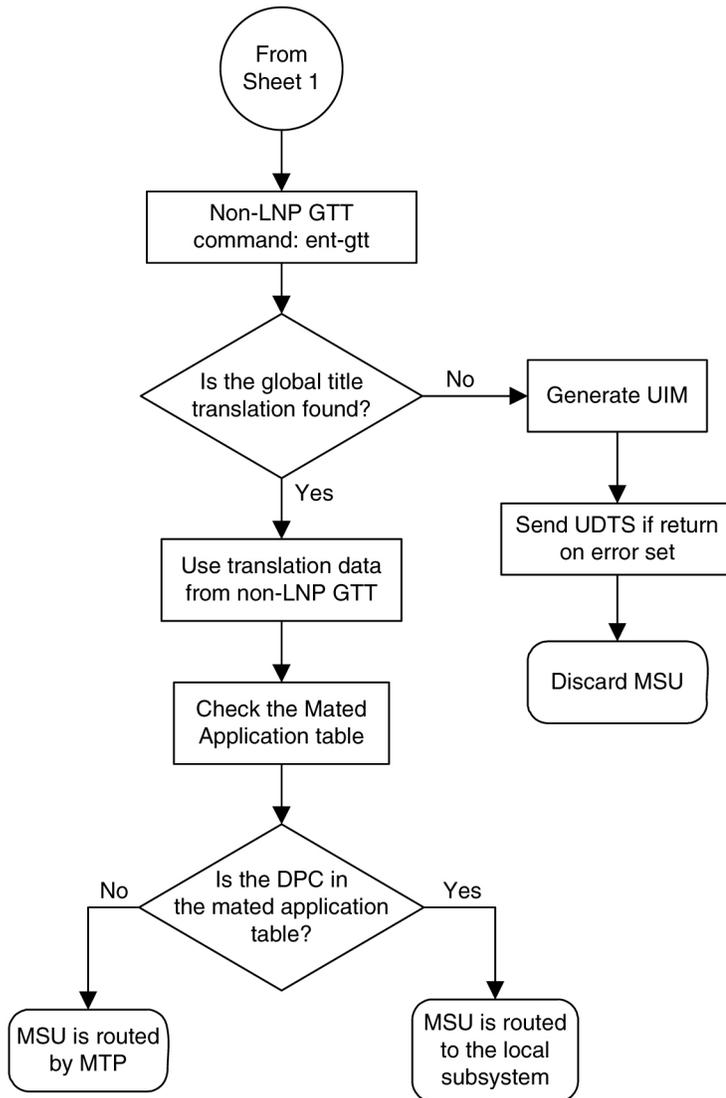
Traditional (Non-LNP) GTT DATA defined for Service (TT)	LNP 6-digit Default GTT DATA defined for Service (TT)	LNP Message Relay Action
No	No See Note.	The message is discarded. The "No Translation Available" UIM and UDTS messages are generated if return on error is set.
No	Yes	The message is routed using the LNP 6-digit default global title translation data.
Yes	No See Note.	The message routed using the traditional (non-LNP) global title translation data.
Yes	Yes	The message is routed using the LNP 6-digit default global title translation data.
Note: Either the 6-digit default global title translation data is not present (the NPANXX entry is created when the NPAC sends down a ported subscriber record for a nonported NPANXX), the NPANXX is not ported, or the LNP 6-digit default global title translation data present but not for requested LNP service (translation type).		

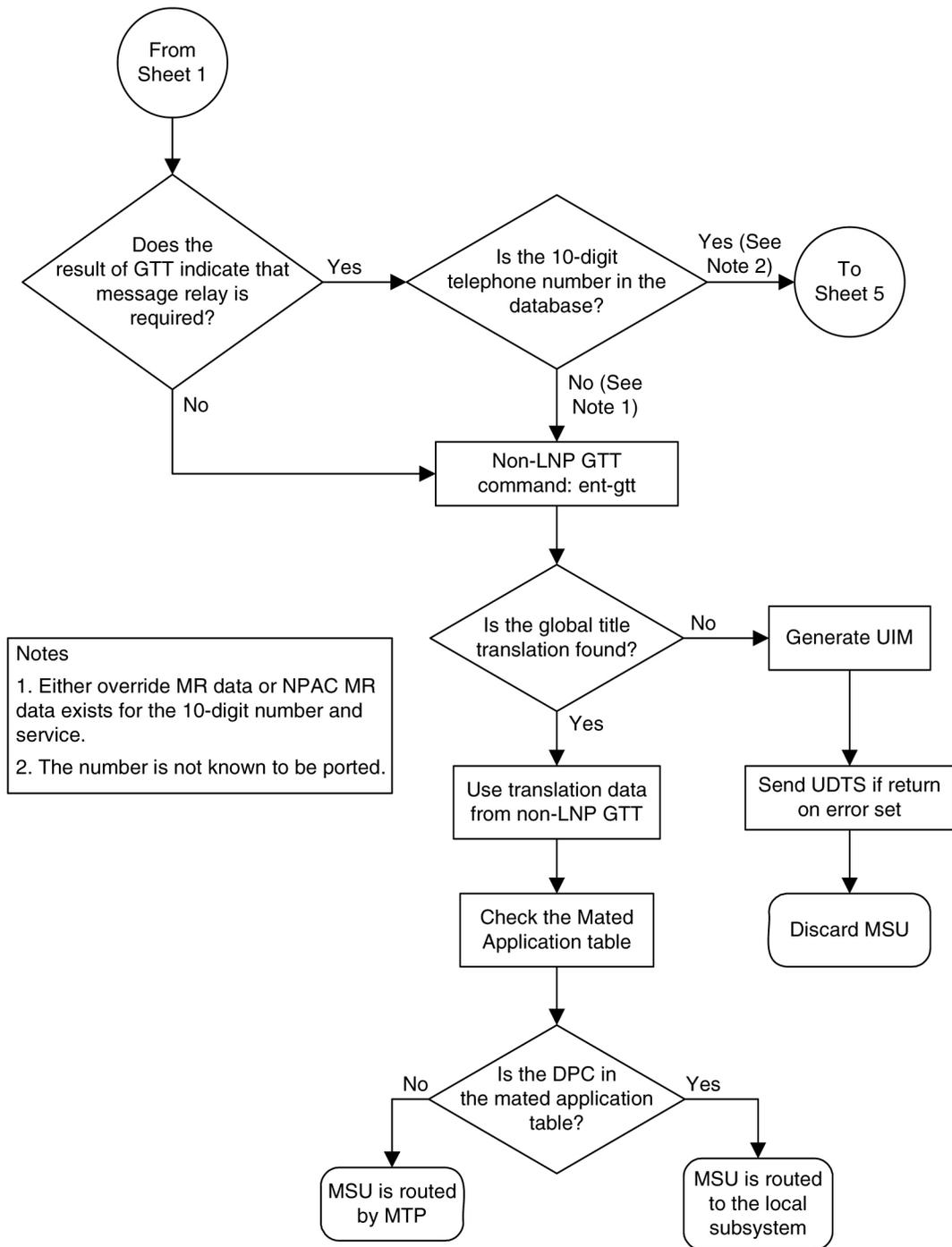
Figure 95: Message Flow For Global Title and Message Relay on page 137 shows how normal global title and message relay are performed on EAGLE 5 ISS.

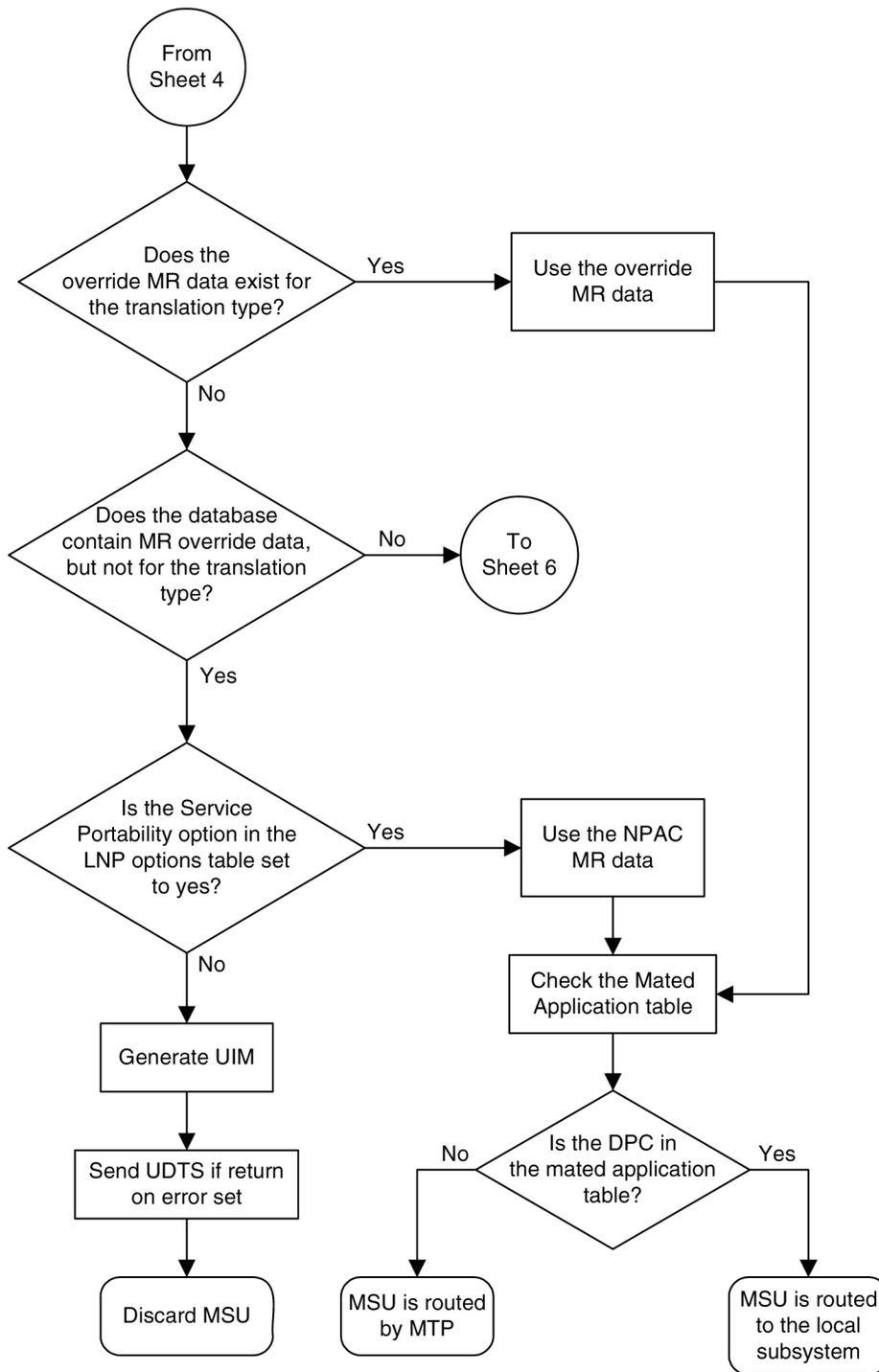
Figure 95: Message Flow For Global Title and Message Relay

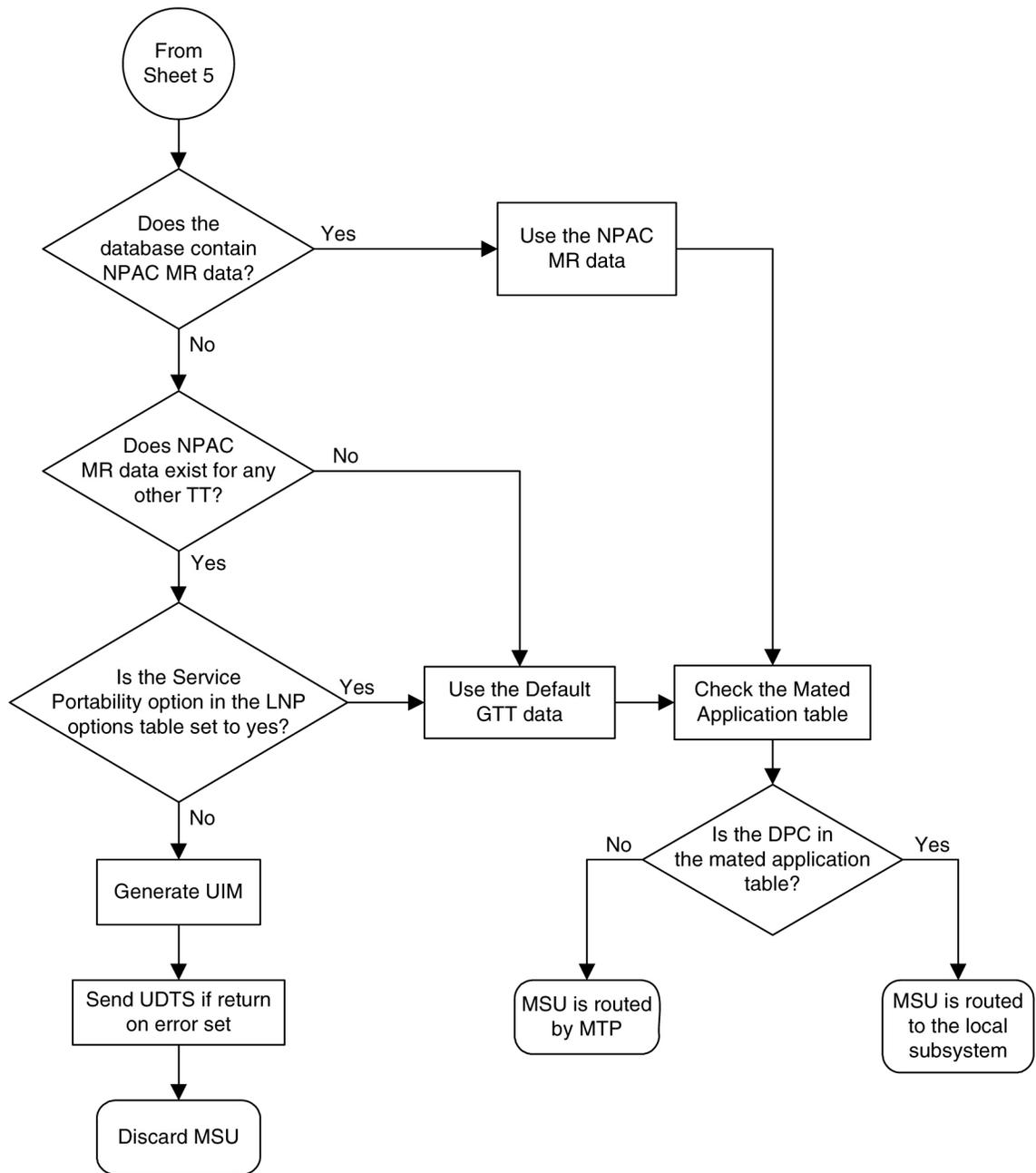










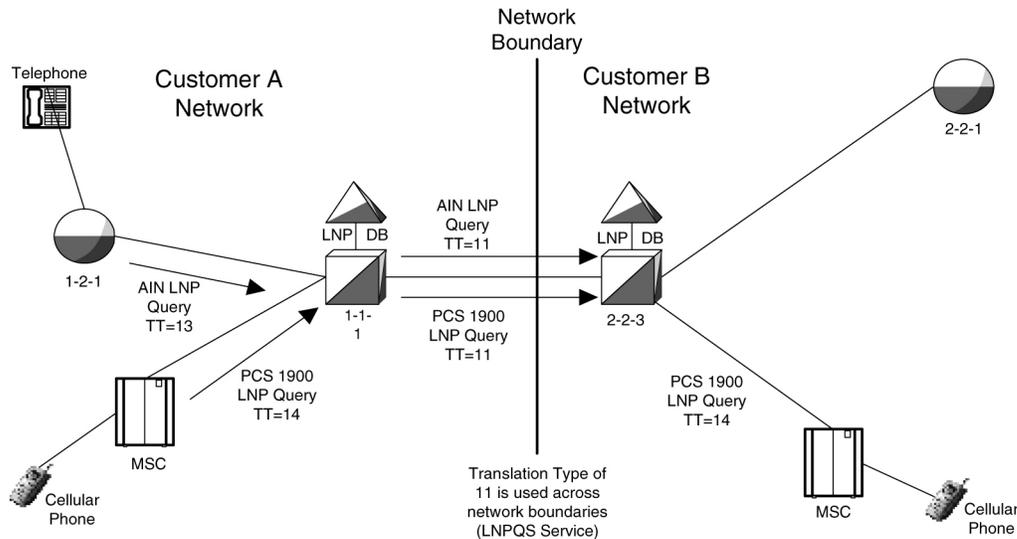


LNP Query Service (LNPQS) Details

Currently, the translation type in the query message is used to determine the type of LNP query (AIN, IN, WNP, or PCS) for correct decoding and response formulation. LNP queries between networks are defined to use translation type 11, regardless of the protocol used. Also, there are other cases where the TT alone may not be enough to determine the type of protocol being used,

thus making it impossible to correctly decode all queries. See [Figure 96: Inter-Network Support for LNP Queries](#) on page 144.

Figure 96: Inter-Network Support for LNP Queries



In this example, Network B would not be able to differentiate between the two types of LNP queries received from Network A.

The TT Independence for LNP Queries feature addresses this issue by providing a new method of protocol determination of an incoming query.

With the TT Independence for LNP Queries feature, the LNP subsystem will be able to determine the protocol of the query based on other fields in the SS7 message, rather than relying on the TT value. This allows the same translation type to be used for multiple protocols, and allows a query between two networks to be handled properly.

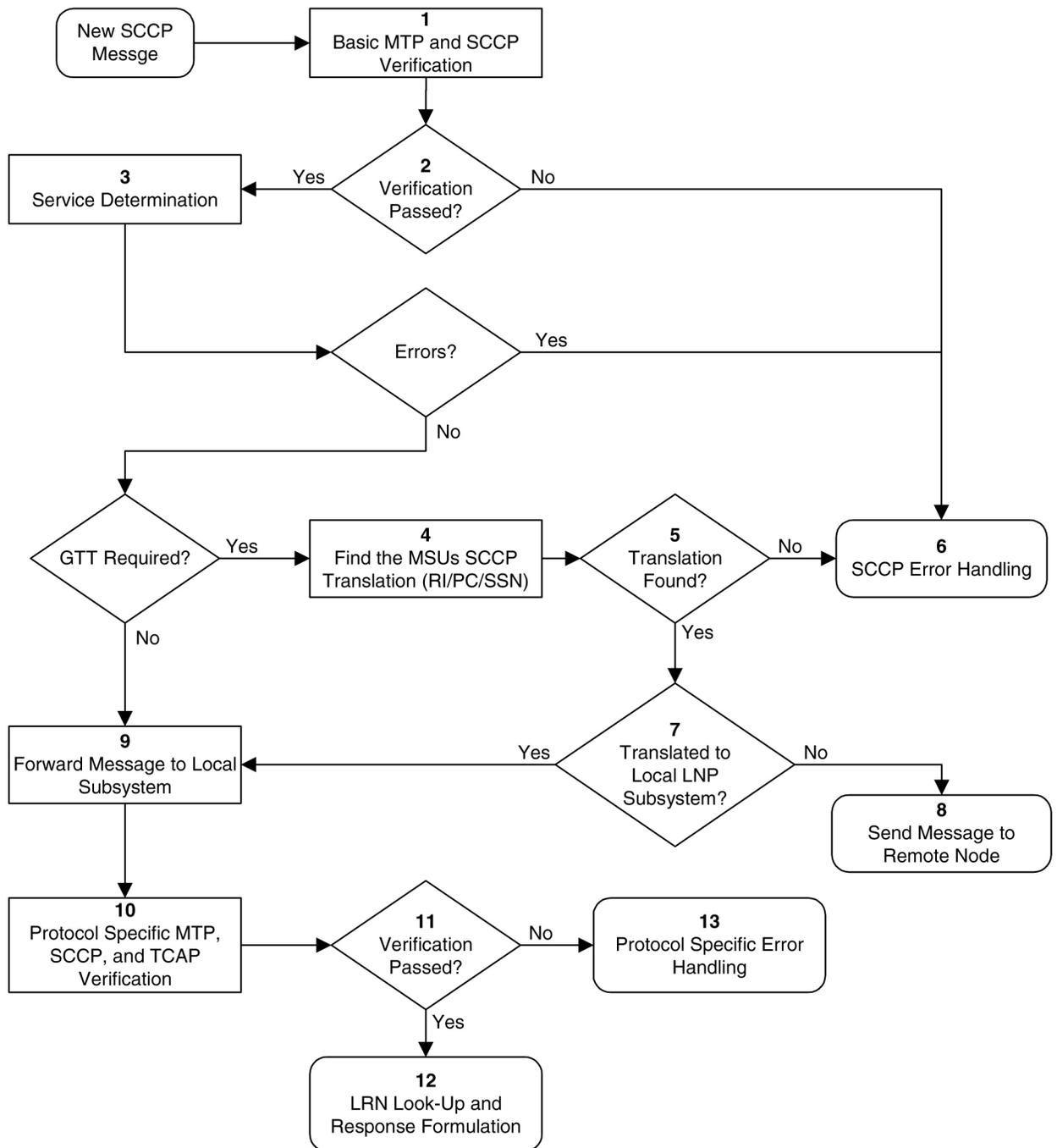
Note: TT independence is not supported for ITU TCAP LRN (LRNQT) queries.

The LNP service LNPQS defines the translation type used for LNP queries between networks. This service is defined with the `serv=lnpqs` parameter. While the EAGLE 5 ISS allows any translation type to be assigned to the LNPQS service, it is recommended that translation type 11 is assigned to the LNPQS service.

LNP Query Processing

LNP queries are processed as described in [Figure 97: LNP Query Processing](#) on page 144

Figure 97: LNP Query Processing



In previous releases, the LNP service (step 3 in [Figure 97: LNP Query Processing](#) on page 144) was determined by the translation type contained in the query.

When an LNP query arrives at the EAGLE 5 ISS with the LNPQS service translation type, the EAGLE 5 ISS partially decodes the TCAP portion of the query. Once the TCAP portion of the query is decoded down to the OPCODE, and the Package type, TCAP Transaction ID, and Component parameters are verified, the OPCODE TAG, OPCODE FAMILY, and OPCODE SPEC parameters are examined to determine the LNP service required to process the query. There are

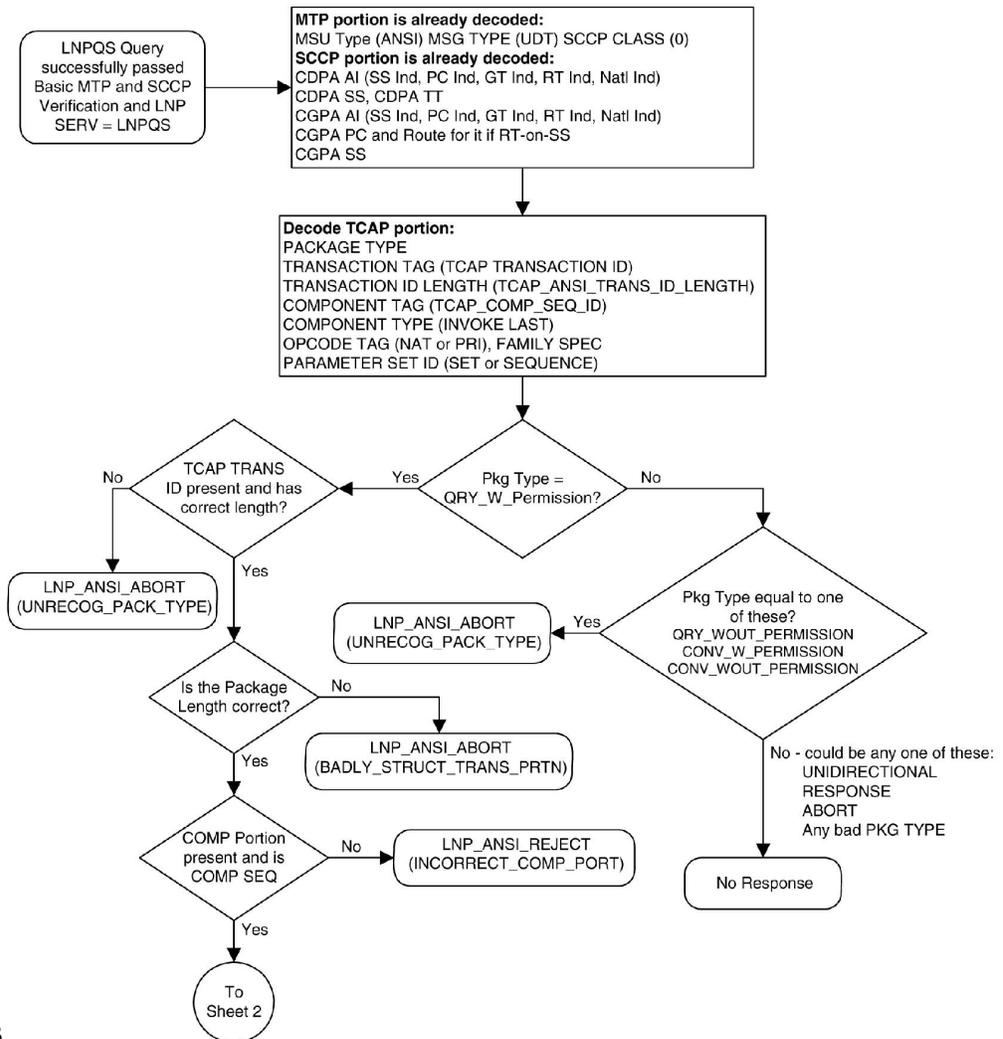
four basic types of queries: AIN, IN, PCS, and WNP. [Table 14: LNP Query OPCODE Values](#) on page 146 shows the OPCODE values for the query types.

Table 14: LNP Query OPCODE Values

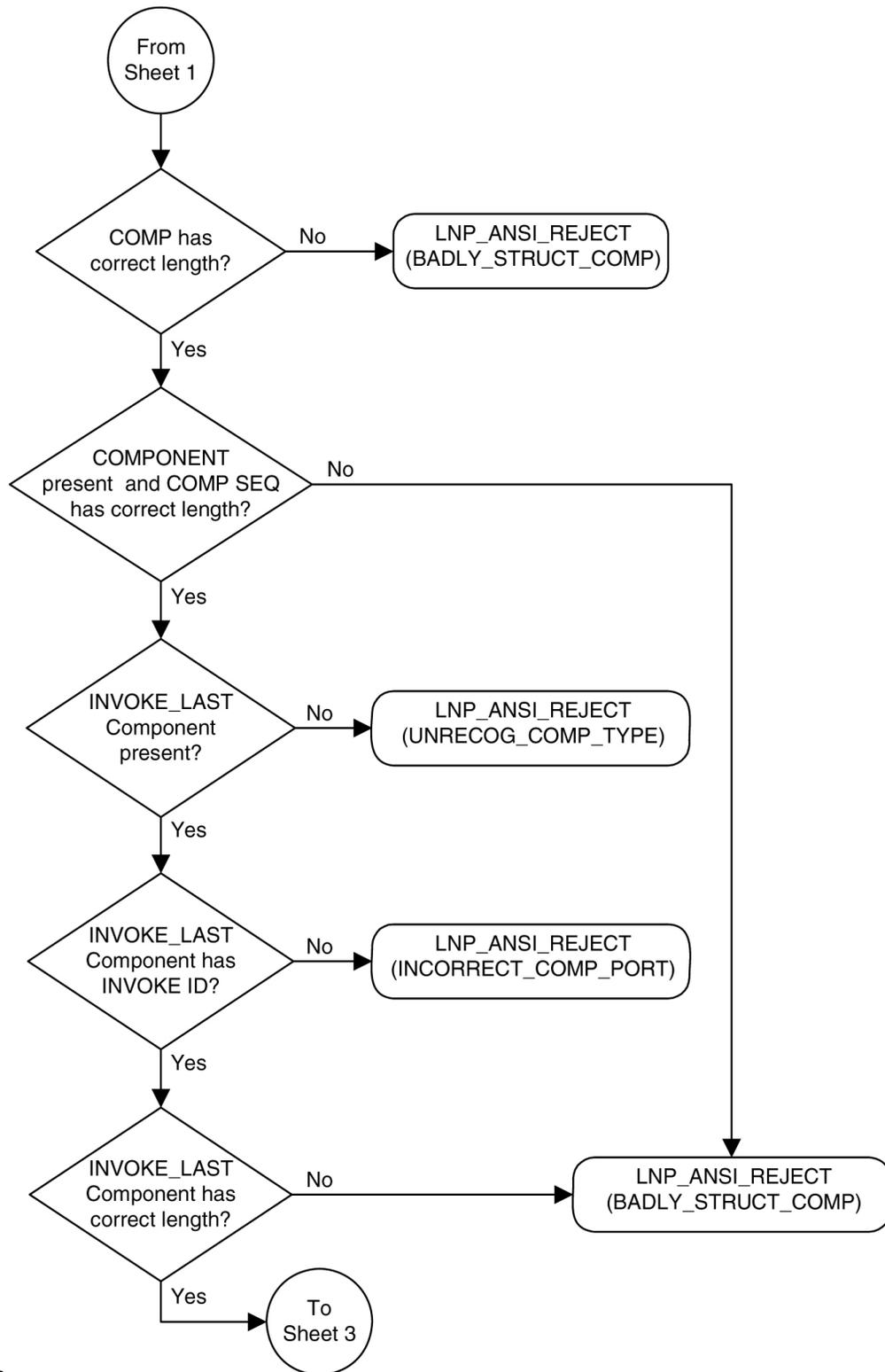
Query Type	OPCODE TAG Value	OPCODE FAMILY Value	OPCODE SPEC Value
AIN	PRI	REQUEST INSTRUCT	INFO ANALYZED
IN	NAT	PROVIDE INSTRUCTION	IN START
PCS	NAT	PROVIDE INSTRUCTION	IN START
WNP	PRI	IS41 OP FAMILY	IN IS41 NUM PORT REQ

After the OPCODE values are determined, the query is treated by the EAGLE 5 ISS as either an AIN, IN, or WNP query. Since IN and PCS queries use the same OPCODE values, PCS queries are treated as IN queries. If a query is received at the EAGLE 5 ISS containing the specific PCS translation type, the query is treated as a PCS query. [Figure 98: LNP Service Determination Process](#) on page 146 shows the LNP service determination process for queries containing the LNPQS translation type.

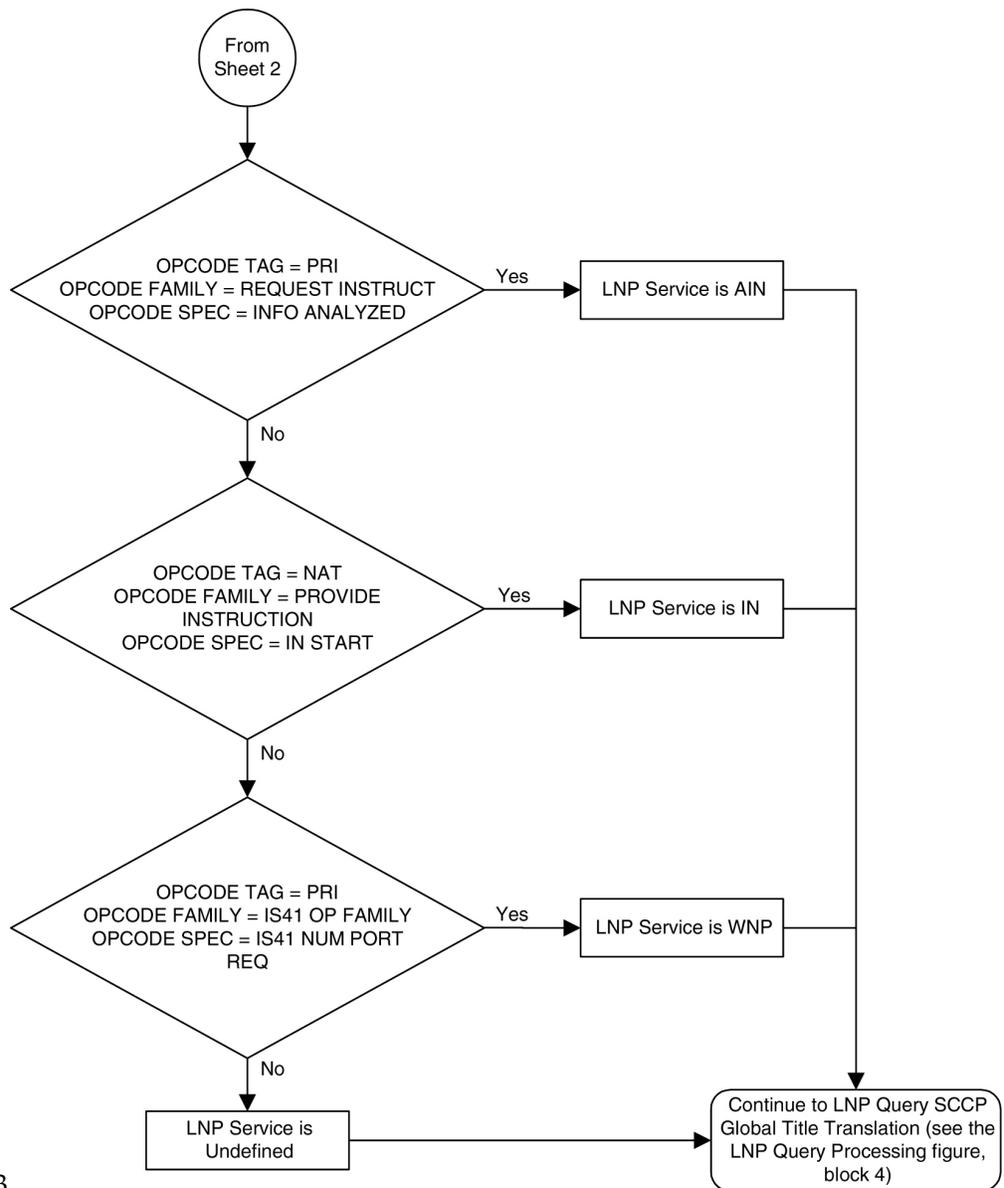
Figure 98: LNP Service Determination Process



Sheet1 of 3



Sheet2of3



Sheet3of3

Limitations

PCS queries containing the LNPQS translation type are processed as IN queries. Thus, erroneous PCS queries containing the LNPQS translation type are shown in the `rept-stat-lnp` output in the LNPQS field, not the PLNPQS field.

If the OPCODE fields in a LNPQS query do not match any of the combination for IN, AIN or WNP queries is not an invalid service, but an undefined service. An undefined service may be used to transmit some non-LNP messages between networks. A query for an undefined service is sent to global title translation for further processing.

However, the OPCODE TAG values in LNPQS queries are verified to determine if the values are either NAT or PRI. These OPCODE values are the only values supported by the EAGLE 5 ISS. If

the OPCODE TAG value is not NAT or PRI, the generic TCAP ANSI Reject (UNRECOG_OP_CODE) response is sent back.

The specific LNP services know what LNP service the query is coming to based on the CDPA TT value, so each service verifies all three OPCODE fields for itself. The IN, AIN, WNP and PCS services react on the OPCODE errors as follows:

- An IN query not containing any of the following OPCODE values produces the IN REJECT (IN_UNRECOG_OPER_CODE) error response:
 - The OPCODE TAG value NAT
 - The OPCODE FAMILY value PROVIDE_INSTRUCTION
 - The OPCODE SPEC value IN_START
- An AIN query not containing any of the following OPCODE values produces the AIN RETURN ERROR (ERRONEOUS DATAVAL) error response:
 - The OPCODE TAG value PRI
 - The OPCODE FAMILY value REQUEST_INSTRUCT
 - The OPCODE SPEC value INFO_ANALYZED
- The error responses for a WNP query depends on the OPCODE values that are not provided:
 - The WNPS_REJECT (INCORRECT_COMP_PORT) error response is produced when the OPCODE TAG value is not PRI and not NAT.
 - The WNPS_REJECT (UNRECOG_OP_CODE) error response results is produced when the OPCODE TAG value is not PRI or the OPCODE FAMILY value is not IS41_OP_FAMILY.
 - The WNPS_RET_ERROR (IS41_OP_NOT_SUP) error response is produced when the OPCODE SPEC value is not IS41_NUM_PORT_REQ.
- A PCS query not containing any of the following OPCODE values, produces the PLNPS_REJECT (IN_UNRECOG_OPER_CODE) error response:
 - The OPCODE TAG value NAT
 - The OPCODE FAMILY value PROVIDE_INSTRUCTION
 - The OPCODE SPEC value IN_START

TCAP errors detected before the OPCODE values are verified and the service is determined, causes different responses between LNPQS and specific LNP services (IN, AIN, WNP, PLNP). The EAGLE 5 ISS cannot generate service specific responses before the service is determined.

Adding an LNP Service

This procedure is used to assign an LNP translation type to a unique LNP service using the `ent-lnp-serv` command. The `ent-lnp-serv` command uses these parameters.

`:serv` – the LNP service assigned to the LNP translation type

`:tt` – the LNP translation type

:*ttn* – the translation type name

:*dv* – the type of digits used by LNP

:*alias* – the alias LNP translation type

The LNP feature must be enabled. Verify this by entering the *rtrv-ctrl-feat* command. If the LNP feature is enabled, the entry *LNP Ported TNs* is shown in the *rtrv-ctrl-feat* output with a quantity greater than zero.

A maximum of 10 LNP services can be assigned to LNP translation types. Services that can be assigned to LNP translation types are:

- AIN
- IN
- CLASS
- CNAM
- LIDB
- ISVM
- Wireless number portability (*serv=wnp*)
- PCS 1900 number portability (*serv=pcs*)
- Wireless short message service center (*serv=wsmsc*)
- LNP query service (*serv=lnpqs*)
- Four user-defined services (UDF1, UDF2, UDF3, UDF4).

The alias LNP translation type provides an alternate value for the LNP translation type, so that different networks can use different translation type values for the specified LNP service. If the alias translation type in the SCCP called party address is defined in the database as an alias LNP translation type, the alias translation type value is mapped to the associated true LNP translation type value, defined by the *tt* parameter, in the database to determine the LNP service that is used on the message. All translation type values (0 - 255) can be used as values for the *alias* parameter, as long as that value is not already in the database as a value for the *tt* parameter.

The *tt* and *serv* parameter combination can only be specified once.

The *tt* and *alias* parameters cannot be specified at the same time. To add a new LNP service and an alias translation type for that service, the *ent-lnp-serv* command must be entered at least twice, depending on how many aliases you wish to enter. The first time the *ent-lnp-serv* command is entered, the LNP service (*serv*) and true translation type (*tt*) is defined in the database. When the *ent-lnp-serv* command is entered again with the specified LNP service and the *alias* parameter, the alias translation types (*alias*) are assigned to the LNP service.

The value of the *alias* parameter cannot be in the database as an LNP translation type (*tt*).

The value of the *tt* parameter cannot be in the database as an alias LNP translation type (*alias*).

If the *serv* and *tt* parameters are specified, the service type specified by the *serv* parameter cannot be in the database.

Translation type names can be assigned to the LNP service and translation type with the *ttn* parameter. If the parameter is not specified, the translation type name is set to the LNP service name. The translation type name must be unique in the database. The word *none* is used as a

value for the `ttn` parameter of the `chg-lnp-serv` command and cannot be used as a translation type name with the `ent-lnp-serv` command. `ttn`

A translation type name can be the service type name only if the service type name matches the value of the `serv` parameter.

If the value of the `serv` parameter is a user defined service type, the value of the `dv` parameter must be `sccp`.

If the value of the `serv` parameter is either `ain`, `in`, `wnp`, `pcs`, or `lnpqs`, the value of the `dv` parameter must be `tcap`.

The translation type and LNP service specified with the `ent-lnp-serv` command cannot be in the database.

To specify the `serv=wnp` parameter with the `ent-lnp-serv` command, the wireless number portability feature must be turned on. This can be verified with the `WNP = on` entry in the `rtrv-feat` command output.

To specify the `serv=pcs` parameter with the `ent-lnp-serv` command, the PCS 1900 number portability feature must be turned on. This can be verified with the `PLNP = on` entry in the `rtrv-feat` command output.

To specify the `serv=wsmc` parameter with the `ent-lnp-serv` command, the LNP SMS feature must be enabled and on. This can be verified in the `rtrv-ctrl-feat` command output. If the LNP SMS feature is not enabled and on, perform [Activating the LNP Short Message Service \(SMS\) Feature](#) on page 184 to enable and turn the LNP SMS feature on.

The LNP service LNPQS defines the translation type used for LNP queries between networks. This service is defined with the `serv=lnpqs` parameter. While the EAGLE 5 ISS allows any translation type to be assigned to the LNPQS service, it is recommended that translation type 11 is assigned to the LNPQS service. If any LNP service is assigned translation type 11, and you wish to provision the LNPQS service, the existing service using translation type 11 must be changed to use another translation type. Perform [Changing an LNP Service](#) on page 157 to change the translation type of the existing service. See [LNP Query Service \(LNPQS\) Details](#) on page 143 for more information on LNPQS queries.

The examples in this procedure are used to add the LNP services and alias translation types shown in [Table 15: Example LNP Service Configuration](#) on page 152.

Table 15: Example LNP Service Configuration

SERV	TT	TTN	DV	ALIAS
IN	30	INGTE	TCAP	---
IN	---	---	----	150
IN	---	---	----	175
UDF3	100	UDF3	SCCP	---
UDF3	---	---	----	40

SERV	TT	TTN	DV	ALIAS
UDF3	---	---	----	45
AIN	---	---	----	240
LIDB	---	---	----	80
WNP	50	WNP50	TCAP	---
PCS	19	PCS19	TCAP	---
WSMSC	139	WSMSC1	TCAP	---
LNPQS	11	LNPQS	TCAP	---

1. Verify that the LNP feature is enabled by entering the `rtrv-ctrl-feat` command.

If the LNP feature is enabled, the entry LNP Ported TNs should appear in the `rtrv-ctrl-feat` output with a telephone quantity greater than 0.

```
rlghncxa03w 08-05-09 16:40:40 EST EAGLE 39.0.0

The following features have been permanently enabled:
Feature Name      Partnum      Status      Quantity
LNP ported TNs   893011036   on          384000000

;
```

If the LNP feature is not enabled, perform the procedures in [LNP Feature Activation](#) on page 15 to enable the LNP feature. Go to [Step 2](#) on page 153. If the LNP feature is enabled, go to [Step 2](#) on page 153.

2. Display the LNP services and translation type assignments in the database with the `rtrv-lnp-serv` command.

This is an example of the possible output.

```
rlghncxa03w 08-10-01 14:42:38 EST EAGLE 40.0.0
SERV  TT  TTN  DV  ALIAS
LNPQS 11  LNPQS  TCAP  ---
PCS  12  PCS  TCAP  ---
AIN  15  AINGTE  TCAP  235
      236
LIDB  20  LIDB  SCCP  ---
WNP  22  WNP  TCAP  ---
CLASS 25  CLASSGTE  SCCP  ---
UDF1  201  UDF1  SCCP  ---
LRNQT 239  LRNQT  TCAP  ---

LNP-SERV TABLE IS 3% FULL (8 of 256)
```

Note: If the `rtrv-ctrl-feat` output in step 1 showed that the LNP feature was not enabled, skip this step and go to [Step 4](#) on page 154.

Note: If the `serv=wnp` or `serv=pcs` parameters will not be specified with the `ent-lnp-serv` command, skip [Step 3](#) on page 154, [Step 4](#) on page 154, and [Step 5](#) on page 154, and go to [Step 6](#) on page 154.

3. Verify that the wireless number portability feature (if the `serv=wnp` parameter will be specified in the `ent-lnp-serv` command) or the PCS 1900 number portability feature (if the `serv=pcs` parameter will be specified in the `ent-lnp-serv` command), by entering the `rtrv-feat` command.

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 wireless number portability feature is on, the entry `WNP = on` appears in the `rtrv-feat` output. If the PCS 1900 number portability feature is on, the entry `PLNP = on` appears in the `rtrv-feat` output. Perform step 4 only if the wireless number portability feature is off and the `serv=wnp` parameter will be specified with the `ent-lnp-serv` command. Perform [Step 5](#) on page 154 only if the PCS 1900 number portability feature is off and the `serv=pcs` parameter will be specified with the `ent-lnp-serv` command.

4. Turn the wireless number portability feature on with the `chg-feat` command.

For this example, enter this command: `chg-feat:wnp=on`

Note: Once the wireless number portability feature is turned on with the `chg-feat` command, it cannot be turned off. The wireless number portability 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 wireless number portability feature, contact your Tekelec Sales Representative or Account Representative.

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

```
rlghncxa03w 07-08-10 11:43:04 GMT EAGLE5 37.0.0
CHG-FEAT: MASP A - COMPLTD
```

5. Turn the PCS 1900 number portability feature on with the `chg-feat` command.

For this example, enter this command: `chg-feat:plnp=on`

Note: Once the PCS 1900 number portability feature is turned on with the `chg-feat` command, it cannot be turned off. The PCS 1900 number portability 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 PCS 1900 number portability feature, contact your Tekelec Sales Representative or Account Representative.

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

```
rlghncxa03w 07-08-10 11:43:04 GMT EAGLE5 37.0.0
CHG-FEAT: MASP A - COMPLTD
```

Note: If you are not assigning a translation type to the WSMSC service, skip [Step 6](#) on page 154 and go to [Step 7](#) on page 155.

6. If the `rtrv-ctrl-feat` output in [Step 1](#) on page 153 shows that the LNP SMS feature is enabled, and on, go to [Step 7](#) on page 155.

If the `rtrv-ctrl-feat` output in [Step 1](#) on page 153 shows that the LNP SMS feature is not enabled or on, perform the [Activating the LNP Short Message Service \(SMS\) Feature](#) on page 184

to enable and turn the LNP SMS feature on. Skip [Step 7](#) on page 155 and go to [Step 8](#) on page 155.

Note:

If you are not assigning a translation type to the LNPQS service, skip [Step 7](#) on page 155 and go to [Step 8](#) on page 155.

- Any translation type can be assigned to the LNPQS service, but since translation type 11 is used for LNP queries between networks, it is recommended that translation type 11 is assigned to the LNPQS service.

Examine the `rtrv-lnp-serv` output in [Step 2](#) on page 153 to verify whether or not translation type 11 is assigned to any existing LNP services. If translation type 11 is assigned to any existing LNP services, perform the [Changing an LNP Service](#) on page 157 and change the translation type of the service using translation type 11.

- Add the LNP services or alias translation types to the database using the `ent-lnp-serv` command.

For this example, enter these commands:

- `ent-lnp-serv:serv=in:tt=30:ttn=ingte:dv=tcap`
- `ent-lnp-serv:serv=udf3:tt=100:dv=sccp`
- `ent-lnp-serv:serv=ain:alias=240`
- `ent-lnp-serv:serv=in:alias=150`
- `ent-lnp-serv:serv=in:alias=175`
- `ent-lnp-serv:serv=lidb:alias=80`
- `ent-lnp-serv:serv=udf3:alias=40`
- `ent-lnp-serv:serv=udf3:alias=45`
- `ent-lnp-serv:serv=wnp:tt=50:ttn=wnp50:dv=tcap`
- `ent-lnp-serv:serv=pcs:tt=19:ttn=pcs19:dv=tcap`
- `ent-lnp-serv:serv=wsmc:tt=139:ttn=wsmc1:dv=tcap`
- `ent-lnp-serv:serv=lnpqs:tt=11:ttn=lnpqs:dv=tcap`

```
rlghncxa03w 07-08-28 14:42:38 GMT EAGLE5 37.0.0
ENT-LNP-SERV: MASP A - COMPLTD
```

- Verify the changes with the `rtrv-lnp-serv` command.

This is an example of the possible output.

```
rlghncxa03w 08-10-01 14:42:38 EST EAGLE 40.0.0
SERV  TT  TTN  DV  ALIAS
LNPQS 11  LNPQS  TCAP  ---
PCS    12  PCS    TCAP  ---
AIN    15  AINGTE TCAP  235
        236
LIDB   20  LIDB   SCCP  ---
WNP    22  WNP    TCAP  ---
CLASS  25  CLASSGTE SCCP  ---
UDF1   201  UDF1   SCCP  ---
LRNQT  239  LRNQT  TCAP  ---

LNP-SERV TABLE IS 3% FULL (8 of 256)
```

- 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.
```

Removing an LNP Service

This procedure is used to remove an LNP service from the database using the `dlt-lnp-serv` command. The `dlt-lnp-serv` command uses two parameters.

`:serv` – the LNP service

`:alias` – the alias LNP translation type assigned to the LNP service

If the `alias` parameter is specified, the alias translation type value must be assigned to the specified LNP service. The alias translation types are shown in the `ALIAS` field of the `rtrv-lnp-serv` command output.

The value of the `alias` parameter cannot be in the database as a true translation type value. The true translation types are shown in the `TT` field of the `rtrv-lnp-serv` command output.

Before an LNP service can be removed from the database, all alias translation types assigned to that service must be removed from the database.

The example in this procedure removes LNP service UDF3 from the database.

1. Display the LNP services and translation type assignments in the database with the `rtrv-lnp-serv` command.

This is an example of the possible output.

```
rlghncxa03w 08-10-01 14:42:38 EST EAGLE 40.0.0
SERV TT TTN DV ALIAS
LNPQS 11 LNPQS TCAP ---
PCS 12 PCS TCAP ---
AIN 15 AINGTE TCAP 235
236
LIDB 20 LIDB SCCP ---
WNP 22 WNP TCAP ---
CLASS 25 CLASSGTE SCCP ---
UDF1 201 UDF1 SCCP ---
LRNQT 239 LRNQT TCAP ---

LNP-SERV TABLE IS 3% FULL (8 of 256)
```

2. Remove the LNP service from the database using the `dlt-lnp-serv` command.

For this example, enter these commands: `dlt-lnp-serv:serv=udf3:alias=40`
`dlt-lnp-serv:serv=udf3:alias=45` `dlt-lnp-serv:serv=udf3`

```
rlghncxa03w 07-08-28 14:42:38 GMT EAGLE5 37.0.0
DLT-LNP-SERV: MASP A - COMPLTD
```

3. Verify the changes with the `rtrv-lnp-serv` command.

This is an example of the possible output.

```

rlghncxa03w 08-10-01 14:42:38 EST EAGLE 40.0.0
SERV  TT  TTN  DV  ALIAS
LNPQS 11  LNPQS  TCAP  ---
PCS  12  PCS  TCAP  ---
AIN  15  AINGTE  TCAP  235
      236
LIDB  20  LIDB  SCCP  ---
WNP  22  WNP  TCAP  ---
CLASS 25  CLASSGTE  SCCP  ---
UDF1  201  UDF1  SCCP  ---
LRNQT 239  LRNQT  TCAP  ---

LNP-SERV TABLE IS 3% FULL ( 8 of 256)

```

4. 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 an LNP Service

This procedure is used to change the attributes of an existing LNP service using the `chg-lnp-serv` command. The `chg-lnp-serv` command uses these parameters.

`:serv` – the LNP service

`:nserv` – the new LNP service

`:tt` – the current LNP translation type assigned to the LNP service

`:ntt` – the new LNP translation type assigned to the LNP service

`:nttn` – the new translation type name assigned to the LNP service

`:ndv` – the new digits valid indication for the LNP service

The values of the `serv` and `tt` parameters must be in the database.

To change the attributes of an LNP service, either the `serv` or `tt` parameters must be specified, but not both parameters. If you are changing the translation type assigned to the LNP service, the `serv` and `ntt` parameters must be specified. If you are changing the LNP service assigned to a translation type, the `tt` and `nserv` parameters must be specified. The `nserv` and `ntt` parameters cannot be specified together with the `chg-lnp-serv` command.

The new translation type name must be unique in the database.

The new translation type (`ntt`) cannot be in the database as a true translation type or an alias translation type. The true translation types and alias translation types are shown in the `rtrv-lnp-serv` command output. The true translation types are shown in the `TT` field and the alias translation types are shown in the `ALIAS` field.

The word `none` sets the translation type name value to the service type name. A translation type name can be the service type name only if the service type name matches the value of the `serv` parameter.

If the value of the `serv` parameter is a user defined service type or `wsmc`, the value of the `ndv` parameter must be `sccp`.

If the value of the `serv` parameter is either `ain`, `in`, `wnp`, `pcs`, or `lnpqs`, the value of the `ndv` parameter must be `tcap`.

If the `ndv` parameter is specified, the value must be different from the current value of the `DV` field. The `DV` value can be changed only for these services: `cnam`, `lidx`, `isvm`, or `class`.

An LNP service cannot be changed if an alias translation type is assigned to the service. The aliases must be removed from the database using the `dlt-lnp-serv` command. If you wish to continue using the alias translation types with the LNP service after the LNP service has been changed, they must be re-assigned to the LNP service using the `ent-lnp-serv` command.

Any translation type can be assigned to the LNPQS service, but it is recommended that translation type 11 is assigned to the LNPQS service. If you are changing the translation type of another service, and the LNPQS service is provisioned in the database, select a translation type other than 11.

The examples in this procedure are used to change the AIN and CLASS services to the values shown in [Table 16: Changing the LNP Service](#) on page 158.

Table 16: Changing the LNP Service

SERV	TT	NTT	DV	NDV	TTN	NTTN
AIN	15	55	TCAP	----	AINGTE	AINLIDB
CLASS	25	140	SCCP	TCAP	CLASSGTE	CLASS
WNP	50	75	TCAP	---	WNP50	WNP75

1. Display the LNP services and translation type assignments in the database with the `rtrv-lnp-serv` command.

This is an example of the possible output.

```
rlghncxa03w 08-10-01 14:42:38 EST EAGLE 40.0.0
SERV TT TTN DV ALIAS
LNPQS 11 LNPQS TCAP ---
PCS 12 PCS TCAP ---
AIN 15 AINGTE TCAP 235
236
LIDB 20 LIDB SCCP ---
WNP 22 WNP TCAP ---
CLASS 25 CLASSGTE SCCP ---
UDF1 201 UDF1 SCCP ---
```

```
LRNQT 239 LRNQT TCAP ---
LNP-SERV TABLE IS 3% FULL (8 of 256)
```

2. If the LNP service being changed has any alias translation types assigned to it, shown in the ALIAS field in the output of [Step 1](#) on page 158, remove the alias translation types from the LNP service using the `dlt-lnp-serv` command.

If the LNP service does not have any alias translation types assigned to it, skip this step and go to [Step 3](#) on page 159. For this example, the AIN service has alias translation types assigned to it. Remove the alias translation types with these commands:

```
dlt-lnp-serv:serv=ain:alias=235
dlt-lnp-serv:serv=ain:alias=236
dlt-lnp-serv:serv=ain:alias=240
```

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

```
rlghncxa03w 07-08-28 14:42:38 GMT EAGLE5 37.0.0
DLT-LNP-SERV: MASP A - COMPLTD
```

Note:

If the LNP service name (`serv` parameter value) is not being changed, skip [Step 3](#) on page 159, [Step 4](#) on page 159, [Step 5](#) on page 160, and [Step 6](#) on page 160, and go to [Step 7](#) on page 160. If the LNP service name (`serv` parameter value) is being changed to a service name other than WNP or PCS, skip [Step 3](#) on page 159, [Step 4](#) on page 159, and [Step 5](#) on page 160, and go to [Step 6](#) on page 160.

3. Verify that the wireless number portability feature (if the `nserv=wnp` parameter will be specified in the `chg-lnp-serv` command) or the PCS 1900 number portability feature (if the `nserv=pcs` parameter will be specified in the `chg-lnp-serv` command), by entering the `rtrv-feat` command.

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 wireless number portability feature is on, the entry `WNP = on` appears in the `rtrv-feat` output. If the PCS 1900 number portability feature is on, the entry `PLNP = on` appears in the `rtrv-feat` output. Perform [Step 4](#) on page 159 only if the wireless number portability feature is off and the `nserv=wnp` parameter will be specified with the `chg-lnp-serv` command. Perform [Step 5](#) on page 160 only if the PCS 1900 number portability feature is off and the `nserv=pcs` parameter will be specified with the `chg-lnp-serv` command.

4. Turn the wireless number portability feature on with the `chg-feat` command.

For this example, enter this command `chg-feat:wnp=on`

Note:

Once the wireless number portability feature is turned on with the `chg-feat` command, it cannot be turned off. The wireless number portability 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 wireless number portability feature, contact your Tekelec Sales Representative or Account Representative.

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

```
rlghncxa03w 07-08-10 11:43:04 GMT EAGLE5 37.0.0
CHG-FEAT: MASP A - COMPLTD
```

- Turn the PCS 1900 number portability feature on with the `chg-feat` command.

For this example, enter this command.`chg-feat:plnp=on`

Note:

Once the PCS 1900 number portability feature is turned on with the `chg-feat` command, it cannot be turned off. The PCS 1900 number portability 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 PCS 1900 number portability feature, contact your Tekelec Sales Representative or Account Representative.

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

```
rlghncxa03w 07-08-10 11:43:04 GMT EAGLE5 37.0.0
CHG-FEAT: MASP A - COMPLTD
```

Note:

If the LNP service name (`serv` parameter value) is being changed to a service name other than WSMSC, skip [Step 6](#) on page 160 and go to [Step 7](#) on page 160.

- Verify that the LNP Short Message Service is enabled and on by entering the `rtrv-ctrl-feat` command.

If the `rtrv-ctrl-feat` output shows that the LNP SMS feature is enabled, and on, go to [Step 7](#) on page 160. If the `rtrv-ctrl-feat` output shows that the LNP SMS feature is not enabled or on, perform [Activating the LNP Short Message Service \(SMS\) Feature](#) on page 184 to enable and turn the LNP SMS feature on.

Note:

If only the alias translation type values for the LNP service are being changed, skip this step and [Step 8](#) on page 160, and go to [Step 9](#) on page 161 to add the new alias translation type values.

- Change the LNP service using the `chg-lnp-serv` command.

```
rlghncxa03w 07-08-28 14:42:38 GMT EAGLE5 37.0.0
CHG-LNP-SERV: MASP A - COMPLTD
```

- Verify the changes with the `rtrv-lnp-serv` command.

This is an example of the possible output.

```
rlghncxa03w 08-10-01 14:42:38 EST EAGLE 40.0.0
SERV  TT   TTN      DV    ALIAS
LNPQS 11   LNPQS    TCAP  ---
PCS    12   PCS      TCAP  ---
AIN    15   AINGTE   TCAP  235
      236
LIDB   20   LIDB     SCCP  ---
WNP    22   WNP      TCAP  ---
CLASS  25   CLASSGTE SCCP  ---
UDF1   201  UDF1     SCCP  ---
LRNQ   239  LRNQ     TCAP  ---
```

```
LNP-SERV TABLE IS 3% FULL ( 8 of 256)
```

9. If you wish to continue using the alias translation types removed in [Step 2](#) on page 159 with the changed LNP service, or add new alias translation types to the LNP service, add them with the `ent-lnp-serv` command.

For this example, the alias translation types removed in [Step 2](#) on page 159 are added back to the AIN service. Enter these commands:

```
ent-lnp-serv:serv=ain:alias=235
ent-lnp-serv:serv=ain:alias=236
ent-lnp-serv:serv=ain:alias=240
```

```
rlghncxa03w 07-08-28 14:42:38 GMT EAGLE5 37.0.0
ENT-LNP-SERV: MASP A - COMPLTD
```

10. Verify the changes with the `rtrv-lnp-serv` command.

This is an example of the possible output.

```
rlghncxa03w 08-10-01 14:42:38 EST EAGLE 40.0.0
SERV TT TTN DV ALIAS
LNPQS 11 LNPQS TCAP ---
PCS 12 PCS TCAP ---
AIN 15 AINGTE TCAP 235
236
LIDB 20 LIDB SCCP ---
WNP 22 WNP TCAP ---
CLASS 25 CLASSGTE SCCP ---
UDF1 201 UDF1 SCCP ---
LRNQT 239 LRNQT TCAP ---
LNP-SERV TABLE IS 3% FULL ( 8 of 256)
```

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

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

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

Adding a Subsystem Application

This procedure is used to reserve a subsystem number for the LNP application and place the LNP application either online or offline using the `ent-ss-appl` command. The `ent-ss-appl` command uses these parameters.

`:appl` – the application type, LNP

Note:

The `appl` parameter contains the values `INP`, for reserving a subsystem number for the INP subsystem, and `EIR`, for reserving a subsystem number for the EIR subsystem. These values cannot

be used in this procedure. To reserve a subsystem number for the INP or EIR subsystem, perform the procedures in the *Feature Manual - INP* or *Feature Manual - EIR* and do not perform this procedure.

: *ssn* – the LNP subsystem number

: *stat* – the state of the LNP application

The LNP feature must be enabled. Verify this by entering the `rtrv-ctrl-feat` command. If the LNP feature is enabled, the entry `LNP ported TNS` should appear in the `rtrv-ctrl-feat` output with a telephone quantity greater than 0. If the LNP feature is not enabled, perform the procedures in [LNP Feature Activation](#) on page 15 to enable the LNP feature.

Only one subsystem number for each application can be defined.

If the `stat` parameter is not specified, the application will be offline.

The LNP application applies to both global title translation services and LNP queries.

The application specified by the `appl` parameter cannot already be in the database.

Before the subsystem application can be added to the database, the EAGLE 5 ISS's true point code and the subsystem number must be in the mated application table. The EAGLE 5 ISS's true point code is verified with the `rtrv-sid` command and shown in the `PCA` field. The mated application table is displayed with the `rtrv-map` command. The EAGLE 5 ISS's true point code is shown in the `PCA` field of the `rtrv-map` command output and the subsystem number is shown in the `SSN` field of the `rtrv-map` command output. If the EAGLE 5 ISS's true point code and the subsystem number are not shown in the `rtrv-map` command output, perform one of the "Mated Application" procedure in the *Database Administration Manual – Global Title Translation* and add the EAGLE 5 ISS's true point code and the subsystem to the database.

The example in this procedure reserves the subsystem number 254 for the LNP application and sets the LNP application online.

1. Verify that the LNP feature is enabled by entering the `rtrv-ctrl-feat` command.

If the LNP feature is enabled, the entry `LNP ported TNS` should appear in the `rtrv-ctrl-feat` output with a telephone quantity greater than 0. This is an example of the possible output.

```
rlghncxa03w 08-05-09 16:40:40 EST EAGLE 39.0.0

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         ----
LNP ELAP Configuration  893010901 on         ----
LNP ported TNS         893011036 on       384000000
LNP ported LRNs        893010501 on        200000
LNP ported NPANXXs     893009402 on        350000
```

;

If the LNP feature is not enabled, perform the procedures in [Activating the LNP Feature Overview](#) on page 20 to enable the LNP feature. Go to [Step 2](#) on page 162. If the LNP feature is enabled, go to [Step 2](#) on page 162.

2. Display the subsystem number for the LNP application in the database with the `rtrv-ss-appl` command.

This is an example of the possible output.

```
rlghncxa03w 07-08-28 14:42:38 GMT EAGLE5 37.0.0
APPL  SSN      STAT
LNP   15       online

SS-APPL TABLE IS 20% FULL (1 of 1)
```

3. Display the EAGLE 5 ISS's true point code using the `rtrv-sid` command.

The EAGLE 5 ISS's true point code is shown in the `PCA` field of the `rtrv-sid` output. The following is an example of the possible output.

```
rlghncxa03w 07-08-10 11:43:04 GMT EAGLE5 37.0.0
PCA          PCI          PCN          CLLI          PCTYPE
100-100-100  3-75-7          7-9-8-1      rlghncxa03w   OTHER
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      050-060-070
CPCA (LNP)
005-005-002      005-005-004      005-005-005      006-006-006
CPCI
1-002-1          1-002-2          1-002-3          1-002-4
2-001-1          7-222-7
CPCN
2-0-10-3        2-0-11-0        2-0-11-2        2-0-12-1
2-2-3-3        2-2-4-0        10-14-10-1
```

4. Display the mated applications using the `rtrv-map` command specifying the EAGLE 5 ISS's true point code (shown in [Step 3](#) on page 163) and the LNP subsystem number.

For this example, enter this command:

```
rtrv-map:pca=100-100-100:ssn=254
```

This is an example, of the possible output.

```
rlghncxa03w 07-08-07 00:34:31 GMT EAGLE5 37.0.0
MAP TABLE IS 3 % FULL (33 of 1024)
PCA          SSN RC MULT |-----MATE-----| SRM MRC GRP NAME SSO
              PCA          SSN RC MULT
100-100-100  254 10 SOL   --- --- GRP01   OFF
```

If the EAGLE 5 ISS's true point code and LNP subsystem number are not shown in the `rtrv-map` output, perform one of the "Mated Application" procedure in the *Database Administration Manual – Global Title Translation* and add the EAGLE 5 ISS's true point code and the subsystem to the database.

5. Add the subsystem number for the LNP application using the `ent-ss-appl` command.

For this example, enter this command:

```
ent-ss-appl:appl=lnp:ssn=254:stat=online
```

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

```
rlghncxa03w 07-08-28 14:42:38 GMT EAGLE5 37.0.0
ENT-SS-APPL: MASP A - COMPLTD
```

6. Verify the changes with the `rtrv-ss-appl` command.

This is an example of the possible output.

```
rlghncxa03w 07-08-28 14:42:38 GMT EAGLE5 37.0.0
APPL      SSN      STAT
LNP       254      ONLINE

SS-APPL table is 100% FULL (1 of 1)
```

- 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.
```

Removing a Subsystem Application

This procedure is used to remove a subsystem application from the database using the `dlt-ss-appl` command. The `dlt-ss-appl` command uses only one parameter, `:appl` – the subsystem application. The EAGLE 5 ISS contains only one subsystem application, the LNP subsystem application.

Note: The `appl` parameter contains the values `INP`, for removing the INP subsystem, and `EIR`, for removing the EIR subsystem. These values cannot be used in this procedure. To remove the INP or EIR subsystems, perform the procedures in the *Feature Manual - INP* or *Feature Manual - EIR* and do not perform this procedure.

The subsystem application must be in the database and the subsystem must be out of service.

- Display the status of the LNP subsystem with the `rept-stat-lnp` command.

This is an example of the possible output.

```
Integrat40 08-11-14 10:37:22 EST EAGLE5 40.0.0
LNP SUBSYSTEM REPORT IS-ANR Active -----
  ASSUMING MATE'S LOAD
  ALARM STATUS = No Alarms.

LNP Cards Configured= 5
CARD  PST      SST      GTT STATUS  LNP STATUS  CPU USAGE
1106  IS-NR      Active    ACT          ACT          23%
1201  IS-ANR      Standby   SWDL         SWDL         0%
1205  OOS-MT-DSBLD Manual    -----     -----     0%
1302  OOS-MT      FLT      -----     -----     0%
1310  IS-ANR      Standby   ACT          SWDL         0%

LNPQS:
SSN STATUS = Allowed      MATE SSN STATUS = Prohibited
ACG: OVERLOAD LEVEL = 0   MIC USAGE = 100%

AVERAGE USAGE:
GTT = 13% LNPMSR = 0%   LNPQS = 0%
WNPQS = 0% TLNP = 10%  PLNPQS = 0%
AVERAGE CPU USAGE = 23%
```

```

TOTAL ERRORS:
GTT:      1 out of      2000
LNPMR:    0 out of      0
LNPQS:    0 out of      0
WNPQS:    0 out of      0
PLNPQS:   0 out of      0
TLNP:     1 out of      500

PROVISIONED TABLE QTY:
TN:       76800000 of 96000000 ( 80%)
NPA:      135000 of 150000 ( 90%)
LRN:      90000 of 100000 ( 90%)

Command Completed.

```

Note:

The WNPQS field is only shown if the wireless number portability feature is on. This can be verified with the WNP field of the `rtrv-feat` command output. The PLNPQS field is only shown if the PCS 1900 number portability feature is on. This can be verified with the PLNP field of the `rtrv-feat` command output. The TLNP field is only shown if the triggerless number portability feature is on. This can be verified with the TLNP field of the `rtrv-feat` command output.

2. Display the subsystem application number for the LNP application in the database with the `rtrv-ss-appl` command.

This is an example of the possible output.

```

rlghncxa03w 07-08-28 14:42:38 GMT EAGLE5 37.0.0
APPL      SSN      STAT
LNP       254      ONLINE

SS-APPL table is 100% FULL (1 of 1)

```

Note:

If the LNP subsystem is out of service, shown by the entry `LNP SUBSYSTEM REPORT OOS-MT_DSBLD` in the `rept-stat-lnp` output in [Step 1](#) on page 164, skip [Step 3](#) on page 165 and [Step 4](#) on page 165, and go to [Step 5](#) on page 166.

3. Place the LNP subsystem application out of service with the `inh-map-ss` command specifying the LNP subsystem number displayed in [Step 2](#) on page 165.

For this example, enter this command. `inh-map-ss:ssn=254` When this command has successfully completed, this message should appear.

```

rlghncxa03w 07-08-28 14:42:38 GMT EAGLE5 37.0.0
LNP Subsystem has been inhibited.
Command Completed.

```

4. Verify that the LNP subsystem is out of service with the `rept-stat-lnp` command.

This an example of the possible output.

```

rlghncxa03w 08-11-14 10:37:22 EST EAGLE 40.0.0
LNP SUBSYSTEM REPORT OOS-MT-DSBLD Active -----
ALARM STATUS = *C 0435 LNP Subsystem is disabled

LNP Cards Configured= 3
CARD  PST      SST      GTT STATUS  LNP STATUS  CPU USAGE
1106  IS-NR      Active   ACT         OFFLINE     10%

```

```

1201  IS-NR          Active          ACT          OFFLINE      12%
1310  OOS-MT-DSBLD  Manual          -----      -----      0%

LNPQS:
  SSN STATUS = Prohibited  MATE SSN STATUS = Allowed
  ACG:  OVERLOAD LEVEL = 0  MIC UASGE = 0%

AVERAGE USAGE:
  GTT  = 13% LNPMPR = 0%   LNPQS  = 0%
AVERAGE CPU USAGE = 11%
TOTAL ERRORS:
  GTT:      0 out of 2000
  LNPMPR:   0 out of 0
  LNPQS:    0 out of 0

PROVISIONED TABLE QTY:
  TN:       10 of 24000000 ( 0%)
  NPA:      1 of 150000 ( 0%)
  LRN:      3 of 100000 ( 0%)

Command Completed

```

Note: The WNPQS field is only shown if the wireless number portability feature is on. This can be verified with the WNP field of the `rtrv-feat` command output. The PLNPQS field is only shown if the PCS 1900 number portability feature is on. This can be verified with the PLNP field of the `rtrv-feat` command output. The TLNP field is only shown if the triggerless number portability feature is on. This can be verified with the TLNP field of the `rtrv-feat` command output.

- Remove the LNP subsystem application from the database using the `dlt-ss-appl` command. For this example, enter this command. `dlt-ss-appl:appl=lnp` When each of this command has successfully completed, this message should appear.

```

rlghncxa03w 09-04-05 17:34:20 EST EAGLE 41.0.0
DLT-SS-APPL: MASP A - CAUTION: DELETED APPL SSN MAY BE REFERENCED BY GTT ENTRY
DLT-SS-APPL: MASP A - COMPLTD
;

```

- Verify the changes with the `rtrv-ss-appl` command.

This is an example of the possible output.

```

rlghncxa03w 07-08-28 14:42:38 GMT EAGLE5 37.0.0
APPL      SSN      STAT
LNP       254      ONLINE

SS-APPL table is 0% FULL (1 of 1)

```

- 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 a Subsystem Application

This procedure is used to set an existing subsystem application either online or offline using the `chg-ss-appl` command. The `chg-ss-appl` command uses these parameters.

`:appl` – the application type. The EAGLE 5 ISS contains only one subsystem application, the LNP subsystem application.

Note: The `appl` parameter contains the values `INP`, for changing the INP subsystem, and `EIR`, for changing the EIR subsystem. These values cannot be used in this procedure. To change the INP or EIR subsystem, perform the procedures in the *Feature Manual - INP* or *Feature Manual - EIR* and do not perform this procedure.

`:nstat` – the new state of the subsystem application.

If the `nstat=offline` parameter is specified, the subsystem application must be online. If the `nstat=online` parameter is specified, the subsystem application must be offline. The state of the subsystem application is shown in the `STAT` field of the `rtrv-ss-appl` command output.

If the subsystem application is to be taken offline (`nstat=offline`), the subsystem must be taken out of service (`OOS-MT-DSBLD`) with the `inh-map-ss` command.

The `rept-stat-lnp` command is used to determine the state of the LNP subsystem.

This example contains two procedures, one for taking the LNP subsystem application offline, and another for placing the LNP subsystem application online.

1. Verify whether or not the LNP subsystem is online or offline with the `rtrv-ss-appl` command.

This is an example of the possible output.

```
rlghncxa03w 07-08-28 14:42:38 GMT EAGLE5 37.0.0
APPL      SSN      STAT
LNP      254      ONLINE

SS-APPL table is 0% FULL (1 of 1)
```

If the LNP subsystem is offline, this procedure does not need to be performed.

2. Display the status of the LNP subsystem with the `rept-stat-lnp` command.

This is an example of the possible output.

```
Integrat40 08-11-14 10:37:22 EST EAGLE5 40.0.0
LNP SUBSYSTEM REPORT IS-ANR      Active      -----
  ASSUMING MATE'S LOAD
  ALARM STATUS          = No Alarms.

LNP Cards Configured= 5
CARD  PST      SST      GTT STATUS  LNP STATUS  CPU USAGE
1106  IS-NR     Active   ACT         ACT         23%
1201  IS-ANR     Standby  SWDL        SWDL        0%
1205  OOS-MT-DSBLD Manual   -----    -----    0%
1302  OOS-MT     FLT     -----    -----    0%
1310  IS-ANR     Standby  ACT         SWDL        0%

LNPQS:
  SSN STATUS = Allowed      MATE SSN STATUS = Prohibited
  ACG: OVERLOAD LEVEL = 0   MIC USAGE = 100%
```

```

AVERAGE USAGE:
  GTT   = 13% LNPMPR = 0%   LNPQS = 0%
  WNPQS = 0%  TLNP   = 10%  PLNPQS = 0%
AVERAGE CPU USAGE = 23%
TOTAL ERRORS:
  GTT:      1 out of    2000
  LNPMPR:   0 out of     0
  LNPQS:    0 out of     0
  WNPQS:    0 out of     0
  PLNPQS:   0 out of     0
  TLNP:     1 out of    500

PROVISIONED TABLE QTY:
  TN:      76800000 of  96000000 ( 80%)
  NPA:     135000 of   150000 ( 90%)
  LRN:     90000 of   100000 ( 90%)

```

Command Completed.

Note:

The WNPQS field is only shown if the wireless number portability feature is on. This can be verified with the WNP field of the `rtrv-feat` command output.

The PLNPQS field is only shown if the PCS 1900 number portability feature is on. This can be verified with the PLNP field of the `rtrv-feat` command output.

The TLNP field is only shown if the triggerless number portability feature is on. This can be verified with the TLNP field of the `rtrv-feat` command output.

- Place the LNP subsystem out of service with the `inh-map-ss` command specifying the LNP subsystem number displayed in [Step 2](#) on page 167.

For this example, enter this command. `inh-map-ss:ssn=254` When this command has successfully completed, this message should appear.

```

rlghncxa03w 07-08-28 14:42:38 GMT EAGLE5 37.0.0
LNP Subsystem has been inhibited.
Command Completed.

```

- Verify that the LNP subsystem is out of service with the `rept-stat-lnp` command.

This an example of the possible output.

```

rlghncxa03w 08-11-14 10:37:22 EST EAGLE 40.0.0
LNP SUBSYSTEM REPORT OOS-MT-DSBLD Active -----
ALARM STATUS = *C 0435 LNP Subsystem is disabled

LNP Cards Configured= 3
CARD  PST          SST          GTT STATUS  LNP STATUS  CPU USAGE
1106  IS-NR          Active      ACT         OFFLINE     10%
1201  IS-NR          Active      ACT         OFFLINE     12%
1310  OOS-MT-DSBLD   Manual     -----    -----    0%

LNPQS:
  SSN STATUS = Prohibited  MATE SSN STATUS = Allowed
  ACG:  OVERLOAD LEVEL = 0  MIC UASGE = 0%

AVERAGE USAGE:
  GTT   = 13% LNPMPR = 0%   LNPQS = 0%
AVERAGE CPU USAGE = 11%
TOTAL ERRORS:

```

```

GTT:          0 out of    2000
LNPMR:        0 out of      0
LNPQS:        0 out of      0

PROVISIONED TABLE QTY:
TN:           10 of    24000000 ( 0%)
NPA:          1 of    150000 ( 0%)
LRN:          3 of    100000 ( 0%)

Command Completed

```

Note:

The WNPQS field is only shown if the wireless number portability feature is on. This can be verified with the WNP field of the `rtrv-feat` command output.

The PLNPQS field is only shown if the PCS 1900 number portability feature is on. This can be verified with the PLNP field of the `rtrv-feat` command output.

The TLNP field is only shown if the triggerless number portability feature is on. This can be verified with the TLNP field of the `rtrv-feat` command output.

- Place the LNP subsystem offline using the `chg-ss-appl` command with the `nstat=offline` parameter.

For this example, enter this command. `chg-ss-appl:appl=lnp:nstat=offline` When this command has successfully completed, this message should appear.

```

rlghncxa03w 07-08-28 14:42:38 GMT EAGLE5 37.0.0
CHG-SS-APPL: MASP A - COMPLTD

```

- Verify the changes with the `rtrv-ss-appl` command.

This is an example of the possible output.

```

rlghncxa03w 07-08-28 14:42:38 GMT EAGLE5 37.0.0
APPL      SSN      STAT
LNP       254      OFFLINE

SS-APPL table is 0% FULL (1 of 1)

```

- 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 LNP Options

This procedure is used to change the LNP specific options using the `chg-lnpopts` command. The `chg-lnpopts` command uses these parameters.

`:amaslpid` – the AMA service logic ID

- `:incslp` – is the AMA service logic ID included in the response
- `:amactype` – the AMA call type
- `:amafeatid` – the AMA feature ID
- `:cic` – the carrier identification code
- `:sp` – the service provider ID
- `:jipprv` – The values for this parameter are either `yes` or `no`. If the value is `yes`, the Jurisdiction Information Parameter value is added to the IAM. If the value is `no`, the Jurisdiction Information Parameter value is not added to the IAM.
- `:jipdigits` – The value of the Jurisdiction Information Parameter as a 6-digit number.
- `:frcsmplx` – The values for this parameter are either `yes` or `no`. If the value is `yes`, LNP updates are accepted when the EAGLE 5 ISS is in the simplex mode (when the standby MASP is incoherent, at a different level compared to the active MASP, or unstable). If the value is `no`, LNP updates are not accepted when the EAGLE 5 ISS is in the simplex mode (when the standby MASP is incoherent, at a different level compared to the active MASP, or unstable).
- `:admhipri` – The values for this parameter are either `yes` or `no`. If the value is `yes`, LNP administration has the highest priority of all administration in the EAGLE 5 ISS. If the `admhipri=yes` parameter is specified, LNP administration could starve out normal STP updates during LNP administration of 2 TNs per second. If the value of this parameter is `no`, then STP and LNP updates receive the same priority and performance of LNP updates can be reduced depending on other activity on the EAGLE 5 ISS.
- `:gtwystp` – The values for this parameter are either `yes` or `no`. If the value is `yes`, the EAGLE 5 ISS is configured as a gateway STP and running the LNP feature. The NPAC sends LNP subscriptions that contain capability point codes that do not have routes assigned to them in the EAGLE 5 ISS database. If the value for the `gtwystp` is `no`, the EAGLE 5 ISS is not configured as a gateway STP.
- `:ccp` – The values for this parameter are either `yes` or `no`. When this parameter is enabled (`ccp=yes`), the EAGLE 5 ISS copies the Charge Number and Charge Party Station type from an LNP AIN query (if present) to the LNP AIN Response message.
- `:servport` – The values for this parameter are either `yes` or `no`. If the value for this parameter is `yes`, then splitting services between TN and LRN override records is allowed. This settings lets the EAGLE 5 ISS craftsperson update LRN overrides for message relay services that are to be supported in the network. The EAGLE 5 ISS will then fallback to the TN gateway point code (NPAC subscription data) for message relay services the CLEC wants to provide.

If the value of this parameter is `no`, and no LRN override services are provisioned, then the TN's gateway point codes (NPAC subscription data) are used to route queries out of the network. If one or more LRN override services are provisioned, the TN is considered to be ported into the network. In this case, if an LRN override service is requested and the LRN has other services administered, but the requested service is not provisioned, then a UDTs response for the service is provided.
- `:wqredrct` – The values for this parameter are either `on` or `off`. If the value of this parameter is `on`, the EAGLE 5 ISS allows the global title translation functionality to treat any wireless LNP (WNP) and PCS) queries that require global title translation as a normal global title translation. If the value of this parameter is `off`, all wireless LNP (WNP and PCS) queries that require global title translation are routed directly to the local subsystem.

`:wsmsc10dig` – The values for this parameter are either `yes` or `no`. If the value of this parameter is `yes`, then the EAGLE 5 ISS verifies that either 10 or 11 digits are present in the CDPA global title address. If 11 digits are present, then the first digit is stripped from the CDPA global title address to derive 10 digits for LNP WSMSC translation. Otherwise, all 10 digits are used for LNP WSMSC translation. If the value of this parameter is `no`, then the EAGLE 5 ISS verifies that 11 digits (including a padded 0 digit) are present in the CDPA global title address. If 11 digits are present in the CDPA global title address, the EAGLE 5 ISS strips the first digit and uses only 10 digits for LNP WSMSC translation.

The LNP feature must be enabled. Verify this by entering the `rtrv-ctrl-feat` command. If the LNP feature is enabled, the entry `LNP ported TNs` should appear in the `rtrv-ctrl-feat` output with a telephone quantity greater than 0. If the LNP feature is not enabled, perform the procedures in the [LNP Feature Activation](#) on page 15 to enable the LNP feature.

The `jipprv` and `jipdigits` parameters can only be specified if the Triggerless LNP feature is on. This can be verified by the `TLNP = on` field of the `rtrv-feat` command output.

The `wqredrct` parameter can only be specified if either the wireless number portability feature or the PCS 1900 number portability feature is on. The entry `WNP = on` in the `rtrv-feat` command output shows whether or not the wireless number portability feature is on. The entry `PLNP = on` in the `rtrv-feat` command output shows whether or not the PCS 1900 number portability feature is on.

Note: The wireless number portability (WNP), PCS 1900 number portability (PLNP), or Triggerless LNP (TLNP) features must be purchased before you turn any of these features on with the `chg-feat` command. If you are not sure if you have purchased these features, contact your Tekelec Sales Representative or Account Representative.

The `wsmsc10dig` parameter can only be specified if the LNP SMS feature is activated and on. This is shown in the `rtrv-ctrl-feat` command output. If the LNP SMS feature is not activated or on, perform the [Activating the LNP Short Message Service \(SMS\) Feature](#) on page 184.

The value for any parameter not specified with the `chg-lnpopts` command is not changed.

The value of the `sp` parameter can contain from 1 to 4 alphanumeric characters.

The examples in this procedure change these LNP options to these values.

AMASLPID = 909873583

AMATYPE = 181

AMAFEATID = 250

CIC = 1254

SP = 1234

1. Verify that the LNP feature is enabled by entering the `rtrv-ctrl-feat` command.

If the LNP feature is enabled, the entry `LNP ported TNs` should appear in the `rtrv-ctrl-feat` output with a telephone quantity greater than 0. This is an example of the possible output.

```
rlghncxa03w 07-08-29 16:40:40 EST EAGLE5 37.6.0
The following features have been permanently enabled:
Feature Name          Partnum   Status   Quantity
LNP ported TNs       893011023 on       228000000
```

```
i
```

If the LNP feature is not enabled, perform the procedures in the [LNP Feature Activation](#) on page 15 to enable the LNP feature. Go to [Step 2](#) on page 172. If the LNP feature is enabled, go to [Step 2](#) on page 172.

2. Display the LNP options in the database with the `rtrv-lnpopts` command.

This is an example of the possible output.

```
rlghncxa03w 07-08-28 14:42:38 GMT EAGLE5 37.0.0
AMASLPID      = 123456789
INCSLP       = yes
AMATYPE      = 003
AMAFEATID    = 010
CIC          = 1369
AUD          = on
SP           = 5678
FRCSMPLX    = yes
ADMHIPRI     = yes
GTWYSTP     = yes
JIPPROV     = yes
JIPDIGITS   = 910460
CCP         = no
SERVPORT    = no
WQREDRCT    = off
WSMSC10DIG  = yes
```

Note: The `JIPPROV` and `JIPDIGITS` fields are only displayed if the Triggerless LNP feature is on. This can be verified by the `TLNP = on` field of the `rtrv-feat` command output ([Step 3](#) on page 172).

Note: If the `rtrv-ctrl-feat` output in [Step 1](#) on page 171 showed that the LNP feature was not enabled, skip this step and go to step [Step 4](#) on page 172.

Note: If the `wqredrct`, `jipprv`, or `jipdigits` parameters are not being specified in this procedure, skip steps [Step 3](#) on page 172, [Step 4](#) on page 172, and [Step 5](#) on page 173, and go to step [Step 6](#) on page 173.

3. Verify that the Wireless Number Portability feature or the PCS 1900 Number Portability feature (if the `wqredrct` parameter will be specified in this procedure), or the Triggerless LNP feature (if the `jipprv`, or `jipdigits` parameters will be specified in this procedure), by entering the `rtrv-feat` command.

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 Wireless Number Portability feature is on, the entry `WNP = on` appears in the `rtrv-feat` output. If the PCS 1900 Number Portability feature is on, the entry `PLNP = on` appears in the `rtrv-feat` output. If the Triggerless LNP feature is on, the entry `TLNP = on` appears in the `rtrv-feat` output.

Note: If the desired features in [Step 3](#) on page 172 are on, skip this step and go to [Step 5](#) on page 173.

4. If either the `WNP`, `PLNP`, or `TLNP` fields in [Step 3](#) on page 172 are set to `off`, the Wireless Number Portability, PCS 1900 Number Portability, or Triggerless LNP features must be turned on with

the `chg-feat` command, depending on whether you are changing the value of the `wqredrct`, `jipprv`, or `jipdigits` parameters.

To turn the Wireless Number Portability feature on, enter this command: `chg-feat :wnp=on`. To turn the PCS 1900 Number Portability feature on, enter this command: `chg-feat :plnp=on`. To turn the Triggerless LNP feature on, enter this command: `chg-feat :tlnp=on`. If you wish to turn all three features on, or a combination of two of these features, enter the `chg-feat` command with each parameter that corresponds to the feature you wish to turn on. For example, to turn all three features on, enter this command: `chg-feat :tlnp=on:plnp=on:wnp=on`.

Note: Once the Triggerless LNP, Wireless Number Portability or PCS 1900 Number Portability features are turned on with the `chg-feat` command, they cannot be turned off.

The Triggerless LNP, Wireless Number Portability or PCS 1900 Number Portability features must be purchased before you turn these features on with the `chg-feat` command. If you are not sure if you have purchased these features, contact your Tekelec Sales Representative or Account Representative.

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

```
rlghncxa03w 07-08-10 11:43:04 GMT EAGLE5 37.0.0
CHG-FEAT: MASP A - COMPLTD
```

Note: If the `wsmc10dig` parameter is not being specified in this procedure, skip this step and go to step 5.

- If `rtrv-ctrl-feat` output in step 1 shows that the LNP SMS feature is not enabled or is off, perform the [Activating the LNP Short Message Service \(SMS\) Feature](#) on page 184 and enable and turn on the LNP SMS feature.
- Change the LNP options using the `chg-lnpopts` command.

For this example, enter this command.

```
chg-lnpopts:amaslpid=909873583:amactype=181:amafeatid=250
:cic=1254:sp=1234
```

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

```
rlghncxa03w 07-08-28 14:42:38 GMT EAGLE5 37.0.0
CHG-LNPOPTS: MASP A - COMPLTD
```

- Verify the changes with the `rtrv-lnpopts` command.

This is an example of the possible output.

```
rlghncxa03w 07-08-28 14:42:38 GMT EAGLE5 37.0.0
AMASLPID      = 909873583
INCSLP        = yes
AMATYPE       = 181
AMAFEATID     = 250
CIC           = 1254
AUD           = on
SP            = 1234
FRCSMPLX     = yes
ADMHIPRI     = yes
GTWYSTP      = yes
JIPPROV       = yes
JIPDIGITS    = 910460
CCP           = no
SERVPORT     = no
```

```
WQREDRCT = off
WSMSC10DIG = yes
```

8. 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.
```

Configuring the Triggerless LNP Feature

This procedure is used to configure the Triggerless LNP feature. The Triggerless LNP feature provides service providers a method to route calls to ported numbers without having to upgrade their signaling switch (end office or mobile switching center) software. In a trigger based LNP solution, the service providers have to modify the end office (EO) or mobile switching center (MSC) to contain the LNP triggers. These triggers cause the EO/MSC to launch the query to the LNP database and route the call based on the returned location routing number (LRN).

The Triggerless LNP feature does not require any updates to the EO/MSC. Instead, the Initial Address Message (IAM) sent from the end office is intercepted by the Triggerless LNP equipped EAGLE 5 ISS and converted to include the LRN if the call is to a ported number.

The Gateway Screening feature is used to capture the IAMs that are converted for the Triggerless LNP feature. The database must contain a gateway screening screenset that contains these items:

- An allowed SIO screen that allows ISUP messages into the EAGLE 5 ISS. ISUP messages are MSUs that contain the value 5 in the service indicator field (SI=5) of the service information octet (SIO) of the MSU. This is verified in [Step 14](#) on page 179 of this procedure.
- The gateway screening stop action `tlnp`. The gateway screening stop actions can be verified with the `rtrv-gws-actset` command, as shown in [Step 10](#) on page 178 in this procedure.



CAUTION

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

If the database does not contain an allowed SIO screen that allows ISUP messages into the EAGLE 5 ISS, go to the *Database Administration Manual - Gateway Screening* to configure the required screen set in the database.

Note: It is recommended that the screening for ISUP messages allowed into the EAGLE 5 ISS stop at either the Allowed SIO, Allowed DPC, Blocked DPC, or Allowed ISUP screens. Screening on these messages can continue to the Allowed DESTFLD, Allowed CGPA, Allowed TT, Allowed CDPA, or Allowed AFTPC screens, but these screens do not contain any screenable criteria contained in an ISUP message. Once these messages are passed on to the Allowed DESTFLD or Allowed CGPA screens, they will continue to be passed during the gateway screening process until the gateway screening process stops.

The Gateway Screening and Triggerless LNP features must be on. This can be verified with these entries in the `rtrv-feat` command output.

- `GWS = on`, for the Gateway Screening feature
- `TLNP = on`, for the Triggerless LNP feature

Note: Once the Gateway Screening and Triggerless LNP features are turned on with the `chg-feat` command, they cannot be turned off.

The Gateway Screening and Triggerless LNP features must be purchased before you turn the features on with the `chg-feat` command. If you are not sure if you have purchased the Gateway Screening and Triggerless LNP features, contact your Tekelec Sales Representative or Account Representative.

The LNP feature must be enabled. Enter the `rtrv-ctrl-feat` command to verify whether or not the LNP feature is enabled. If the output of the `rtrv-ctrl-feat` command shows a quantity in the `LNP ported TNs` field, the LNP feature is enabled. If the LNP feature is not enabled, perform the procedures in [Activating the LNP Feature Overview](#) on page 20 to enable the LNP feature.

When the IAMs are converted, a jurisdiction indicator parameter (JIP) is added to the IAM message after LNP lookup if the jurisdiction information parameter does not exist in original IAM message and either:

- The `JIPPROV` value in the LNP options table is set to `yes`.
- A valid calling party number exists in original IAM message.

The options for the JIP parameter are set using the `chg-lnpopts` command with these parameters

- `jipprv` – Is a jurisdiction information parameter value to be added to the IAM, `yes` or `no`?
- `jipdigits` – The value of the jurisdiction information parameter as a 6-digit number.

The JIP parameter options can be verified with the `JIPPROV` and `JIPDIGITS` fields of the `rtrv-lnpopts` command.

Canceling the `RTRV-LS` Command

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

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

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

1. Verify that the Gateway Screening and the Triggerless LNP features are on by entering the `rtrv-feat` command.

If the Gateway Screening feature is on, the `GWS` field should be set to on. If the Triggerless LNP feature is on, the `TLNP` 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 Triggerless LNP feature is on, go to [Step 7](#) on page 177. Before the Triggerless LNP feature can be turned on, the Gateway Screening and LNP features must be on. If the Gateway Screening feature is off, go to [Step 2](#) on page 176 to turn the gateway screening feature on.

2. Turn the Gateway Screening feature on by entering this command.

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

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

The Gateway Screening 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 Gateway Screening feature, contact your Tekelec Sales Representative or Account Representative.

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

```
rlghncxa03w 07-08-07 00:57:31 GMT EAGLE5 37.0.0
CHG-FEAT: MASP A - COMPLTD
```

3. Verify whether or not the LNP feature is enabled by using the `rtrv-ctrl-feat` command.

If the LNP feature is enabled, the entry LNP ported TNs appears in the `rtrv-ctrl-feat` output with a telephone number quantity greater than 0. This is an example of the possible output.

```
rlghncxa03w 08-05-09 16:40:40 EST EAGLE 39.0.0

The following features have been permanently enabled:
Feature Name          Partnum  Status  Quantity
LNP ported TNs       893011036 on      384000000
```

```
;
```

Note: If the `rtrv-ctrl-feat` output in [Step 3](#) on page 176 shows that the LNP feature is enabled, skip this step and go to [Step 5](#) on page 176.

4. Enable the LNP feature by performing the procedures in [Activating the LNP Feature Overview](#) on page 20.
5. Turn the Triggerless LNP feature on by entering this command.

```
chg-feat:tlnp=on
```

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

The Triggerless LNP 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 Triggerless LNP feature, contact your Tekelec Sales Representative or Account Representative.

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

```
rlghncxa03w 07-08-07 00:57:31 GMT EAGLE5 37.0.0
CHG-FEAT: MASP A - COMPLTD
```

- Verify the changes using the `rtrv-feat` command.

The `GWS = on` and `TLNP = on` should be shown in the `rtrv-feat` output.

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*.

- Display the LNP options for the jurisdiction information parameter by entering the `rtrv-lnpopts` command.

The jurisdiction information parameter options are shown in the `JIPPROV` and `JIPDIGITS` fields as shown in bold in the example output.

```
rlghncxa03w 07-08-07 00:57:31 GMT EAGLE5 37.0.0
AMASLPID      = 123456789
INCSLP        = yes
AMACTYPE      = 003
AMAFEATID     = 010
CIC           = 1369
AUD           = on
SP            = a123
FRCSMPLX     = yes11
ADMHIPRI     = yes
GTWYSTP      = yes
JIPPROV     = no
JIPDIGITS   = 919460
```

If you wish to change the jurisdiction information parameter options in the LNP options table go to [Step 8](#) on page 177, otherwise go to [Step 10](#) on page 178.

- Change the jurisdiction information parameter options in the LNP options table using the `chg-lnpopts` command with the `jipprv` and `jipdigits` parameters.

For this example, enter this command.

```
chg-lnpopts:jipprv=yes:jipdigits=423929
```

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

```
rlghncxa03w 07-08-07 00:57:31 GMT EAGLE5 37.0.0
CHG-LNPOPTS: MASP A - COMPLTD
```

- Verify the changes using the `rtrv-lnpopts` command.

The following is an example of the possible output.

```
rlghncxa03w 07-08-07 00:57:31 GMT EAGLE5 37.0.0
AMASLPID      = 123456789
INCSLP        = yes
AMACTYPE      = 003
AMAFEATID     = 010
CIC           = 1369
AUD           = on
SP            = a123
FRCSMPLX     = yes
ADMHIPRI     = yes
GTWYSTP      = yes
```

```
JIPPROV      = yes
JIPDIGITS    = 423929
```

10. Display the gateway screening stop action sets in the database using the `rtrv-gws-actset` command.

The Triggerless LNP feature requires a gateway stop action set with the `tlnp` gateway screening stop action. The `tlnp` gateway stop action is shown by the entry `tlnp` in the `rtrv-gws-actset` command output. The following is an example of the possible output.

```
rlghncxa03w 07-08-07 00:57:31 GMT EAGLE5 37.0.0
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
4    crcncf  copy cncf rdct
5    cncf    cncf
6    cfrd    cncf rdct
GWS action set table is (6 of 16) 38% full
```

If the `tlnp` gateway screening stop action is not shown in the `rtrv-gws-actset` command output, go to [Step 11](#) on page 178. Otherwise, go to [Step 12](#) on page 178.

11. Add the `tlnp` gateway screening stop action set to the database with the `chg-gws-actset` command.

If an existing gateway screening stop action set is changed, the `force=yes` parameter must be specified with the `chg-gws-actset` command. The `tlnp` gateway screening stop action cannot be specified with either the `cncf` (calling name conversion facility) or `rdct` (redirect) gateway screening actions in the same gateway screening action set. The `tlnp` gateway screening stop action can be specified with the `copy` gateway screening atop action in the same gateway screening actions set. If the `copy` gateway screening stop action is added to a gateway screening stop action set, it must be configured as the first gateway screening stop action in the gateway screening stop action set with the `act1` parameter. For this example, a two new gateway screening stop action sets are being created for the `tlnp` gateway screening stop action. Enter these commands:

```
chg-gws-actset:actid=7:name=tlnp:act1=tlnp
chg-gws-actset:actid=8:name=cptlnp:act1=copy:act2=tlnp
```

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

```
rlghncxa03w 07-08-07 00:57:31 GMT EAGLE5 37.0.0
CAUTION: GWS action set may be referenced by one or more GWS rules
CHG-GWS-ACTSET: MASP A - COMPLTD
```

12. Verify the changes with the `rtrv-gws-actset` command.

This is an example of the possible output.

```
rlghncxa03w 07-08-07 00:57:31 GMT EAGLE5 37.0.0
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
4    crcncf  copy cncf rdct
```

```

5      cncf      cncf
6      cfrd      cncf rdct
7      tlnp      tlnp
8      cptlnp    copy tlnp
GWS action set table is ( 8 of 16) 50% full

```

Note: If [Step 2](#) on page 176 of this procedure was performed, skip this step and [Step 14](#) on page 179 and [Step 15](#) on page 180, and go to [Step 16](#) on page 180.

13. Display the linksets in the database with the `rtrv-ls` command.

This is an example of the possible output.

```

rlghncxa03w 07-08-07 00:57:31 GMT EAGLE5 37.0.0
  L3T  SLT
LSN      APCA (SS7)   SCRNL  SET  SET  BEI  LST  LNKS  GWSA  GWSM  GWSD  SLSCI  NIS
atmansio 179-100-087  scr2  1   1   no  a   0    on  off  off  no  off
atmansil 200-050-176  scr1  1   1   no  a   0    on  off  off  no  off
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  gws2  1   3   yes c   5    off off  off  yes off
ls01     002-002-002  scr1  1   1   no  c   0    on  off  off  no  off
ls02     004-004-004  scr1  1   1   no  b   0    on  off  off  no  off
  L3T  SLT
LSN      APCA (X25)   SCRNL  SET  SET  BEI  LST  LNKS  GWSA  GWSM  GWSD  SLSCI  NIS
ls6      244-010-004  scr4  1   4   no  a   6    off off  off  --- off
ls7      244-012-005  scr5  1   5   no  c   3    on  on  on  --- off
ls8      244-012-006  scr6  1   6   no  c   8    off off  off  --- off
  L3T  SLT
LSN      APCI (SS7)   SCRNL  SET  SET  BEI  LST  LNKS  GWSA  GWSM  GWSD  SLSCI  NIS
lsi1     1-111-1      scr1  1   1   yes a   1    off off  off  --- ---
lsi2     1-111-2      scr2  1   2   no  c   3    on  on  on  --- ---
lsi3     1-111-3      scr3  1   3   yes c   5    off off  off  --- ---
lsi7     3-150-4      scr1  1   1   no  a   0    on  off  off  --- ---
  L3T  SLT
LSN      APCN (SS7)   SCRNL  SET  SET  BEI  LST  LNKS  GWSA  GWSM  GWSD  SLSCI  NIS
lsn1     11111        scr1  1   1   yes a   1    off off  off  --- on
lsn2     11112        scr2  1   2   no  c   3    on  on  on  --- on
  L3T  SLT
LSN      APCN24 (SS7) SCRNL  SET  SET  BEI  LST  LNKS  ACT  MES  DIS  SLSCI  NIS
  L3T  SLT
LSN (CHINA) APCN (SS7) SCRNL  SET  SET  BEI  LST  LNKS  ACT  MES  DIS  SLSCI  NIS
  L3T  SLT
LSN (CHINA) APCN24 (SS7) SCRNL  SET  SET  BEI  LST  LNKS  ACT  MES  DIS  SLSCI  NIS
Link set table is ( 16 of 1024) 2% full

```

If the linkset that you wish to screen for the ISUPIAMs does not have a gateway screening screen set assigned to it, shown in the SCRNL field of the `rtrv-ls` command output, go to [Step 16](#) on page 180.

14. Display the screens in the gateway screen set using the `rtrv-scrset` command specifying a specific screen set name with the `scrn` parameter.

If the required linkset references a screen set, shown in the SCRNL field of the `rtrv-ls` command output, use that name with the `scrn` parameter of the `rtrv-scrset` command. If the required linkset does not reference a screen set, go to [Step 16](#) on page 180 and configure the required screen set with a gateway screening stop action set containing the TLNP gateway screening stop action. For this example, enter this command.

```
rtrv-scrset:scrn=gws2
```

```

rlghncxa03w 07-08-07 00:57:31 GMT EAGLE5 37.0.0
SCRN NSFI NSR/ACT RULES DESTFLD

```

```

gws2  BLKOPC  gws5      2    N
      SIO     iec       3
      DPC     abc2     5
      BLKDPC  gw11     2
      BLKDPC  gw12     2
      BLKDPC  wdb2     2
      DESTFLD dst1     1
      DESTFLD fld5     1
      CGPA    gw13     3
      TT      gw16     2
      CDPA    gw18     2
      AFTPC   gw20     1

```

If the screen set contains an Allowed SIO screen, go to [Step 15](#) on page 180. Otherwise, go to [Step 16](#) on page 180.

15. Display the allowed SIO screen shown in the output of the `rtrv-scrset` command executed in [Step 14](#) on page 179.

For this example, enter this command: `rtrv-scr-sio:sr=iec`. This is an example of the possible output:

```

rlghncxa03w 07-08-07 00:57:31 GMT EAGLE5 37.0.0
SCREEN = ALLOWED SIO
SR  NIC  PRI  SI  H0  H1  NSFI  NSR/ACT
IEC  1   1   5  --  --  BLKDPC  WDB2
IEC  1   2   5  --  --  STOP    CRCNCF
IEC  1   3   5  --  --  DPC     ABC2

```

If the SI field does not contain the value 5, this screen does not allow ISUP messages into the EAGLE 5 ISS. If you wish to add a new screen set, with an allowed SIO screen containing the SI value 5, go to [Step 16](#) on page 180 and configure a gateway screening screen set with a gateway screening stop action set that contains the TLNP gateway screening stop action. If you wish to change the existing screen set, skip [Step 16](#) on page 180, [Step 17](#) on page 180, and [Step 18](#) on page 181, and go to [Step 19](#) on page 181 to reconfigure the gateway screening screen set with an allowed SIO screen containing the SI value 5 and with a gateway screening stop action set that contains the TLNP gateway screening stop action.

16. Go to the *Database Administration Manual - Gateway Screening* and add a gateway screening screen set to the database that contains these items.
 - a) An Allowed SIO screen that allows only ISUP messages (SI = 5) into the EAGLE 5 ISS.
 - b) The gateway screening process stops at one of these screens with the gateway screening stop action TLNP.
 - Allowed SIO – see the “Adding an Allowed SIO Screen” procedure
 - Allowed DPC – see the “Adding an Allowed DPC Screen” procedure
 - Blocked DPC – see the “Adding a Blocked DPC Screen” procedure
 - Allowed ISUP – see the “Adding an Allowed ISUP Message Type Screen” procedure

17. The gateway screening screen set created in [Step 16](#) on page 180 must be assigned to a linkset. If the screen set name used in [Step 16](#) on page 180 is shown in the SCRNM field of the `rtrv-ls` command output displayed in [Step 13](#) on page 179, go to [Step 18](#) on page 181. If the screen set name used in [Step 16](#) on page 180 is not shown in the SCRNM field of the `rtrv-ls` command output displayed in [Step 13](#) on page 179, perform the “Adding an SS7 Linkset” procedure in the *Database Administration Manual - SS7* and add the required linkset to the database, making sure that the linkset references the necessary screen set. If you wish to change an existing linkset

in the database, perform the “Changing an SS7 Linkset” procedure in the *Database Administration Manual - SS7* and change the required linkset to reference the necessary screen set.

18. 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. This procedure is finished.

```
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.
```

Note: If [Step 16](#) on page 180, [Step 17](#) on page 180, and [Step 18](#) on page 181 were performed, this procedure is finished.

19. Go to the *Database Administration Manual - Gateway Screening* and change the gateway screening screen set so that the screen set contains these items:

- a) An Allowed SIO screen that allows only ISUP messages (SI = 5) into the EAGLE 5 ISS.

- The gateway screening process stops at one of these screens with the gateway screening stop action TLNP.
- Allowed SIO – see the “Changing an Allowed SIO Screen” procedure
- Allowed DPC – see the “Changing an Allowed DPC Screen” procedure
- Blocked DPC – see the “Changing a Blocked DPC Screen” procedure
- Allowed ISUP – see the “Changing an Allowed ISUP Message Type Screen” procedure

Note: If the `rtrv-scrset` output in [Step 14](#) on page 179 did not show any of the following screens: DPC, BLKDPC, ISUP, DESTFLD, CGPA, TT, CDPA, or AFTPC, this procedure is finished.

Note: If the `rtrv-scrset` output in [Step 14](#) on page 179 did not show any of the following screens: DPC, BLKDPC, ISUP, but did show any of these screens: DESTFLD, CGPA, TT, CDPA, or AFTPC, skip this step and go to [Step 21](#) on page 182.

Note: If new DPC, BLKDPC, or ISUP screens were not added to the screen set in [Step 19](#) on page 181, skip this step and go to [Step 21](#) on page 182.

20. Go to the *Database Administration Manual - Gateway Screening* and remove the DPC, BLKDPC, or ISUP screens shown in the `rtrv-scrset` output in step 14, by performing these procedures as necessary.

- a) Allowed DPC – see the “Removing an Allowed DPC Screen” procedure
- b) Blocked DPC – see the “Removing a Blocked DPC Screen” procedure
- c) Allowed ISUP – see the “Removing an Allowed ISUP Message Type Screen” procedure



CAUTION: Do not remove any screens from the database until you have made absolutely sure that these screens are not being used by other screen sets. Failure to do so, can result in breaking the gateway screening process for those screen sets.

Note: If the `rtrv-scrset` output in [Step 14](#) on page 179 did not show any of the following screens: DESTFLD, CGPA, TT, CDPA, or AFTPC, do not perform [Step 21](#) on page 182. This procedure is finished.

21. Go to the *Database Administration Manual - Gateway Screening* and remove the DESTFLD, CGPA, TT, CDPA, or AFTPC screens shown in the `rtrv-scrset` output in [Step 14](#) on page 179, by performing these procedures as necessary.
- Allowed DESTFLD – see the “Removing an Allowed Affected Destination Field Screen” procedure
 - Allowed CGPA – see the “Removing an Allowed Calling Party Address Screen” procedure
 - Allowed TT – see the “Removing an Allowed Translation Type Screen” procedure
 - Allowed CDPA – see the “Removing an Allowed Called Party Address Screen” procedure
 - Allowed AFTPC – see the “Removing an Allowed Affected Point Code Screen” procedure



CAUTION: Do not remove any screens from the database until you have made absolutely sure that these screens are not being used by other screen sets. Failure to do so can result in breaking the gateway screening process for those screen sets.

Increasing the LRN and NPANXX Quantities on the EAGLE 5 ISS

When the LNP feature is enabled for the first time the LRN (location routing number) and NPANXX quantities are set at 100,000 (for LRNs) and 150,000 (for NPANXXs). These quantities can be increased to 200,000 LRNs and 350,000 NPANXXs with the 384 Million Records feature, but only when the LNP telephone number quantity is 60 million or greater. To increase the LNP telephone number quantity to 60 million numbers or greater, refer to the [Increasing LNP Telephone Number Quantity on EAGLE 5 ISS](#) on page 190 procedure.

These quantities are increased using the `enable-ctrl-feat` command specifying the feature access key and part number of the desired LRN and NPANXX quantity. The current assigned quantities can be verified with the `rtrv-ctrl-feat` command.

The feature access key is based on the feature’s part number and the serial number of the EAGLE 5 ISS, making the feature access key site-specific.

The `enable-ctrl-feat` command enables the LRN or NPANXX quantity with these parameters:

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

`:partnum` – The Tekelec-issued part number associated with the desired LRN or NPANXX quantity. The part numbers for increasing the LRN and NPANXX quantities are:

- LRN quantity increase to 150,000 – 893010501
- NPANXX quantity increase to 300,000 – 893009402

Note: Once the LRN or NPANXX quantity is increased with the `enable-ctrl-feat` command, that quantity cannot be reduced. The LRN and NPANXX quantity features cannot be disabled, and cannot be enabled with the temporary feature access key. The `chg-ctrl-feat` command cannot be specified for an LRN and NPANXX quantity.

The LRN and NPANXX quantity must be purchased before you can enable that quantity with the `enable-ctrl-feat` command. If you are not sure if you have purchased the desired LRN and NPANXX quantity, or do not have the feature access key for the LRN and NPANXX quantity being enabled, contact your Tekelec Sales Representative or Account Representative.

To fully use the increased LRN and NPANXX quantities, the Measurements Platform must be enabled on the EAGLE 5 ISS. If the Measurements Platform is not enabled, the measurements for LRNs are capped at 100,000, and the measurements for NPANXXs are capped at 150,000. Measurements for LRN and NPANXX quantities beyond 100,000 LRNs and 150,000 NPANXXs will be lost. To enable the Measurements Platform, perform the “Configuring the Measurements Platform Feature” procedure in the *EAGLE 5 ISS Database Administration Manual - System Management*.

Note: The 384 million LNP records feature does not support any measurement collection performed by the OAM. LNP measurement collection is disabled on the OAM when any Service Module Card is loaded from an ELAP with the 384 million LNP Records feature.

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

The following is an example of the possible output.

```
rlghncxa03w 08-05-09 16:40:40 EST EAGLE 39.0.0

The following features have been permanently enabled:
Feature Name          Partnum  Status  Quantity
LNP ported LRNs      893010501 on      200000
LNP ported NPANXXs   893009402 on      350000
;
```

If the `rtrv-ctrl-feat` output shows that the LRN quantity is 150,000, and the NPANXX quantity is 300,000, no further action is necessary. If the LNP telephone number quantity shown in the `rtrv-ctrl-feat` output is 48,000,000 or less, refer to [Increasing LNP Telephone Number Quantity on EAGLE 5 ISS](#) on page 190, and increase the LNP telephone number quantity to 60,000,000 or greater.

2. Verify the NPANXX and LRN quantity on the ELAP.

Perform the [Verifying RTDB Status at the ELAP User Interface](#) on page 110 procedure. The number of NPANXXs and LRNs on the ELAP must be less than the configured quantity on the EAGLE 5 ISS. If either the NPANXX and LRN quantity on the ELAP is greater than the quantity shown in the `rtrv-ctrl-feat` output, the ELAP RTDB is not loaded onto the entire set of Service Module cards on the EAGLE 5 ISS. Some of the Service Module cards load the ELAP RTDB to provide a restricted level of GTT/LNP service. The remainder of the Service Module cards are put into a restricted state. UIM 1324 is generated at the EAGLE 5 ISS if the NPANXX quantity on the ELAP is greater than the NPANXX quantity configured on the EAGLE 5 ISS. UIM 1325 is generated at the EAGLE 5 ISS if the LRN quantity on the ELAP is greater than the LRN quantity configured on the EAGLE 5 ISS. To avoid this situation, make sure when performing this procedure that the NPANXX and LRN quantities configured on the EAGLE 5 ISS are greater than the NPANXX and LRN quantities on the ELAP. If the NPANXX and LRN quantity on the ELAP is less than the quantity shown in the `rtrv-ctrl-feat` output in [Step 1](#) on page 183, or is less than the quantity that will be configured in this procedure, go to [Step 3](#) on page 183.

3. Verify whether or not the Measurements Platform on the EAGLE 5 ISS is enabled by entering the `rtrv-measopts` command.

This is an example of the possible output.

```
rlghncxa03w 07-08-01 16:02:05 GMT EAGLE5 37.0.0
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 *EAGLE 5 ISS Database Administration Manual - System Management* and enable the Measurements Platform.

4. Increase the LRN and NPANXX quantities by entering these commands.

```
enable-ctrl-feat:partnum=893010501:fak=<LRN quantity feature access key>
enable-ctrl-feat:partnum=893009402:fak=<NPANXX quantity feature access key>
```

Note: The feature access key is provided by Tekelec. If you do not have the feature access key for these quantities, contact your Tekelec Sales Representative or Account Representative.

When the **enable -ctrl-feat** command has successfully completed, this message should appear.

```
rlghncxa03w 07-08-01 21:15:37 GMT EAGLE5 37.0.0
ENABLE-CTRL-FEAT: MASP B - COMPLTD
```

5. Verify the changes by entering these commands.

`rtrv-ctrl-feat:partnum=893010501`. The following is an example of the possible output.

```
rlghncxa03w 07-08-01 21:16:37 GMT EAGLE5 37.0.0
The following features have been permanently enabled:
Feature Name      Partnum  Status  Quantity
LNP LRNs          893010501 on      150000
```

`rtrv-ctrl-feat:partnum=893009402`. The following is an example of the possible output.

```
rlghncxa03w 07-08-01 21:16:37 GMT EAGLE5 37.0.0
The following features have been permanently enabled:
Feature Name      Partnum  Status  Quantity
LNP NPANXXs      893009402 on      300000
```

6. 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.
```

Activating the LNP Short Message Service (SMS) Feature

The LNP Short Message Service feature is activated with a feature access key. The feature access key is provided by Tekelec once the feature is purchased, and is entered into the EAGLE 5 ISS

using the `enable-ctrl-feat` and `chg-ctrl-feat` commands. The LNP feature must be enabled before the LNP Short Message Service feature can be activated. Refer to the [Activating the LNP Feature Overview](#) on page 20 for more information about enabling the LNP feature.

The `enable-ctrl-feat` command enables the feature by inputting the feature's access key and the controlled feature's part number with these parameters:

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

`: partnum` – The Tekelec-issued part number associated with the LNP Short Message Service feature, 893006601.

Once the LNP Short Message Service feature has been enabled, the LNP Short Message Service feature must be activated with the `chg-ctrl-feat` command. The `chg-ctrl-feat` command uses these parameters:

`: partnum` – The Tekelec-issued part number associated with the LNP Short Message Service feature, 893006601.

`: status=on` – used to activate the controlled features that customer has purchased and enabled.

The status of the controlled features in the EAGLE 5 ISS is shown with the `rtrv-ctrl-feat` command.

When this procedure is completed and the LNP Short Message Service feature is activated, the WSMSC LNP service must be added to the LNP service table. Refer to the [Adding an LNP Service](#) on page 150.

The WSMSC10DIG LNP option can be set with the `chg-lnpopts` command. The WSMSC10DIG LNP option can be set in the [Changing LNP Options](#) on page 169.

1. Display the status of the LNP Short Message Service feature by entering the `rtrv-ctrl-feat` command.

The following is an example of the possible output.

```
rlghncxa03w 07-08-01 21:15:37 GMT EAGLE5 37.0.0
The following features have been permanently enabled:
Feature Name          Partnum    Status    Quantity
LNP Short Message Service 893006601  on        ----
```

If the `rtrv-ctrl-feat` output shows that the LNP Short Message Service feature is permanently enabled, and its status is `on`, no further action is necessary. If the LNP Short Message Service feature is permanently enabled, and its status is `off`, skip [Step 2](#) on page 186 and [Step 3](#) on page 186, and go to [Step 4](#) on page 186. If the LNP Short Message Service feature is temporarily enabled, and you wish to permanently enable this feature, or the temporary feature access key for that feature has expired, skip [Step 2](#) on page 186 and go to [Step 3](#) on page 186. If the LNP Short Message Service feature is to remain temporarily enabled, and its status is `off`, skip [Step 2](#) on page 186 and go to [Step 3](#) on page 186. If the feature's status is `on`, no further action is necessary. If the LNP Short Message Service feature is to remain temporarily enabled, and its status is `on`, no further action is necessary. If the `rtrv-ctrl-feat` output shows that the LNP feature is not enabled, refer to the [Activating the LNP Feature Overview](#) on page 20 to enable the LNP feature.

Note: If the output from [Step 1](#) on page 185 shows that the LNP Short Message Service feature is enabled, either temporarily or permanently, skip [Step 2](#) on page 186 and go to [Step 3](#) on page 186.

2. Verify that the Wireless Number Portability (WNP) feature is on, by entering the `rtrv-feat` command.

If the Wireless Number Portability feature is on, the `WNP` 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 Wireless Number Portability feature is off, perform the [Adding an LNP Service](#) on page 150 and turn the Wireless Number Portability feature on, and add the WNP service to the database.

3. Enable the LNP Short Message Service feature with either a permanent key or temporary key by entering the `enable-ctrl-feat` command.

For this example, enter this command: `enable-ctrl-feat:partnum=893006601:fak=<LNP Short Message Service feature access key>`

Note: The values for the feature access key (the `fak` parameter) are provided by Tekelec. If you do not have the controlled feature part number or the feature access key for the feature you wish to enable, contact your Tekelec Sales Representative or Account Representative.

When the `enable-ctrl-feat` command has successfully completed, this message should appear.

```
rlghncxa03w 07-08-01 21:15:37 GMT EAGLE5 37.0.0
ENABLE-CTRL-FEAT: MASP B - COMPLTD
```

4. The LNP Short Message Service feature enabled in step 3 must be activated using the `chg-ctrl-feat` command, specifying the controlled feature part number used in step 3 and the `status=on` parameter.

For this example, enter these commands.

```
chg-ctrl-feat:partnum= 893006601 :status=on
```

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

```
rlghncxa03w 07-08-01 21:15:37 GMT EAGLE5 37.0.0
CHG-CTRL-FEAT: MASP B - COMPLTD
```

5. Verify the changes by entering the `rtrv-ctrl-feat` command with the LNP Short Message Service feature part number.

For this example, enter this command.

```
rtrv-ctrl-feat:partnum=893006601
```

The following is an example of the possible output.

```
rlghncxa03w 07-08-01 21:15:37 GMT EAGLE5 37.0.0
The following features have been permanently enabled:
Feature Name           Partnum  Status  Quantity
LNP Short Message Service 893006601 on      ----
```

6. 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.
```

Clearing a Temporary FAK Alarm

This procedure is used to clear the critical alarm, UAM 0368, generated when the temporary feature access key for any controlled feature (for example, LNP Short Message Service) has expired, using the `chg-ctrl-feat` command.

The `chg-ctrl-feat` command uses the following parameters:

`:partnum` - The part number of the controlled feature that was temporarily enabled and is causing the alarm.

`:alarm=clear` - Clears UAM 0368, Temp Key(s) have expired.

The controlled feature must have been temporarily enabled and is now in danger of expiration or in an *expired* state.

1. Display the controlled feature that has the expired feature access key by entering the `rtrv-ctrl-feat:expired=yes` command.

The following is an example of the possible output.

```
rlghncxa03w 07-08-01 21:17:37 GMT EAGLE5 37.0.0
The following features have expired temporary keys:
Feature Name          Part Num
LNP Short Message Service 893006601
```

2. Clear the EAGLE 5 ISS alarm in the database by entering the `chg-ctrl-feat` command. For example, enter this command.

```
chg-ctrl-feat:partnum=893006601:alarm=clear
```

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

```
rlghncxa03w 07-08-01 21:16:37 GMT EAGLE5 37.0.0
CHG-CTRL-FEAT: MASP A - COMPLTD
```

3. Verify that the alarm has cleared in the database by using the `rtrv-ctrl-feat:expired=yes` command.

The following is an example of the possible output.

```
rlghncxa03w 07-08-01 21:16:37 GMT EAGLE5 37.0.0
0367.0181 * SYSTEM          Temp Key(s) expiration alarm cleared.
```

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.
```

Deactivating the LNP Short Message Service Feature

This procedure is used to deactivate the LNP Short Message Service feature, using the `chg-ctrl-feat` command.

The `chg-ctrl-feat` command uses the following parameters:

`:partnum` – The part number of the LNP Short Message Service feature, 893006601.

`:status=off` – used to deactivate the controlled feature.

The status of the LNP Short Message Service feature must be on and is shown with the `rtrv-ctrl-feat` command.



CAUTION:

If the LNP Short Message Service feature is deactivated, the WSMSC LNP service cannot be used for local number portability.

1. Display the controlled features whose status is on by entering the `rtrv-ctrl-feat:status=on` command.

The following is an example of the possible output.

```
rlghncxa03w 07-08-01 21:15:37 GMT EAGLE5 37.0.0
The following features have been permanently enabled:
Feature Name          Partnum    Status    Quantity
LNP Short Message Service 893006601  on       ----
```

2. Deactivate the LNP Short Message Service feature by entering the `chg-ctrl-feat` command with the `status=off` parameter.

For example, enter this command.

```
chg-ctrl-feat:partnum=893006601:status=off
```

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

```
rlghncxa03w 07-08-01 21:16:37 GMT EAGLE5 37.0.0
CHG-CTRL-FEAT: MASP A - COMPLTD
```

3. Verify that the LNP Short Message Service feature has been deactivated by using the `rtrv-ctrl-feat:partnum=893006601` command.

The following is an example of the possible output.

```
rlghncxa03w 07-08-01 21:16:37 GMT EAGLE5 37.0.0
The following features have been permanently enabled:
Feature Name          Partnum    Status    Quantity
LNP Short Message Service 893006601  off       ----
```

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.
```

Changing the LNP Telephone Number Alarm Thresholds

This procedure is used to change the alarm thresholds for generating alarms when the LNP Telephone number quantity has exceeded the defined percentage of the maximum number of LNP telephone numbers the EAGLE 5 ISS can contain. The alarm thresholds are changed using the `chg-th-alm` command and these parameters:

`:lnptndblv1` – The percentage, from 0 to 100, of the maximum number of LNP telephone numbers the EAGLE 5 ISS can contain that generates major alarm UAM 0288. The system default value for the `lnptndblv1` parameter is 90. The current value of this parameter is shown in the `LNP TN DB Alarm Level 1:` field of the `rtrv-th-alm` command output.

`:lnptndblv2` – The percentage, from 0 to 100, of the maximum number of LNP telephone numbers the EAGLE 5 ISS can contain that generates critical alarm UAM 0287. The system default value for the `lnptndblv2` parameter is 95. The current value of this parameter is shown in the `LNP TN DB Alarm Level 2:` field of the `rtrv-th-alm` command output.

The `chg-th-alm` command contains other optional parameters. These parameters are not shown here because they are not necessary to provision the LNP telephone number alarm thresholds. These parameters are explained in more detail in the *Commands Manual*.

The maximum number of LNP telephone numbers the EAGLE 5 ISS can contain is shown in the `rtrv-ctrl-feat` command output or in the `TN:` row in the `PROVISIONED TABLE QTY:` section of the `rept-stat-lnp` command output.

1. Display the current LNP telephone number alarm thresholds by entering the `rtrv-th-alm` command.

This is an example of the possible output.

```
rlghncxa03w 06-08-28 09:12:36 GMT EAGLE5 35.1.0
LNP TN DB Alarm Level 1:          80%
LNP TN DB Alarm Level 2:          90%
Command Executed
```

Note:

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

2. Change the LNP telephone number alarm thresholds by entering the `chg-th-alm` command with at least one of the LNP telephone number alarm thresholds.

One or both LNP telephone number alarm threshold parameters can be specified with the `chg-th-alm` command. If a parameter is not specified with the `chg-th-alm` command, that parameter value will not be changed. However, after the `chg-th-alm` command is performed, the `lnptndblv2` parameter value must be greater than the `lnptndblv1` parameter value. For this example, enter this command:

```
chg-th-alm:lnptndblv1=70:lnptndblv2=80
```

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

```
rlghncxa03w 06-08-28 09:12:36 GMT EAGLE5 35.1.0
CHG-TH-ALM: MASP A - COMPLTD
```

3. Verify the changes using the `rtrv-th-alm` command.

This is an example of the possible output.

```
rlghncxa03w 06-08-28 09:12:36 GMT EAGLE5 35.1.0
LNP TN DB Alarm Level 1:          70%
LNP TN DB Alarm Level 2:          80%
Command Executed
```

Note:

The `rtrv-th-alm` command output contains other fields that are not used in this procedure. If you wish to see all the fields displayed by the `rtrv-th-alm` command, see the `rtrv-th-alm` 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.
```

Increasing LNP Telephone Number Quantity on EAGLE 5 ISS

This procedure is used to increase the current quantity of LNP telephone numbers in the EAGLE 5 ISS using the `enable-ctrl-feat` command specifying the feature access key and part number of the desired LNP telephone number quantity. The current LNP telephone number quantity is shown in the LNP ported TNs row of the `rtrv-ctrl-feat` command output.

Note: This procedure is used only if the LNP ELAP Configuration feature is enabled and turned on. If the LNP ELAP Configuration feature is not enabled or turned on, do not perform this procedure but refer to the [Activating the LNP Feature Overview](#) on page 20 to activate the LNP feature and to enable and turn on the LNP ELAP Configuration feature.

The feature access key is based on the LNP telephone number quantity's part number and the serial number of the EAGLE 5 ISS, making the feature access key site-specific. The `enable-ctrl-feat` command enables the LNP telephone number quantity by inputting the feature access key and the part number corresponding to the desired LNP telephone number quantity with these parameters:

:fak

The feature access key provided by Tekelec. The feature access key contains 13 alphanumeric characters and is not case sensitive.

:partnum

The Tekelec-issued part number of the LNP telephone number quantity, without the dashes, shown in [Table 2: LNP Hardware and Part Number Configuration Table](#) on page 17.

Note: Once a specific LNP telephone number quantity is enabled with the `enable-ctrl-feat` command, that quantity cannot be reduced. The LNP feature cannot be disabled, and cannot be enabled with the temporary feature access key. The `chg-ctrl-feat` command cannot be specified for an LNP telephone number quantity.

The LNP telephone number quantity must be purchased before you can enable that quantity with the `enable-ctrl-feat` command. If you are not sure if you have purchased the desired LNP telephone number quantity, or do not have the feature access key for the LNP telephone number quantity being enabled, contact your Tekelec Sales Representative or Account Representative.



CAUTION

CAUTION: Make sure that the LNP telephone number quantity configured in this step is greater than the ELAP telephone number quantity. The ELAP telephone number quantity can be verified by performing the [Verifying RTDB Status at the ELAP User Interface](#) on page 110 procedure. If the telephone number quantity on the ELAP is greater than the LNP telephone number quantity configured in this step, the ELAP RTDB is not loaded onto the entire set of Service Module cards on the EAGLE 5 ISS. Some of the Service Module cards load the ELAP RTDB to provide a restricted level of GTT/LNP service. The remainder of the Service Module cards are put into a restricted state. UIM 1323 is generated at the EAGLE 5 ISS.

If the current LNP telephone number quantity is 384million numbers, this procedure cannot be performed. This is the maximum LNP telephone number quantity that can be enabled.

Before the quantity of LNP telephone numbers can be increased, Service Module cards running the VSCCP application with the correct amount of memory must be configured in the EAGLE 5 ISS. Refer to [Table 2: LNP Hardware and Part Number Configuration Table](#) on page 17 for the Service Module card requirements. For more information on the Service Module card, go to the *Hardware Manual - EAGLE 5 ISS*.

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

```
rlghncxa03w 08-05-09 16:40:40 EST EAGLE 39.0.0

The following features have been permanently enabled:
Feature Name          Partnum    Status    Quantity
LNP ported TNS       893011036 on         384000000
;
```

If the `rtrv-ctrl-feat` output shows that the LNP ELAP Configuration feature is not enabled or turned on, do not perform this procedure but refer to the [Activating the LNP Feature Overview](#) on page 20 section to activate the LNP feature and to enable and turn on the LNP ELAP Configuration feature.

If the current LNP telephone number quantity is 384 million numbers, this procedure cannot be performed. This is the maximum quantity that can be enabled.

If the current LNP telephone number quantity is either 204 million numbers or 216 million numbers, skip [Step 2](#) on page 192 and [Step 3](#) on page 192, and go to [Step 4](#) on page 193. All of the Service Module cards in the EAGLE 5 ISS are 4 GB DSM cards if running on ELAP version 7.0 or less. If running on ELAP 8.0, all Service Module cards are E5-SM4G cards.

2. Display the status of the Service Module cards by entering the `rept-stat-sccp` command.

```
tk1c1190601 08-10-01 16:31:14 EST EAGLE 40.0.0
CARD  VERSION      PST           SST           AST           MSU  CPU
                USAGE  USAGE
-----
1205 P 126-027-000  IS-NR         Active        -----      0%   5%
1317 126-027-000  IS-NR         Active        -----      0%   5%
2213 126-027-000  IS-NR         Active        -----      0%   5%
2215 126-027-000  IS-NR         Active        -----      0%   6%
2217 126-027-000  IS-NR         Active        -----      0%   5%
2317 126-027-000  IS-NR         Active        -----      0%   5%
1105 126-027-000  IS-NR         Active        -----      0%   6%
-----
SCCP Service Average MSU Capacity = 0%   Average CPU Capacity = 5%
Command Completed.
```

Note: The `rept-stat-sccp` 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-sccp` command, see the `rept-stat-sccp` command description in the EAGLE 5 ISS Commands Manual.

3. Verify the memory installed on the Service Module card is enough based on the LNP telephone number quantity being assigned (refer to [Table 2: LNP Hardware and Part Number Configuration Table](#) on page 17) and the GPL running on the Service Module card. Enter the `rept-stat-card` command specifying the location of a Service Module card from [Step 2](#) on page 192 with the `mode=full` parameter. The amount of memory is shown in the **DBD MEMORY SIZE** field and is measured in megabytes. The GPL is shown in the **GPL** column.

```
rlghncxa03w 07-05-01 10:09:55 GMT EAGLE5 37.0.0
CARD  VERSION      TYPE  GPL      PST  SST      AST
1301  123-002-001  DSM   VSCCP  IS-NR  Active  -----
ALARM STATUS           = No Alarms.
IMT VERSION            = 123-002-000
PROM VERSION           = 002-125-002
IMT BUS A              = Conn
IMT BUS B              = Conn
CLOCK A                = IdleCLOCK B = Idle
CLOCK I                = Active
MBD BIP STATUS         = valid
DB STATUS              = valid
DBD MEMORY SIZE        = 1024M
HW VERIFICATION CODE   = ----
SCCP % OCCUP           = 0%
SNM TVG RESULT         = 24 hr: -----, 5 min: -----
Command Completed.
```

Repeat this step for every Service Module card shown in [Step 2](#) on page 192.

If the amount of memory on any of the Service Module cards is not enough to support the new LNP telephone number quantity, perform the [Adding a Service Module Card](#) on page 30 procedure and add the required Service Module cards with the correct amount of memory (refer to [Table 2: LNP Hardware and Part Number Configuration Table](#) on page 17). After the new Service Module cards have been added, perform the [Removing DSM Cards](#) on page 34 procedure and remove the Service Module cards shown in this step that do not have enough memory to support the new LNP telephone number quantity.

If the GPL running on any of the Service Module cards is SCCPHC, these cards are E5-SM4G cards. If the LNP telephone number quantity shown in [Step 1](#) on page 191 is 192 million, this procedure cannot be performed. This is the maximum LNP telephone number quantity that is allowed on the EAGLE 5 ISS if E5-SM4G cards are provisioned in the database.

4. Enable the new LNP telephone number quantity using the `enable-ctrl-feat` command with the part number of the desired quantity shown in [Table 2: LNP Hardware and Part Number Configuration Table](#) on page 17 and the feature access key for that quantity.

```
enable-ctrl-feat:partnum=893011012:fak=<LNP telephone number quantity
feature access key>
```

Note: Make sure that the LNP telephone number quantity configured in this step is greater than the ELAP telephone number quantity. The ELAP telephone number quantity can be verified by performing the [Verifying RTDB Status at the ELAP User Interface](#) on page 110 procedure. If the telephone number quantity on the ELAP is greater than the LNP telephone number quantity configured in this step, the ELAP RTDB is not loaded onto the entire set of Service Module cards on the EAGLE 5 ISS. Some of the Service Module cards load the ELAP RTDB to provide a restricted level of GTT/LNP service. The remainder of the Service Module cards are put into a restricted state. UIM 1323 is generated at the EAGLE 5 ISS.

Note: The feature access key is provided by Tekelec. If you do not have the feature access key for the desired LNP telephone number quantity, contact your Tekelec Sales Representative or Account Representative.

```
rlghncxa03w 07-05-01 21:15:37 GMT EAGLE5 37.0.0
ENABLE-CTRL-FEAT: MASP B - COMPLTD
```

5. Verify the changes by entering the `rtrv-ctrl-feat` command with the part number specified in [Step 4](#) on page 193.

```
rtrv-ctrl-feat:partnum=893011012
```

```
rlghncxa03w 07-05-01 21:16:37 GMT EAGLE5 37.0.0
The following features have been permanently enabled:
Feature Name      Partnum      Status      Quantity
LNP ported TNs   893011012    on          96000000
```

6. 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.
```

Activating the ITU TCAP LRN Query (LRNQT) Feature

This procedure is used to enable and turn on the ITU TCAP LRN Query feature. This feature enables the LNP platform to handle queries with the TCAP portion encoded as per ITU standards. This feature shall be performed by existing LNP subsystems.

The LRNQT MSU Handler handles ITU TCAP LRN query messages coming over ANSI links. It supports ANSI Class 0 SCCP UDT messages only.

Note: TT Independence is not supported for LRNQT queries.

The `enable-ctrl-feat` command enables the feature by inputting the feature's access key and the controlled feature's part number with these parameters:

```
:fak
```

The feature access key provided by Tekelec. The feature access key contains 13 alphanumeric characters and is not case sensitive.

:partnum

The Tekelec-issued part number associated with the ITU TCAP LRN Query feature, 893026301.

This feature cannot be enabled with a temporary feature access key. Once the ITU TCAP LRN Query Feature is turned on using the FAK, it cannot be turned off.

The LRNQT feature can only be enabled if:

- The LNP feature is enabled. Refer to [Activating the LNP Feature Overview](#) on page 20 for more information on enabling the LNP feature.
- The LNP TN quantity features, with quantity ≥ 24 million, is turned on.
- The GTT feature is turned on.
- The LNP ELAP Configuration feature is enabled and turned on.

The status of the LNP and ELAP LNP features are shown with the `rtrv-ctrl-feat` command output.

The status of the GTT is shown with the `rtrv-feat` command output.

Once enabled, the ITU TCAP LRN Query feature must be turned on with the `chg-ctrl-feat` command. The `chg-ctrl-feat` command uses these parameters:

:partnum

The Tekelec-issued part number associated with the the ITU TCAP LRN Query feature, 893026301

:status=on

used to activate the controlled features the customer has purchased and enabled.

Activating the ITU TCAP LRN Query (LRNQT) Feature

This procedure contains the basic steps necessary to activate the LRNQT feature. Some of these basic steps reference more detailed procedures contained in this guide.

1. Verify that the GTT feature is on by entering the `rtrv-feat`.
If the GTT feature is not turned on, turn on the GTT feature by entering `chg-feat:gtt=on` command.

2. Place the LNP subsystem offline using the `ent-ss-appl` command.

```
ent-ss-appl:appl=lnp:ssn=<lnp subsystem number>:stat=offline
```

When this command has successfully completed, a text-based output displays.

```
rlghncxa03w 07-08-28 14:42:38 GMT EAGLE5 37.0.0
ENT-SS-APPL: MASP A - COMPLTD
```

3. Enable the LRNQT feature using the `enable-ctrl` command.

```
enable-ctrl-feat:partnum=893026301:fak=<LRNQT feature access key>
```

When this command has successfully completed, a text-based output displays.

```
rlghncxa03w 07-08-01 21:15:37 GMT EAGLE5 37.0.0
ENABLE-CTRL-FEAT: MASP B - COMPLTD
```

Note: The feature access key is provided by Tekelec. If you do not have the feature access key for the LRNQT feature, contact your Tekelec Sales Representative or Account Representative.

4. Turn on the LRNQT feature using the chg-ctrl-feat command.

```
chg-ctrl-feat:partnum=893026301:status=on
```

When this command has successfully completed, a text based output displays.

```
rlghncxa03w 04-01-05 16:40:40 EST EAGLE 31.3.0
CHG-CTRL-FEAT: MASP A - COMPLTD
```

5. Provision the LRNQT Translation Type using the ent-lnp-serv command.

```
ent-lnp-serv:serv=lrnqt:tt=<lrnqt tt>
```

When this command has successfully completed, a text based output displays.

```
rlghncxa03w 02-11-18 08:50:12 EST EAGLE 30.0.0
ENT-LNP-SERV: MASP A - COMPLTD
```

6. Route the final global title translation (GTT) to Eagle 5 ISS point code and LNP local subsystem using the ent-gtt command.

```
ent-gtt:type=<translation type>:gta=<global title address>:egta=<global
title end address>:xlat=dpcssn:ri:ssn:pc=<Eagle 5 ISS's true or
secondary point code>: ssn=<lnp subsystem number>
```

When this command has successfully completed, a text-based output displays.

```
tekelecstp 08-02-24 12:06:11 EST EAGLE 38.0.0
ENT-GTT: MASP A - COMPLTD
```

Note: Directing the DPC/SSN routing to the Eagle® 5 ISS's PC and LNP local subsystem number is handled on the network card. There is no provisioning required.

7. Activate the LNP subsystem by placing the LNP subsystem online and return the mated application subsystem to service.

- a) Place the LNP subsystem online using the chg-ss-appl command.

```
chg-ss-appl:appl=lnp:nstat=online
```

When this command has successfully completed, a text-based output displays.

```
rlghncxa03w 08-05-05 13:35:40 EST EAGLE 39.0.0
CHG-SS-APPL: MASP A - COMPLTD
```

- b) Return the mated application subsystem to service using the alw-map-ss command.

```
alw-map-ss:ssn=<lnp subsystem number>
```

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

```
integrat40 00-05-24 10:37:22 EST EAGLE5 31.0.0
Allow map subsystem command sent to all SCCP cards.
Command Completed.
```

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

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

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

Automatic Call Gapping (ACG) Configuration

Topics:

- [Overview.....198](#)
- [Determining the ACG Node Overload Control Level Query Rates.....201](#)
- [Adding an ACG Node Overload Control Level.....206](#)
- [Removing an ACG Node Overload Control Level.....208](#)
- [Changing an ACG Node Overload Control Level.....209](#)
- [Adding ACG Manual Initiated Controls.....211](#)
- [Removing ACG Manual Initiated Controls..214](#)
- [Changing ACG Manual Initiated Controls..216](#)

This chapter describes how to determine traffic capacity and node overload control levels, and how to add and remove ACG node overload control levels and ACG manual initiated controls.

Overview

Location routing number (LRN) queries for a particular telephone number or a portion of a telephone number are received by the EAGLE 5 ISS when a particular threshold is reached. ACG controls are used under two conditions:

1. When a node overload condition is detected and an ACG control is configured for that overload level, the EAGLE 5 ISS sends an ACG component within each LRN query response it processes. The ACG control is invoked for the first 6 or 10 digits of the called party address in all queries sent to the EAGLE 5 ISS to control the rate that queries are processed.
2. If no overload control is in place, LRNQT sends an ACG for a manually initiated control to block queries. Manually initiated control procedures are similar to overload control procedures, but shall be able to vary the number of digits that are to be placed under control (3 or 6-10 digits). Since LRNQT may have to process queries for ported (LRN routing) and non-ported numbers (default routing), the user shall be able to initiate control on any number. A list of all numbers for which the user has initiated controls shall be maintained. This list shall be the same across AIN and LRNQT services.

In addition to the digits applied to the ACG control, the ACG control contains a duration index and a gap interval index. The duration index is a timer defining the amount of time the ACG control is in effect. The gap interval index is a timer that defines the rate that queries are processed in the EAGLE 5 ISS. For example, the ACG control may be in effect for 128 seconds, the duration index, and a query is processed every 2 seconds, the gap interval index. When the ACG control is detected, the duration timer and gap interval timer are started. Until the gap timer expires, all calls containing the specified number of digits or the specified digits are routed to reorder tone or to an announcement indicating that the call cannot be completed. Once the gap timer has expired, the next call containing the matching dialed digits is processed normally and the gap timer is restarted. This cycle continues until the ACG control is cancelled by the EAGLE 5 ISS or the duration timer expires. [Table 17: Duration and Gap Interval Index Values](#) on page 198 shows the values for the duration index and the gap index used in the automatic call gapping commands.

Table 17: Duration and Gap Interval Index Values

Index	Duration Index Value (DRTN) in seconds	Node Overload Control Interval or IN Manual Initiated Control Interval Index Value (INTVL) in seconds	AIN Manual Initiated Control Interval Index Value (A INTVL) in seconds
0	N/A	0	N/A
1	1	3	0
2	2	4	0.1

Index	Duration Index Value (DRTN) in seconds	Node Overload Control Interval or IN Manual Initiated Control Interval Index Value (INTVL) in seconds	AIN Manual Initiated Control Interval Index Value (A INTVL) in seconds
3	4	6	0.25
4	8	8	0.5
5	16	11	1
6	32	16	2
7	64	22	5
8	128	30	10
9	256	42	15
10	512	58	30
11	1024	81	60
12	2048	112	120
13	infinite	156	300
14	N/A	217	600
15	N/A	300	infinite

Node Overload Control

The EAGLE 5 ISS does not maintain overload levels for individual subsystems, but maintains an overload level for the entire EAGLE 5 ISS, the node. There are 10 overload levels that are defined for the EAGLE 5 ISS. Each overload level contains this information.

- The number of queries in a 30 second period that defines each overload level. When the defined number of queries is reached, the ACG control for the overload level goes into effect.
- The number of digits from AIN queries to control
- The number of digits from IN queries to control
- The duration index of the ACG control

- The gap interval index of the ACG control

Only overload levels 1 through 9 can be added or removed from the database, but can be changed. Overload level 10 is pre-defined with these values.

The number of queries = 2,147,483,647

The number of digits from AIN queries to control = 6

The number of digits from IN queries to control = 6

The gap interval index = 7 - 22 seconds

The duration index = 1 - 1 second

Any overload levels that are not configured are not used. If no overload levels are configured or if any LIMs are denied service, then overload level 10 is used for the ACG node overload control.

Manually Initiated Control

Manually initiated controls are applied to a specific 10 digit telephone number or a part of a specific telephone number in either AIN queries or IN queries. The manually initiated control can contain the first 3, 6, 7, 8, 9 digits, or all 10 digits of the telephone number.

The duration index of a manually initiated control uses the same values as the duration index of a node overload control. A manually initiated control contains a gap interval index for IN queries, using the same values as the gap interval index for the node overload control levels, and a gap interval index for AIN queries using different values.

For IN queries, the digits sent for manually initiated controls is the original 10 digit called party number. For example, if a query for called party number 919-460-2132 triggers a manually initiated control for the digits 919, the digits parameter of the ACG is 919-460-2132 instead of 919.

A manually initiated control can be applied to all queries sent to the EAGLE 5 ISS. This type of manually initiated control specifies the number of digits from the queries' dialed digits. For manually initiated controls that apply to particular query services and called party digits, the number of digits to use in the ACG component is the number of digits in the specified digit string.

The database can contain a manually initiated control that applies to all queries and manually initiated controls that apply to specific combinations of query service and called party digits. When more than one control applies to a specific query, the one selected is the one containing the higher number of digits. If a manually initiated control cannot be selected with this method, then the one with the higher gap interval index value is selected. If the controls contain the same gap interval index value, then the control with the higher duration index value is selected. This an example of how these controls are selected.

1. A control for AIN LNP queries for called party digits of 919-460-2 is entered into the database. (ent-acg-mic:serv=ain:aintvl=1:dgts=9194602:drtn=3).
2. A control with a interval index of 10 for AIN LNP queries for called party digits of 919-460 is entered into the database. (ent-acg-mic:aintvl=10:serv=ain:dgts=919460:drtn=12:).
3. A control with a interval index of 7 for all queries, and the number of digits used for the control is 6 is entered into the database. (ent-acg-mic:intvl=7:type=all:nd=6:drtn=12:aintvl=7)
4. The EAGLE 5 ISS receives an AIN query for the called party address 919-461-1017.

5. The EAGLE 5 ISS sends an ACG for 919-461. The control entered in item 3 is the only one that applies.
6. The EAGLE 5 ISS receives an AIN query for called party 919-460-2132.
7. The EAGLE 5 ISS sends ACG for 919-460-2. The control entered in item 1 is more specific than the controls entered in items 2 and 3.
8. The EAGLE 5 ISS receives an AIN query for called party 919-460-5500.
9. The EAGLE 5 ISS sends ACG with a interval index of 10 for 919-460. The control entered in item 2 is more specific than the control entered in item 3. The control entered in item 1 does not apply.

Determining the ACG Node Overload Control Level Query Rates

The query rates for the ACG node overload control levels are the number of LNP queries received by the EAGLE 5 ISS in a 30 second period. When the defined number of queries is reached, the ACG control for that node overload control level goes into effect.

These items are used to calculate the query rates for the node overload control levels.

N = the number of Service Module Cards cards running the VSCCP application installed in the EAGLE 5 ISS.

S = the total SCCP EAGLE 5 ISS traffic capacity in messages per second

P = The LNP query portion of the SCCP traffic from 0% to 100% determined from the traffic studies.

Q = The LNP query portion of the total SCCP EAGLE 5 ISS capacity in messages per second

F = The query rate of the first ACG node overload control level at 80% of the total LNP query portion of the SCCP traffic, in messages per 30 seconds

L = The query rate of the last ACG node overload control level at 100% of the total SCCP traffic, in messages per 30 seconds

NL = The number of ACG node overload control levels being used.

I = The spacing of the query rates between the node overload control levels.

The query rates are configured with the `qr` parameter of `ent-acg-noc` and `chg-acg-noc` commands.

Any node overload control levels that are not configured are not used. If no node overload control levels are configured or if any LIMs are denied SCCP service, then node overload control level 10 is used for the ACG node overload control. Node overload control level 10 cannot be added with the `ent-acg-noc` command or removed with the `dlr-acg-noc` command, but can be changed with the `chg-acg-noc` command. It is recommended that the query rate for node overload control level 10 is not changed. The default query rate for node overload control level 10 is 2,147,483,647 messages per 30 seconds.



WARNING

warning: If the query rate for node overload control level 10 is changed, then node overload control level 10 is used as any other node overload control level in addition to the default conditions that node overload control level 10 is used for (no node overload control levels are configured or for any LIMs denied SCCP service). If the query rate for node overload control level 10 is changed, make sure that the duration

and interval timer values assigned to node overload control level 10 are appropriate for all three conditions or traffic may be lost.

By not changing the query rate of node overload control level 10, this ensures that node overload control level 10 is used for its default conditions and is not treated as another node overload control level.

Determining the Total SCCP EAGLE 5 ISS Traffic Capacity

The total EAGLE 5 ISS traffic capacity is determined from the number of Service Module Cards running the VSCCP application installed in the EAGLE 5 ISS (N). Each DSM running the VSCCP application can handle 850 messages per second. The number of Service Module Cards used in this calculation is one less than the total number of Service Module Cards in the EAGLE 5 ISS. To determine the total SCCP EAGLE 5 ISS traffic capacity (S), subtract 1 from the total number of Service Module Cards running the SCCP application and multiply the result by 850 messages per second.

$$(N-1) \times 850 \text{ messages per second} = \text{Total SCCP traffic capacity (S)}$$

Determining the LNP Query Portion of the Total SCCP EAGLE 5 ISS Traffic Capacity

The LNP query portion of the SCCP traffic (Q) is a percentage of the total SCCP EAGLE 5 ISS traffic (P) as determined from the traffic studies. Once the LNP query percentage is determined, multiply the total SCCP EAGLE 5 ISS traffic capacity (S) by the LNP query percentage.

$$S \times P = Q$$

Determining the Query Rate of the First ACG Node Overload Control Level

The ACG node overload controls should start when the LNP query portion of the SCCP traffic reaches 80% of the total LNP query portion of the SCCP traffic (Q). The ACG node overload control level is determined by the number messages received over a 30 second period of time. To determine the query rate of the first ACG node overload control level (F), in messages per 30 seconds, multiply the total LNP query portion of the SCCP traffic (Q) by .8, then multiply that result by 30.

$$Q \times 0.8 \times 30 = F$$

Determining the Query Rate of the Last ACG Node Overload Control Level

The ACG node overload controls should continue until the LNP query portion of the SCCP traffic reaches 100% of the total SCCP traffic (S). To determine the query rate of the last ACG node overload control level (L), in messages per 30 seconds, multiply the total LNP query portion of the SCCP traffic by 30.

$$S \times 30 = L$$

Determining the Spacing of Query Rates between ACG Node Overload Control Levels

If the number of ACG node overload control levels being used is 3 or more, the query rates of each node overload control level between the first and the last node overload control level can be evenly divided. Subtract the query rate of the first level from the query rate of the last level and divide the result by the number of node overload control levels (NL) being used minus 1.

$$(L - F) / (NL - 1) = I$$

Setting the ACG Node Overload Control Levels

If three node overload control levels are being used:

- The query rate for the first node control level = F
- The query rate for the second node control level = F + I
- The query rate for the third node control level = L

If four node overload control levels are being used:

- The query rate for the first node control level = F
- The query rate for the second node control level = F + I
- The query rate for the third node control level = F + 2I
- The query rate for the fourth node control level = L

If five node overload control levels are being used:

- The query rate for the first node control level = F
- The query rate for the second node control level = F + I
- The query rate for the third node control level = F + 2I
- The query rate for the fourth node control level = F + 3I
- The query rate for the fifth node control level = L

If six node overload control levels are being used:

- The query rate for the first node control level = F
- The query rate for the second node control level = F + I
- The query rate for the third node control level = F + 2I
- The query rate for the fourth node control level = F + 3I
- The query rate for the fifth node control level = F + 4I
- The query rate for the sixth node control level = L

If seven node overload control levels are being used:

- The query rate for the first node control level = F
- The query rate for the second node control level = F + I
- The query rate for the third node control level = F + 2I
- The query rate for the fourth node control level = F + 3I
- The query rate for the fifth node control level = F + 4I
- The query rate for the sixth node control level = F + 5I
- The query rate for the seventh node control level = L

If eight node overload control levels are being used:

- The query rate for the first node control level = F
- The query rate for the second node control level = F + I
- The query rate for the third node control level = F + 2I
- The query rate for the fourth node control level = F + 3I
- The query rate for the fifth node control level = F + 4I
- The query rate for the sixth node control level = F + 5I
- The query rate for the seventh node control level = F + 6I
- The query rate for the eighth node control level = L

If nine node overload control levels are being used:

- The query rate for the first node control level = F
- The query rate for the second node control level = F + I
- The query rate for the third node control level = F + 2I
- The query rate for the fourth node control level = F + 3I
- The query rate for the fifth node control level = F + 4I
- The query rate for the sixth node control level = F + 5I
- The query rate for the seventh node control level = F + 6I
- The query rate for the eighth node control level = F + 7I
- The query rate for the ninth node control level = L

For example 1, this is the configuration of the EAGLE 5 ISS.

P = 0.50 - 50% LNP queries as determined by the traffic studies

N = 11 Service Module Cards running the VSCCP application

NL = 7 ACG node overload control levels - ACG node overload control levels 3 through 9

1. Determine the total SCCP EAGLE 5 ISS traffic capacity

$(N-1) \times 850$ messages per second = Total SCCP traffic capacity (S)

$(11-1) \times 850$ messages per second = 8500 messages per second

2. Determine the LNP query portion of the total SCCP EAGLE 5 ISS traffic capacity in messages per second

$S \times P = Q$

8500 messages per second \times 0.50 = 4250 messages per second

3. Determine the query rate of the first ACG node overload control level

$Q \times 0.8 \times 30 = F$

4250 messages per second \times 0.8 \times 30 = 102,000 messages per 30 seconds

4. Determining the query rate of the last ACG node overload control level

$S \times 30 = L$

8500 messages per second \times 30 = 255,000 messages per 30 seconds

5. Determine the spacing of the query rates between ACG node overload control levels

$(L - F) / (NL-1) = I$

$(255,000 \text{ messages per 30 seconds} - 102,000 \text{ messages per 30 seconds}) / (7 - 1) = 25,500 \text{ messages per 30 seconds.}$

6. Setting the ACG node overload control levels by entering these commands.

```
ent-acg-noc:lvl=3:qr=102000:drtn=3:intvl=3
```

```
ent-acg-noc:lvl=4:qr=127500:drtn=4:intvl=4
```

```
ent-acg-noc:lvl=5:qr=153000:drtn=5:intvl=5
```

```
ent-acg-noc:lvl=6:qr=178500:drtn=6:intvl=6
```

```
ent-acg-noc:lvl=7:qr=204000:drtn=7:intvl=7
ent-acg-noc:lvl=8:qr=229500:drtn=8:intvl=8
ent-acg-noc:lvl=9:qr=255000:drtn=9:intvl=9
```

For example 2, this is the configuration of the EAGLE 5 ISS.

P = 0.70 - 70% LNP queries as determined by the traffic studies

N = 21 DSM Cards running the VSCCP application

NL = 7 ACG node overload control levels - ACG node overload control levels 3 through 9

1. Determine the total SCCP EAGLE 5 ISS traffic capacity

$(N-1) \times 850$ messages per second = Total SCCP traffic capacity (S)

$(21-1) \times 850$ messages per second = 17,000 messages per second

2. Determine the LNP query portion of the total SCCP EAGLE 5 ISS traffic capacity in messages per second

$S \times P = Q$

17,000 messages per second \times 0.70 = 11,900 messages per second

3. Determine the query rate of the first ACG node overload control level

$Q \times 0.8 \times 30 = F$

11,900 messages per second \times 0.8 \times 30 = 285,600 messages per 30 seconds

4. Determining the query rate of the last ACG node overload control level

$S \times 30 = L$

17,000 messages per second \times 30 = 510,000 messages per 30 seconds

5. Determine the spacing of the query rates between ACG node overload control levels

$(L - F) / (NL-1) = I$

$(510,000 \text{ messages per } 30 \text{ seconds} - 285,600 \text{ messages per } 30 \text{ seconds}) / (7 - 1) = 37,400 \text{ messages per } 30 \text{ seconds.}$

6. Setting the ACG node overload control levels by entering these commands.

```
ent-acg-noc:lvl=3:qr=285600:drtn=3:intvl=3
```

```
ent-acg-noc:lvl=4:qr=323000:drtn=4:intvl=4
```

```
ent-acg-noc:lvl=5:qr=360400:drtn=5:intvl=5
```

```
ent-acg-noc:lvl=6:qr=397800:drtn=6:intvl=6
```

```
ent-acg-noc:lvl=7:qr=435200:drtn=7:intvl=7
```

```
ent-acg-noc:lvl=8:qr=472600:drtn=8:intvl=8
```

```
ent-acg-noc:lvl=9:qr=510000:drtn=9:intvl=9
```

For example 3, this is the configuration of the EAGLE 5 ISS.

P = 0.60 - 60% LNP queries as determined by the traffic studies

N = 17 DSM Cards running the VSCCP application

NL = 4 ACG node overload control levels - ACG node overload control levels 2, 4, 6, and 8

1. Determine the total SCCP EAGLE 5 ISS traffic capacity

$$(N-1) \times 850 \text{ messages per second} = \text{Total SCCP traffic capacity (S)}$$

$$(17-1) \times 850 \text{ messages per second} = 13,600 \text{ messages per second}$$

2. Determine the LNP query portion of the total SCCP EAGLE 5 ISS traffic capacity in messages per second

$$S \times P = Q$$

$$13,600 \text{ messages per second} \times 0.60 = 8160 \text{ messages per second}$$

3. Determine the query rate of the first ACG node overload control level

$$Q \times 0.8 \times 30 = F$$

$$8160 \text{ messages per second} \times 0.8 \times 30 = 195,840 \text{ messages per 30 seconds}$$

4. Determining the query rate of the last ACG node overload control level

$$S \times 30 = L$$

$$13,600 \text{ messages per second} \times 30 = 408,000 \text{ messages per 30 seconds}$$

5. Determine the spacing of the query rates between ACG node overload control levels

$$(L - F) / (NL-1) = I$$

$$(408,000 \text{ messages per 30 seconds} - 195,840 \text{ messages per 30 seconds}) / (4 - 1) = 70,720 \text{ messages per 30 seconds.}$$

6. Setting the ACG node overload control levels by entering these commands.

```
ent-acg-noc:lvl=2:qr=195840:drtn=3:intvl=3
```

```
ent-acg-noc:lvl=4:qr=266560:drtn=4:intvl=4
```

```
ent-acg-noc:lvl=6:qr=337280:drtn=6:intvl=6
```

```
ent-acg-noc:lvl=8:qr=408000:drtn=8:intvl=8
```

Adding an ACG Node Overload Control Level

This procedure is used to add an ACG node overload control level to the database using the `ent-acg-noc` command.

The `ent-acg-noc` command uses these parameters.

:lvl – The overload levels, 1 though 9.

:qr – The number of LNP queries in a 30 second period that define a particular overload level

:and – The number of digits in the global title address of an AIN query

:ind – The number of digits in the global title address of an IN query

:intvl – The interval index – the amount of time between ACGs. This is a number that is mapped to a time value at the LNP node. See [Table 17: Duration and Gap Interval Index Values](#) on page 198.

:drtn – The duration index – the amount of time that the ACG is in effect. This is a number that is mapped to a time value at the LNP node. See [Table 17: Duration and Gap Interval Index Values](#) on page 198.

To add an ACG node overload control, the LNP feature must be enabled. This is verified by entering the `rtrv-ctrl-feat` command. If the LNP feature is enabled, the entry `LNP ported TNs` is shown in the `rtrv-ctrl-feat` output with a quantity greater than 0. If the LNP feature is not enabled, perform the procedures in the [LNP Feature Activation](#) on page 15 to enable the LNP feature.

The overload level to be added cannot be in the database.

Overload level 10 is pre-defined in the database with these values and cannot be added to the database. These values can be changed using the [Changing an ACG Node Overload Control Level](#) on page 209.

QR = 2147483647

AND = 6

IND = 6

INTVL = 7 - 22 seconds

DRTN = 1 - 1 second

The examples in this procedure are used to add ACG node overload control level 7 to the database with these values.

QR = 35000000

AND = 10

IND = 10

INTVL = 7 - 22 seconds

DRTN = 8 - 128 seconds

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 07-08-29 16:40:40 EST EAGLE5 37.6.0
The following features have been permanently enabled:
Feature Name          Partnum    Status    Quantity
LNP ported TNs       893011023 on        228000000
;
```

If the LNP feature is enabled, the entry `LNP ported TNs` is shown in the `rtrv-ctrl-feat` output with a quantity greater than 0. If the LNP feature is not enabled, go to step 2. If the LNP feature is not enabled, perform the procedures in the [LNP Feature Activation](#) on page 15 to enable the LNP feature. After the LNP feature is enabled, go to [Step 2](#) on page 208.

2. Display the ACG node overload levels in the database by entering the `rtrv-acg-noc` command.

The following is an example of the possible output.

```
rlghncxa03w 07-08-28 08:50:12 GMT EAGLE5 37.0.0
LVL QR          AND  IND  INTVL  DRTN
3   600000      10   6    3      6
4   750000      6    6    5      7
10  2147483647  10   10   15     13
RTRV-ACG-NOC: MASP A - COMPLTD
```

3. Add the ACG node overload control level to the database using the `ent-acg-noc` command. For this example, enter this command.

```
ent-acg-noc:lvl=7:qr=35000000:and=10:ind=10:intvl=7:drtn=8
```

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

```
rlghncxa03w 07-08-28 08:50:12 GMT EAGLE5 37.0.0
ENT-ACG-NOC: MASP A - COMPLTD
```

4. Verify the changes using the `rtrv-acg-noc` command.

The following is an example of the possible output.

```
rlghncxa03w 07-08-28 08:50:12 GMT EAGLE5 37.0.0
LVL QR          AND  IND  INTVL  DRTN
3   600000      10   6    3      6
4   750000      6    6    5      7
7   35000000    10   10   7      8
10  2147483647  10   10   15     13
RTRV-ACG-NOC: MASP A - COMPLTD
```

5. 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.
```

Removing an ACG Node Overload Control Level

This procedure is used to remove an ACG Node Overload Control Level from the database using the `dlt-acg-noc` command.

The `dlt-acg-noc` command uses only one parameter, `lvl` – the overload levels 1 through 9. The database contains 10 ACG node overload levels, but only nine are configurable.

Overload level 10 cannot be removed from the database, but its values can be changed using the [Changing an ACG Node Overload Control Level](#) on page 209 procedure.

The overload level to be removed must be in the database.

The example in this procedure removes ACG node overload control level 3 from the database.

1. Display the ACG node overload levels in the database by entering the `rtrv-acg-noc` command.

The following is an example of the possible output.

```
rlghncxa03w 07-08-28 08:50:12 GMT EAGLE5 37.0.0
LVL QR          AND  IND  INTVL  DRTN
3   600000      10   6    3      6
4   750000      6    6    5      7
7   35000000    10   10   7      8
10  2147483647  10   10   15     13
RTRV-ACG-NOC: MASP A - COMPLTD
```

2. Remove the ACG node overload control level from the database using the `dlt-acg-noc` command.

For this example, enter this command.

```
dlt-acg-noc:lvl=3
```

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

```
rlghncxa03w 07-08-28 08:50:12 GMT EAGLE5 37.0.0
DLT-ACG-NOC: MASP A - COMPLTD
```

3. Verify the changes using the `rtrv-acg-noc` command.

The following is an example of the possible output.

```
rlghncxa03w 07-08-28 08:50:12 GMT EAGLE5 37.0.0
LVL QR          AND  IND  INTVL  DRTN
4   750000      6    6    5      7
7   35000000    10   10   7      8
10  2147483647  10   10   15     13
RTRV-ACG-NOC: MASP A - COMPLTD
```

4. 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 an ACG Node Overload Control Level

This procedure is used to change the values of an existing ACG Node Overload Control Level in the database using the `chg-acg-noc` command.

The `chg-acg-noc` command uses these parameters.

`:lvl` – The overload levels, 1 through 10.

`:qr` – The number of LNP queries in a 30 second period that define a particular overload level

- :and – The number of digits in the global title address of a AIN query
- :ind – The number of digits in the global title address of a IN query
- :intvl – The interval index – the amount of time between ACGs. This is a number that is mapped to a time value at the LNP node. See [Table 17: Duration and Gap Interval Index Values](#) on page 198.
- :drtn – The duration index – the amount of time that the ACG is in effect. This is a number that is mapped to a time value at the LNP node. See [Table 17: Duration and Gap Interval Index Values](#) on page 198.

The overload level to be changed must be in the database.

The examples in this procedure are used to change ACG node overload control level 10 in the database to these values.

QR = 70000000, AND = 6, IND = 6, INTVL = 11 - 81 seconds

DRTN = 8 - 128 seconds

1. Display the ACG node overload levels in the database by entering the `rtrv-acg-noc` command.

The following is an example of the possible output.

```
rlghncxa03w 07-08-28 08:50:12 GMT EAGLE5 37.0.0
LVL QR          AND  IND  INTVL  DRTN
3   600000      10   6   3      6
4   750000      6    6   5      7
7   35000000    10   10  7      8
10  2147483647  10   10  15     13
RTRV-ACG-NOC: MASP A - COMPLTD
```

2. Change the ACG node overload control level values in the database using the `chg-acg-noc` command.

For this example, enter this command.

```
chg-acg-noc:lvl=10:qr=70000000:and=6:ind=6:intvl=11:drtn=8
```

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

```
rlghncxa03w 07-08-28 08:50:12 GMT EAGLE5 37.0.0
CHG-ACG-NOC: MASP A - COMPLTD
```

3. Verify the changes using the `rtrv-acg-noc` command.

The following is an example of the possible output.

```
rlghncxa03w 07-08-28 08:50:12 GMT EAGLE5 37.0.0
LVL QR          AND  IND  INTVL  DRTN
3   600000      10   6   3      6
4   750000      6    6   5      7
7   35000000    10   10  7      8
10  70000000    6    6   11     8
RTRV-ACG-NOC: MASP A - COMPLTD
```

4. 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.

```

Adding ACG Manual Initiated Controls

This procedure is used to assign ACG controls to all LNP queries or to specific LNP query services and called party digits using the `ent-acg-mic` command. If the EAGLE 5 ISS query service receives a query to which a control applies, then the EAGLE 5 ISS sends an ACG, encoded as configured, with the response.

The `ent-acg-mic` command uses these parameters.

`:type` – Whether the manually initiated control applies to all query services (`type=all`) or to a specific query service and called party digits (`type=sd`).

`:serv` – The type of service the manual initiated control is applied to

`:dgt`s – the digits of the global title address

`:nd` – the number of digits in the global title address

`:drt`n – The duration index – the amount of time that the ACG is in effect. This is a number that is mapped to a time value at the LNP node. See [Table 17: Duration and Gap Interval Index Values](#) on page 198.

`:int`v1 – The INinterval index – the amount of time between ACGs for IN queries. This is a number that is mapped to a time value at the LNP node. See [Table 17: Duration and Gap Interval Index Values](#) on page 198.

`:aint`v1 – The AIN interval index – the amount of time between ACGs for AIN queries. This is a number that is mapped to a time value at the LNP node. See [Table 17: Duration and Gap Interval Index Values](#) on page 198.

To add an ACG manual initiated control, the LNP feature must be enabled. This is verified by entering the `rtrv-ctrl-feat` command. If the LNP feature is enabled, the entry LNP ported TNs is shown in the `rtrv-ctrl-feat` output with a quantity greater than 0. If the LNP feature is not enabled, perform the procedures in the [LNP Feature Activation](#) on page 15 to enable the LNP feature.

If the `type=all` parameter is specified, the `nd`, `intv1`, and `aintv1` parameters must be specified and the `serv` and `dgt`s parameters cannot be specified. To specify the `type=all` parameter, no existing ACG manually initiated control specifying all LNP query services can be in the database.

If the `type=sd` parameter is specified, the `serv` and `dgt`s parameters must be specified. To specify the `type=sd` parameter, no existing ACG manually initiated control containing the same query service and digits can be in the database.

If the `serv=ain` parameter is specified, the `aintv1` parameter must be specified and the `intv1` parameter cannot be specified.

If the `serv=in` parameter is specified, the `intv1` parameter must be specified and the `aintv1` parameter cannot be specified.

The database contains a maximum of 256 ACG manually initiated controls with the `type=sd` parameter. When the `type=sd` parameter is specified with the `ent-acg-mic` command, the

output displays the number of entries in the ACG MIC table and the amount of the ACG MIC table being used, expressed as a percentage obtained by dividing the number of entries in the ACG MIC table by the maximum number of entries the ACG MIC table can contain, 256.

```
rlghncxa03w 06-08-28 08:50:12 GMT EAGLE5 35.1.0
ACG MIC table is (11 of 256) 4% full of type SD
ENT-ACG-MIC: MASP A - COMPLTD
```

The examples in this procedure are used to add these three ACG manually initiated controls to the database.

ACG Manually Initiated Control #1

Type of Control = All

Number of Digits = 6

IN Interval Index = 4 - 8 seconds

AIN Interval Index = 7 - 5 seconds

Duration Index = 8 - 128 seconds

ACG Manually Initiated Control #2

Type of Control = SD

Query Service = AIN

AIN Interval Index = 8 - 10 seconds

Digits = 910584

Duration Index = 7 - 64 seconds

ACG Manually Initiated Control #3

Type of Control = SD

Query Service = IN

IN Interval Index = 6 - 16 seconds

Digits = 4237431234

Duration Index = 5 - 16 seconds

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 07-08-29 16:40:40 EST EAGLE5 37.6.0
The following features have been permanently enabled:
Feature Name          Partnum    Status    Quantity
LNP ported TNs       893011023  on       228000000
;
```

If the LNP feature is enabled, the entry `LNP ported TNs` is shown in the `rtrv-ctrl-feat` output with a quantity greater than 0. If the LNP feature is enabled, go to [Step 2](#) on page 213. If the LNP feature is not enabled, perform the procedures in the [LNP Feature Activation](#) on page 15 to enable the LNP feature. After the LNP feature is enabled, go to [Step 2](#) on page 213.

2. Display the ACG manually initiated controls in the database using the `rtrv-acg-mic` command.

The following is an example of the possible output.

```
rlghncxa03w 06-08-28 08:50:12 GMT EAGLE5 35.1.0
TYPE=ALL
ND INTVL AINTVL DRTN
TYPE=SD
DGTS      SERV INTVL AINTVL DRTN
704461    AIN  -     8     7
919460    IN   6     -     7
9194602132 AIN  -     7     8
9194602132 IN   4     -     8
919461    IN   6     -     7
ACG MIC table is (5 of 256) 2% full of type SD
RTRV-ACG-MIC: MASP A - COMPLTD
```

3. Add the ACG manually initiated controls to the database using the `ent-acg-mic` command.

For this example, enter this command.

```
ent-acg-mic:type=all:nd=6:intvl=8:aintvl=7:drtn=8
```

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

```
rlghncxa03w 06-08-28 08:50:12 GMT EAGLE5 35.1.0
ENT-ACG-MIC: MASP A - COMPLTD
```

```
ent-acg-mic:type=sd:serv=ain:dgts=910584:aintvl=8:drtn=7
```

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

```
rlghncxa03w 06-08-28 08:50:12 GMT EAGLE5 35.1.0
ACG MIC table is (6 of 256) 2% full of type SD
ENT-ACG-MIC: MASP A - COMPLTD
```

```
ent-acg-mic:type=sd:serv=in:dgts=4237431234:intvl=6:drtn=5
```

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

```
rlghncxa03w 06-08-28 08:50:12 GMT EAGLE5 35.1.0
ACG MIC table is (7 of 256) 3% full of type SD
ENT-ACG-MIC: MASP A - COMPLTD
```

4. Verify the changes using the `rtrv-acg-mic` command with either the `type=all` parameter, or the parameters and values specified with the `type=sd` parameter in [Step 3](#) on page 213.

For this example, enter this command.

```
rtrv-acg-mic:type=all
```

The following is an example of the possible output.

```
rlghncxa03w 06-08-28 08:50:12 GMT EAGLE5 35.1.0
TYPE=ALL
ND INTVL AINTVL DRTN
6 8 7 8
```

```
rtrv-acg-mic:type=sd:serv=ain:dgts=910584:aintvl=8:drtn=7
```

The following is an example of the possible output.

```
rlghncxa03w 06-08-28 08:50:12 GMT EAGLE5 35.1.0
TYPE=SD
DGTS          SERV  INTVL  AINTVL  DRTN
910584        AIN   -      8       7
ACG MIC table is (7 of 256) 3% full of type SD
RTRV-ACG-MIC: MASP A - COMPLTD
```

```
rtrv-acg-mic:type=sd:serv=in:dgts=4237431234:intvl=6:drtn=5
```

The following is an example of the possible output.

```
rlghncxa03w 06-08-28 08:50:12 GMT EAGLE5 35.1.0
TYPE=SD
DGTS          SERV  INTVL  AINTVL  DRTN
4237431234    IN    6      -       5
ACG MIC table is (7 of 256) 3% full of type SD
RTRV-ACG-MIC: MASP A - COMPLTD
```

5. 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.
```

Removing ACG Manual Initiated Controls

This procedure is used to remove an ACG manually initiated control using the `dlt-acg-mic` command.

The `dlt-acg-mic` command uses these parameters:

`:type` – Whether the manually initiated control applies to all query services (`type=all`) or to a specific query service and called party digits (`type=sd`).

`:serv` – The type of service to which the manual initiated control is applied.

`:dgts` – The digits of the global title address.

The specified ACG manually initiated control must be in the database.

If the `type=all` parameter is specified, the `serv` and `dgts` parameters cannot be specified.

If the `type=sd` parameter is specified, the `serv` and `dgts` parameters must be specified.

The example in this procedure is used to remove the ACG manually initiated control for all query types and the IN query type for digits 919460.

1. Display the ACG manually initiated controls in the database using the `rtrv-acg-mic` command.

The following is an example of the possible output.

```
rlghncxa03w 07-08-28 08:50:12 GMT EAGLE5 37.0.0
TYPE=ALL
ND  INTVL  AINTVL  DRTN
6   8      7       8
TYPE=SD
DGTS      SERV  INTVL  AINTVL  DRTN
4237431234  IN   6      -       5
704461     AIN  -       8       7
910584     AIN  -       8       7
919460     IN   6      -       7
9194602132 AIN  -       7       8
9194602132 IN   4      -       8
919461     IN   6      -       7
ACG MIC table is (7 of 256) 3% full of type SD
RTRV-ACG-MIC: MASP A - COMPLTD
```

2. Remove the ACG manually initiated controls from the database using the `dlt-acg-mic` command.

For this example, enter these commands.`dlt-acg-mic:type=all`

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

```
rlghncxa03w 07-08-28 08:50:12 GMT EAGLE5 37.0.0
DLT-ACG-MIC: MASP A - COMPLTD
```

```
dlt-acg-mic:type=sd:serv=in:dgts=919460
```

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

```
rlghncxa03w 07-08-28 08:50:12 GMT EAGLE5 37.0.0
ACG MIC table is (6 of 256) 2% full of type SD
DLT-ACG-MIC: MASP A - COMPLTD
```

3. Verify the changes using the `rtrv-acg-mic` command with either the `type=all` parameter, or the parameters and values specified with the `type=sd` parameter in [Step 2](#) on page 215. If the ACG manual initiated controls were successfully removed in [Step 2](#) on page 215, the `rtrv-acg-mic` output should not show the entry that was removed. For this example, enter these commands.

```
rlghncxa03w 07-08-28 08:50:12 GMT EAGLE5 37.0.0
TYPE=ALL
ND  INTVL  AINTVL  DRTN
```

```
rtrv-acg-mic:type=sd:serv=in:dgts=919460
```

The following is an example of the possible output.

```
rlghncxa03w 07-08-28 08:50:12 GMT EAGLE5 37.0.0
TYPE=SD
DGTS      SERV  INTVL  AINTVL  DRTN
ACG MIC table is (6 of 256) 2% full of type SD
RTRV-ACG-MIC: MASP A - COMPLTD
```

4. 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 ACG Manual Initiated Controls

This procedure is used to change an existing ACG manually initiated controls using the `chg-acg-mic` command. The `chg-acg-mic` command uses these parameters.

`:type` – Whether the manually initiated control applies to all query services (`type=all`) or to a specific query service and called party digits (`type=sd`).

`:serv` – The type of service to which the manual initiated control is applied.

`:dgt s` – The digits of the global title address.

`:nd` – The number of digits in the global title address.

`:drtn` – The duration index – the amount of time that the ACG is in effect. This is a number that is mapped to a time value at the LNP node. See [Table 17: Duration and Gap Interval Index Values](#) on page 198.

`:intvl` – The IN interval index – the amount of time between ACGs for IN queries. This is a number that is mapped to a time value at the LNP node. See [Table 17: Duration and Gap Interval Index Values](#) on page 198.

`:aintvl` – The AIN interval index – the amount of time between ACGs for AIN queries. This is a number that is mapped to a time value at the LNP node. See [Table 17: Duration and Gap Interval Index Values](#) on page 198.

The specified ACG manually initiated control must be in the database.

If the `type=all` parameter is specified, one of these parameters, `nd`, `intvl`, `aintvl`, or `drtn` must be specified and the `serv` and `dgt s` parameters cannot be specified.

If the `type=sd` parameter is specified, the `serv` and `dgt s` parameters must be specified and the `nd` parameter cannot be specified.

If the `serv=ain` parameter is specified, either the `drtn` or `aintvl` parameter must be specified and the `intvl` parameter cannot be specified.

If the `serv=in` parameter is specified, either the `drtn` or `intvl` parameters must be specified and the `aintvl` parameter cannot be specified.

The examples in this procedure are used to change these three ACG manually initiated controls in the database.

The manually initiated control for all queries is changed to these values:

Number of Digits = 10

IN Interval Index = 7 - 22 seconds

AIN Interval Index = 11 - 60 seconds

Duration Index = 5 - 16 seconds

The manually initiated control for AIN queries using the digits 910584 is changed to use a duration index of 12 (2048 seconds) and an interval index of 9 (15 seconds).

The manually initiated control for IN queries for 4237341234 is changed to use a duration index of 7 (64 seconds) and an interval index of 7 (22 seconds).

1. Display the ACG manually initiated controls in the database using the `rtrv-acg-mic` command.

The following is an example of the possible output.

```
rlghncxa03w 07-08-28 08:50:12 GMT EAGLE5 37.0.0
TYPE=ALL
ND INTVL AINTVL DRTN
6 8 7 8
TYPE=SD
DGTS SERV INTVL AINTVL DRTN
4237431234 IN 6 - 5
704461 AIN - 8 7
910584 AIN - 8 7
919460 IN 6 - 7
9194602132 AIN - 7 8
9194602132 IN 4 - 8
919461 IN 6 - 7
ACG MIC table is (7 of 256) 3% full of type SD
RTRV-ACG-MIC: MASP A - COMPLTD
```

2. Add the ACG manually initiated controls to the database using the `chg-acg-mic` command. For this example, enter these commands:

```
chg-acg-mic:type=all:nd=10:intvl=7:aintvl=11:drtn=5
```

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

```
rlghncxa03w 07-08-28 08:50:12 GMT EAGLE5 37.0.0
CHG-ACG-MIC: MASP A - COMPLTD
```

```
chg-acg-mic:type=sd:serv=ain:dgts=910584:aintvl=12:drtn=9
```

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

```
rlghncxa03w 07-08-28 08:50:12 GMT EAGLE5 37.0.0
ACG MIC table is (7 of 256) 3% full of type SD
CHG-ACG-MIC: MASP A - COMPLTD
```

```
chg-acg-mic:type=sd:serv=in:dgts=4237431234:intvl=7:drtn=7
```

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

```
rlghncxa03w 07-08-28 08:50:12 GMT EAGLE5 37.0.0
ACG MIC table is (7 of 256) 3% full of type SD
CHG-ACG-MIC: MASP A - COMPLTD
```

3. Verify the changes using the `rtrv-acg-mic` command with either the `type=all` parameter, or the `serv` and `dgts` parameters and values specified with the `type=sd` parameter in [Step 2](#) on page 217.

If the ACG manual initiated controls were successfully removed in [Step 2](#) on page 217, the `rtrv-acg-mic` output should not show the entry that was removed. For this example, enter these commands.

```
rlghncxa03w 07-08-28 08:50:12 GMT EAGLE5 37.0.0
TYPE=ALL
ND   INTVL  AINTVL  DRTN
10  7       11      5
```

```
rtrv-acg-mic:type=sd:serv=ain:dgts=910584
```

```
rlghncxa03w 07-08-28 08:50:12 GMT EAGLE5 37.0.0
TYPE=SD
DGTS          SERV  INTVL  AINTVL  DRTN
910584        AIN   -      12      9
ACG MIC table is (7 of 256) 3% full of type SD
RTRV-ACG-MIC: MASP A - COMPLTD
```

```
rtrv-acg-mic:type=sd:serv=in:dgts=4237431234
```

```
rlghncxa03w 07-08-28 08:50:12 GMT EAGLE5 37.0.0
TYPE=SD
DGTS          SERV  INTVL  AINTVL  DRTN
4237431234    IN    7      -       7
ACG MIC table is (7 of 256) 3% full of type SD
RTRV-ACG-MIC: MASP A - COMPLTD
```

4. 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.
```

Glossary

A

ACG	<p>Automatic Call Gapping</p> <p>An element of the EAGLE 5 ISS LNP that controls the rate that location routing number (LRN) queries for a particular telephone number, or a portion of a telephone number, are received by the EAGLE 5 ISS LNP when a particular threshold is reached.</p>
AFTPC	<p>Affected Point Code</p> <p>The point code in subsystem-prohibited (SSP), subsystem-status-test (SST), and subsystem-allowed (SSA) SCCP management messages used by gateway screening to determine if the messages containing these point codes are allowed in to the network. This point code is in the SCMG Data (SCCP Management) portion of the signaling information field in the MSU.</p>
AIN	<p>Advanced Intelligent Network</p> <p>A dynamic database used in Signaling System 7. It supports advanced features by dynamically processing the call based upon trigger points throughout the call handling process and feature components defined for the originating or terminating number.</p>
Allowed Affected Destination Field	<p>The gateway screening entity that identifies the point code in the affected destination field (the concerned signaling point code) of incoming MTP network management messages from</p>

A

another network that are allowed into the EAGLE 5 ISS. Messages containing the specified point code are allowed into the network.

Allowed AFTPC

The gateway screening entity that identifies the messages containing a specific affected point code. Messages containing the specified affected point code are allowed into the network.

Allowed DPC

The gateway screening entity that identifies the destination point codes that are allowed to receive SS7 messages from the EAGLE 5 ISS. Messages containing the specified destination point codes go on to the next step in the gateway screening process, or are allowed into the network if the gateway screening process stops with this entity.

Allowed ISUP

The gateway screening entity that identifies the ISUP or TUP message types that are allowed into the network.

Allowed 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

A

gateway screening process stops with this entity.

Allowed TT

The gateway screening entity that identifies the SCCP messages that have a specified translation type value in the called party address. SCCP messages containing specified translation type in the called party address 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.

ALT

Application Logging Task

AMA

Automated Message Accounting
Provides detail billing for telephone calls.

AND

AIN Number of Digits (in GTT address for AIN query)

ANSI

American National Standards Institute

An organization that administers and coordinates the U.S. voluntary standardization and conformity assessment system. ANSI develops and publishes standards. ANSI is a non-commercial, non-government organization which is funded by more than 1000 corporations, professional bodies, and enterprises.

B

BLKDPC

Blocked Destination Point Code

B

The point code that the gateway screening uses to keep MSUs bound for a specific point code out of the network where the EAGLE 5 ISS is located. This point code is in the routing label portion of the signaling information field in the MSU. Messages that do not contain the specified destination point code go on to the next step in the gateway screening process, or are allowed into the network if the gateway screening process stops with this entity.

C

CD

Carrier Detect
Compact Disk

CIC

Carrier Identification Code
A 4-digit code that controls the routing applied to a message.

CLASS

Custom Local Area Signaling Service
Custom Local Area Subscriber Services

CLEC

Competitive Local Exchange Carrier

CLLI

Common Language Location Identifier

The CLLI uniquely identifies the STP in terms of its physical location. It is usually comprised of a combination of identifiers for the STP's city (or locality), state (or province), building, and traffic unit identity. The format of the CLLI is:

C

The first four characters identify the city, town, or locality.

The first character of the CLLI must be an alphabetical character.

The fifth and sixth characters identify state or province.

The seventh and eighth characters identify the building.

The last three characters identify the traffic unit.

CNAM

Calling Name Delivery Service

control cards

Cards that occupy slots 1113 through 1118 of the control shelf on an EAGLE 5 ISS and perform OAM, TDM, and database functions for the EAGLE 5 ISS. The legacy set consists of the single-slot GPSM-II card running the OAM application and EOAM GPL, the single-slot TDM 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.

credit card drive

Flash memory credit card-shaped drive used in the flush-mounted USB port on an E5-MCAP card for upgrade; it could be used for disaster recovery.

D

Database

All data that can be administered by the user, including cards, destination point codes, gateway screening tables, global title translation tables, links, LNP services, LNP service providers, location routing numbers, routes,

D

shelves, subsystem applications, and 10 digit telephone numbers.

DB

Database
Daughter Board
Documentation Bulletin

DD

Detailed Design

DESTFLD

The point code in the affected destination field (the concerned signaling point code) of incoming MTP network management messages from another network that are allowed into the EAGLE 5 ISS.

DIX

Digital/Intel/Xerox
Digital/Intel/Xerox de facto standard for Ethernet Media Access Control Type.

DPC

Destination Point Code
DPC refers to the scheme in SS7 signaling to identify the receiving signaling point. In the SS7 network, the point codes are numeric addresses which uniquely identify each signaling point. This point code can be adjacent to the EAGLE 5 ISS, but does not have to be.

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

D

Communications (GSM), EAGLE Local Number Portability (ELAP), and interface to Local Service Management System (LSMS).

DV

Digits Valid

E

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 5 ISS 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 5 ISS 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 5 ISS Control Shelf. Used with E5-MASP cards. Does NOT contain a drive for removable cartridges.

E5-TDM card

The E5-TDM card provides the EAGLE 5 ISS with 16 ports for

E

user terminals, contains fixed disk storage and distributes Composite Clocks and High Speed Master clocks throughout the EAGLE 5 ISS. Occupies slot 1114 and slot 1116 in an EAGLE 5 ISS Control Shelf. Used when the E5-MDAL card is used.

EIR

Equipment Identity Register

A network entity used in GSM networks, as defined in the 3GPP Specifications for mobile networks. The entity stores lists of International Mobile Equipment Identity (IMEI) numbers, which correspond to physical handsets (not subscribers). Use of the EIR can prevent the use of stolen handsets because the network operator can enter the IMEI of these handsets into a 'blacklist' and prevent them from being registered on the network, thus making them useless.

ELAP

EAGLE Local Number Portability Application Processor

EMS

Element Management System

The EMS feature consolidates real-time element management at a single point in the signaling network to reduce ongoing operational expenses and network downtime and provide a higher quality of customer service.

EO

End Office

F

F

fixed disk drive	Hard drive on the TDM card and the E5-TDM card.
flush-mounted USB port	USB port on the E5-MCAP card; used with credit card flash memory drives for upgrades and could be used for disaster recovery.

G

GB	Gigabyte — 1,073,741,824 bytes
GPL	Generic Program Load Software that allows the various features in the system to work. GPLs and applications are not the same software.
GPSM-II card	General Purpose Service Module II Contains the communications processor and applications processor and provides connections to the Interprocessor Message Transport (IMT) bus. The GPSM-II card can run on the OAM, IPS, or MCP applications. This card runs various GPLs and applications in the EAGLE 5 ISS. As a control card, it runs the OAM application and EOAM GPL. Used when the legacy TDM cad and MDAL card are used.
GTT	Global Title Translation A feature of the signaling connection control part (SCCP) of the SS7 protocol that the EAGLE 5 ISS uses to determine which service database to send the query message when an MSU enters the EAGLE 5 ISS and more

G

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.

GUI

Graphical User Interface

The term given to that set of items and facilities which provide the user with a graphic means for manipulating screen data rather than being limited to character based commands.

H**HS**

High Speed

HSOP

High Speed Operation Protocol

I**IAM**

Initial Address Message

ID

Identity, identifier

IN

Intelligent Network

A network design that provides an open platform for developing, providing and managing services.

INP

INAP-based Number Portability

Tekelec's INP can be deployed as a stand-alone or an integrated signal transfer point/number portability solution. With Tekelec's stand-alone NP server, no network reconfiguration is required to implement number portability. The NP server

I

delivers a much greater signaling capability than the conventional SCP-based approach.

Intelligent Network (IN)
Portability

IP

Internet Protocol

IP specifies the format of packets, also called datagrams, and the addressing scheme. The network layer for the TCP/IP protocol suite widely used on Ethernet networks, defined in STD 5, RFC 791. IP is a connectionless, best-effort packet switching protocol. It provides packet routing, fragmentation and re-assembly through the data link layer.

IP Address

The location of a device on a TCP/IP network. The IP Address is a number in dotted decimal notation which looks something like [192.168.1.1].

IPM

Implementation Project
Management

IMT Power and Multiplexer Card

Initial Product Manufacture

IS-NR

In Service - Normal

ISS

Integrated Signaling System

ISUP

ISDN User Part

ITU

International Telecommunications
Union

K

Key For the ICNP feature, a unique DS value used to access a table entry, consisting of a number length and number type.

L

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.

LIDB Line Information Database

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

LNP Local Number Portability

LNPQS LNP Query Service

LNP SMS LNP Short Message Service

LRN Location Routing Number
A 10-digit number in a database called a Service Control Point

L

(SCP) that identifies a switching port for a local telephone exchange. LRN is a technique for providing Local Number Portability.

LSMS

Local Service Management System

M

MAS

Maintenance and Administration Subsystem

A set of cards located in the Control Shelf, used to provide a central management point for the EAGLE 5 ISS. 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.

MASP

Maintenance and Administration Subsystem Processor

The Maintenance and Administration Subsystem Processor (MASP) function is a logical pairing of the GPSM-II card and the TDM card. The GPSM-II card is connected to the TDM card by means of an Extended Bus Interface (EBI) local bus.

The MDAL card contains the removable cartridge drive and alarm logic. There is only one MDAL card in the Maintenance and Administration Subsystem (MAS) and it is shared between the two MASPs.

MPS

Multi-Purpose Server

The Multi-Purpose Server provides database/reload functionality and

M

a variety of high capacity/high speed offboard database functions for applications. The MPS resides in the General Purpose Frame.

MR

Message Relay

MSC

Mobile Switching Center

MSU

Message Signaling 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 identification of the node that sent message (originating point code), the identification of the node receiving the message (destination point code), and the signaling link selector which the EAGLE 5 ISS uses to pick which link set and

M

	signaling link to use to route the message.
MT	Mobile Terminated All transmissions that reach the mobile station and are accepted by it, such as calls or short messages.
MTP	The levels 1, 2, and 3 of the SS7 protocol that control all the functions necessary to route an SS7 MSU through the network.

N

NAT	Network Address Translation
NE	Network Element An independent and identifiable piece of equipment closely associated with at least one processor, and within a single location.
NPA	Number Plan Area The North American "Area Codes." (3 digits: 2- to-9, 0-or1, 0-to-9. Middle digit to expand soon).
NPAC	Number Portability Administration Center
NTP	Network Time Protocol

O

OOS-MT	Out of Service - Maintenance
--------	-------------------------------------

O

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.

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

The EAGLE 5 ISS LNP uses only the ANSI point codes and Non-ANSI domestic point codes.

PCS Personal Communications Service (North American GSM)

PDP Permissive Dialing Period
Power Distribution Panel
Monitors primary and secondary power sources on a continuous basis.

PIN Personal Identification Number

PLNP The Personal Communications Service (PCS) 1900 LNP Query (PLNP) feature provides for LNP query/response in a PCS wireless environment using the LRN method to support Service Provider Number Portability.

PRI Primary Rate Interface
Primary Rate ISDN
Priority

Q

QR Query Rate

R

removable cartridge MO cartridge used in the drive on the legacy MDAL card.

removable cartridge drive Media drive for removable MO cartridges on the legacy MDAL card.

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.

RTDB
Real Time Database

S

SCCP
Signaling Connection Control Part

SI
Service Indicator

SIO
Service Information Octet.
The network indicator code (NIC), priority (PRI), and service indicator (SI) in the SIO field in the message signaling unit (MSU). This information identifies the type of MSU (ISUP, TCAP, and so forth) that is allowed in the network where the EAGLE 5 ISS is located.

SMS
Short Message Service

SP
Service Provider
Signaling Point

SS7
Signaling System #7

S

STP
Signal Transfer Point

STPs are ultra-reliable, high speed packet switches at the heart of SS7 networks, which terminate all link types except F-links. STPs are nearly always deployed in mated pairs for reliability reasons. Their primary functions are to provide access to SS7 networks and to provide routing of signaling messages within and among signaling networks.

SW
Software

T

TCAP
Transaction Capabilities
Application Part

TCP/IP
Transmission Control
Protocol/Internet Protocol

TDM
Terminal Disk Module
Time Division Multiplexing

TLNP
Triggerless LNP

TN
Telephone Number

A 10 digit ported telephone number.

Triggerless LNP

A feature that gives service providers a method to route calls to ported numbers without having to upgrade their signaling switch (end office or mobile switching center) software. This feature uses the gateway screening stop action TLNP to intercept through-switched ISUP messages on the LIM.

T

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.

TTN Translation Type Name

U

UAM Unsolicited Alarm Message.

UDP User Datagram Protocol

UDTS Unitdata Service message

UI User Interface

UIM Unsolicited Information Message

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

VIOL A value displayed on an application GUI that indicates that the client browser's Java policy file is incorrect.

V

VSCCP

VxWorks Signaling Connection
Control Part

The application used by the Service Module card to support the G-Flex, G-Port, INP, AINPQ, EIR, A-Port, IGM, V-Flex, and LNP features. If the G-Flex, G-Port, INP, AINPQ, EIR, A-Port, IGM, V-Flex, or LNP feature is not turned on, and a Service Module card is present, the VSCCP GPL processes normal GTT traffic.

W

WNP

Wireless Number Portability

The Wireless Number Portability feature enhances the Local Number Portability feature to allow wireless service providers to query the LNP database for ported telephone numbers. The query is used to find the location routing number associated with the ported telephone number so the telephone call can be routed to its proper destination. The Wireless Number Portability feature can only be used for ANSI messages not for ITU messages.

WSMSC

Wireless Short Message Service
Center

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