Tekelec LSMS with EAGLE® 5 ISS

LNP Feature Activation Guide

910-5626-001 Revision B
February 2009

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1

Introduction

Topics:

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 11 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 207 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/TKLCplat/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

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

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

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

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

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

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

EAGLE 5 ISS Database Partitions

The data that the EAGLE 5 ISS uses to perform its functions are stored in two separate areas: the fixed disk drives, and the removable cartridge. The following sections describe these areas and data that is stored on them. These areas and their partitions are shown in *Figure 1: EAGLE 5 ISS Database Partitions* on page 9.

Figure 1: EAGLE 5 ISS Database Partitions

ACTIVE FIXED DISK   STANDBY FIXED DISK

Backup Data   Backup Data

Current Data   Current Data

Measurements   Measurements

GPLs   GPLs

System Data
Removable
Cartridge

Backup Data

GPLs

Measurements
Removable
Cartridge

Measurements
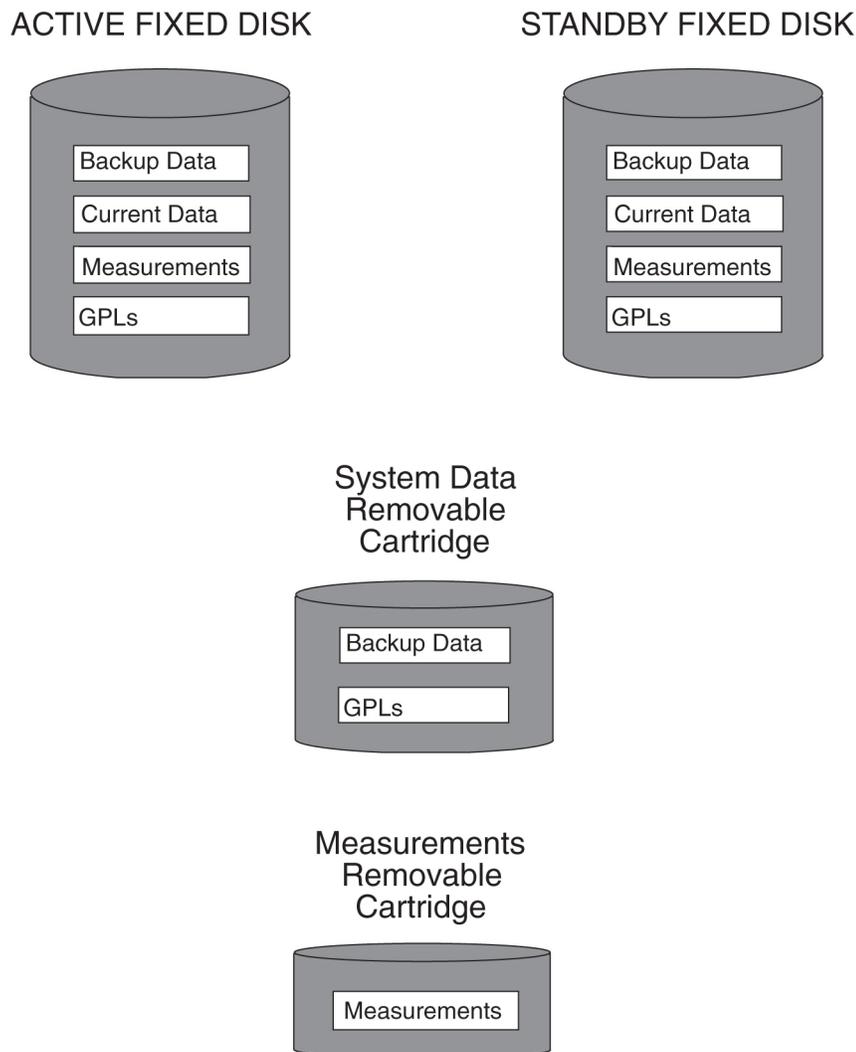
Fixed Disk Drive

There are two fixed disk drives on the EAGLE 5 ISS. The fixed disk drives contain the "master" set of data and programs for the EAGLE 5 ISS. The two fixed disk drives are located on the terminal disk modules (TDMs). Both disks have the same files. The data stored on the fixed disks is partially

replicated on the various cards in the EAGLE 5 ISS. Changes made during database administration sessions are sent to the appropriate cards.

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

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

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

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

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

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

Removable Cartridge

A removable cartridge is used for two purposes.

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

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

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

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

Additional and preformatted removable cartridges are available from the *Customer Care Center* on page 4.

Chapter

2

LNP Feature Activation

Topics:

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 and 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.

  TSM cards running the SCCP application cannot be in the database and cannot be physically installed in the EAGLE 5 ISS. 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

13 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

LNP Telephone Number Quantity	LNP Telephone Number Part Number	Minimum Hardware Required for the LNP Telephone Number Quantity
168 Million	893-0110-18	4 GB Service Module card
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

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

LNP Telephone Number Quantity	LNP Telephone Number Part Number	Minimum Hardware Required for the LNP Telephone Number Quantity
be installed. For 204 -228 million numbers running on ELAP 8.0, only E5-SM4G cards can be 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 189 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: 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 EBDA DCM, EBDA BLM, VSCCP, and SCCP applications.

d) `rept-stat-sccp` – to verify the number of TSM cards running the SCCP application currently provisioned in the EAGLE 5 ISS.

Record the values displayed in these steps.

CAUTION:

The LNP feature does not support TSM cards. All TSM cards must be removed to enable the feature. Verify the number of TSM cards in the EAGLE 5 ISS by entering the `rept-stat-sccp` command. The number of TSM cards is shown in the `SCCP Cards Configured` field of the `rept-stat-sccp` output. Perform the *Removing DSM and TSM Cards* on page 30 procedure to remove any TSM cards.

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 TSM 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 13, for specific card requirements and compatibility matrix.

Note:

If the `rtrv-ctrl-feat` output in *Step 1.a* on page 16 shows that the EAGLE 5 ISS's LNP ELAP Configuration feature is enabled, skip *Step 2* on page 17 through *Step 4* on page 17, and go to *Step 5* on page 17.

2. If *Step 1.c* on page 17 shows no cards running the VSCCP application (TSM cards), perform the *Adding a Service Module Card* on page 26 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 13.

3. If *Step 1.c* on page 17 shows TSM cards running the SCCP application, perform the *Removing DSM and TSM Cards* on page 30 procedure to make sure that any TSM cards are removed.

4. If *Step 1.c* on page 17 shows cards running the EBDA DCM and EBDA BLM applications, perform the *Removing the DCM Applied to LSMS BLM-Based Operations* on page 31 procedure and *Removing the BLM Applied to LSMS BLM-Based Operations* on page 33 procedure to make sure that these cards are removed from the EAGLE 5 ISS.

Note:

If *Step 2* on page 17 through *Step 4* on page 17 were performed, skip *Step 5* on page 17, and go to *Step 6* on page 18.

5. 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 13).

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 26 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 13). After the new Service Module card has been added, perform the *Removing DSM and TSM Cards* on page 30 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 17.

6. If *Step 1.b* on page 16 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 17 or *Step 5* on page 17, 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 35 procedure.

7. If *Step 6* on page 18 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.

```
tklc1170501 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*.

8. If the state any of the Service Module cards shown in *Step 1.b* on page 16, *Step 5* on page 17, or *Step 7* on page 18 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 16, *Step 5* on page 17, or *Step 7* on page 18 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.
```

9. 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 16 or *Step 6* on page 18.

```
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
```

10. Test port B of the Service Module card specified in *Step 9* on page 19 using the `ping` pass command with the card location of the Service Module card specified in *Step 9* on page 19 and the IP address for port B shown in either *Step 1.b* on page 16 or *Step 6* on page 18.

```
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
```

11. Repeat *Step 9* on page 19 and *Step 10* on page 19 for all other Service Module cards in the EAGLE 5 ISS.

    At the MPS (ELAP A or B):

12. Log into ELAP A or B.

13. 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 13).

    If the ELAP version is not correct, contact the *Customer Care Center* on page 4 for the contact information before performing the procedure.

14. Perform a health check of the MPS.

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

15. Disable the LSMS Connection.

    Select **Maintenance ➤ LSMS Connection ➤ View Allowed** as seen in *Figure 2: View LSMS Connection Allowed Dialog* on page 20.

    Figure 2: View LSMS Connection Allowed Dialog

A   View LSMS Connection Allowed

ℹ INFO: The LSMS Connection is currently Enabled.

Sat November 10 2001 16:54:41 EST

2001 © Tekelec, Inc., All Rights Reserved.
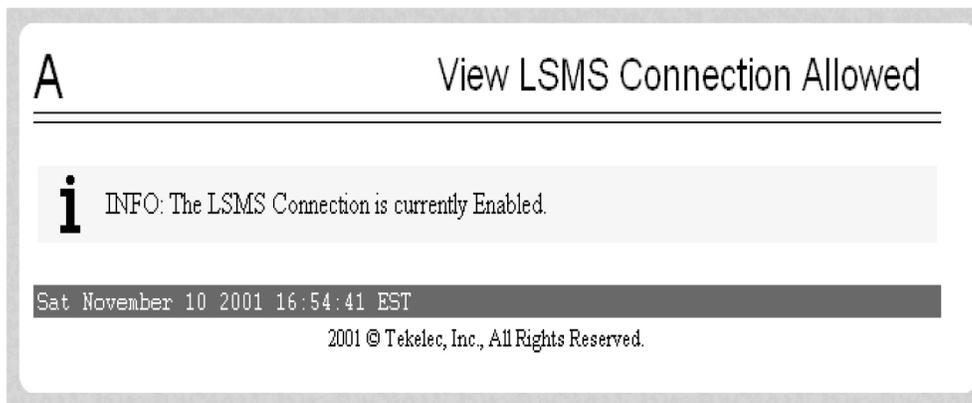
    If the connection is disabled, no action is necessary. Go to *Step 16* on page 21. If the connection is enabled, select **Maintenance ➤ LSMS Connection ➤ Change Allowed**. The **Change LSMS Connection Allowed** dialog displays, showing **Disable LSMS Connection icon** as seen in *Figure 3: Change LSMS Connection Allowed Dialog* on page 20.

    Figure 3: Change LSMS Connection Allowed Dialog
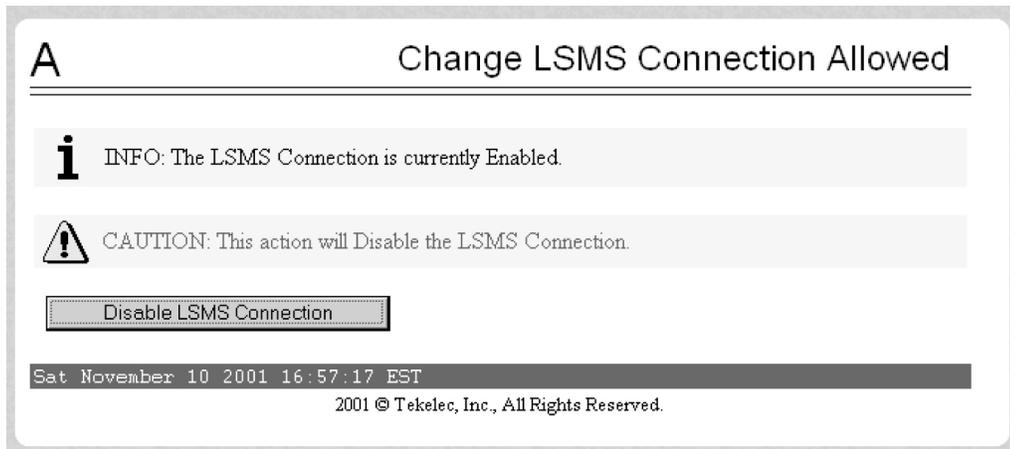
Click the **Disable LSMS Connection** button. The **Change LSMS Connection Allowed Dialog** as seen in *Figure 4: Change LSMS Connection Allowed - Disable Success Dialog* on page 21.

Figure 4: Change LSMS Connection Allowed - Disable Success Dialog
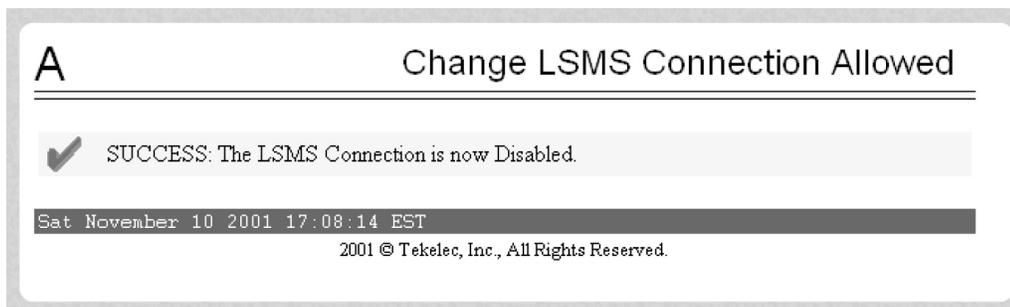
16. Repeat *Step 12* on page 20 through *Step 14* on page 20 for the other ELAP.

17. 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 that 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 16. If the telephone number quantity on the ELAP is less that the quantity shown in the `rtrv-ctrl-feat` output, or is less than the quantity that will be configured in *Step 18* on page 21, go to *Step 18* on page 21. If the telephone number quantity on the ELAP is greater that 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 18* on page 21 that the telephone number quantity configured on the EAGLE 5 ISS is greater than the ELAP telephone number quantity.

    At the EAGLE 5 ISS:

18. 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:

19. Contact the *Customer Care Center* on page 4 to enable the LNP telephone quantity on the LSMS.

20. Create a new EMS for the new MPSs by performing the *Creating an EMS Configuration Component* on page 85 procedure.

21. Configure new MPSs in the EMS Routing window.

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

22. Enable the LSMS Connection.

Select **Maintenance ➤ LSMS Connection ➤ View Allowed**. The **View LSMS Connection Allowed Dialog** is displayed in *Figure 5: View LSMS Connection Allowed - Connection Enabled Dialog* on page 22.

Figure 5: View LSMS Connection Allowed - Connection Enabled Dialog
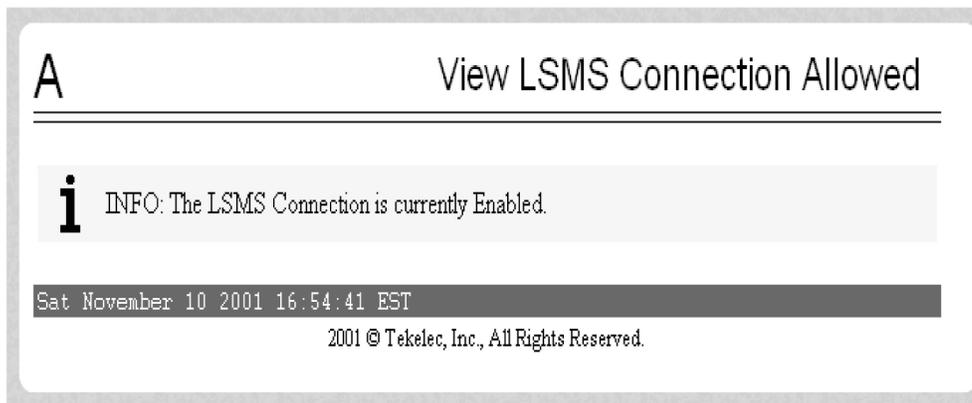
If the connection is enabled, no action is necessary. Go to *Step 23* on page 23. If the connection is disabled, select **Maintenance ➤ LSMS Connection ➤ Change Allowed**. The **Change LSMS Connection Allowed Dialog** is displayed in *Figure 6: Change LSMS Connection Allowed - Connection Disabled Dialog* on page 22.

Figure 6: Change LSMS Connection Allowed - Connection Disabled Dialog
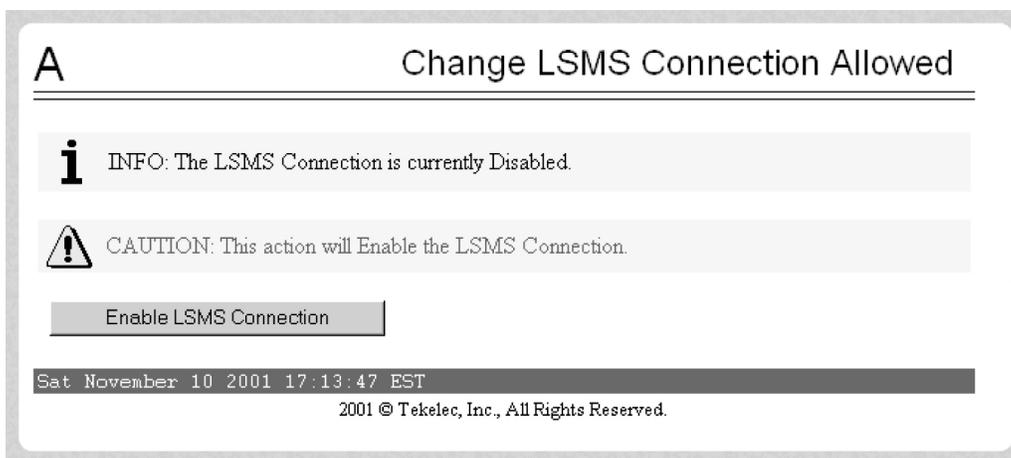
Click the **Enable LSMS Connection** button. The **Change LSMS Connection Allowed Dialog** is displayed in *Figure 7: Change LSMS Connection Allowed - Enable Success Dialog* on page 22.

Figure 7: Change LSMS Connection Allowed - Enable Success Dialog
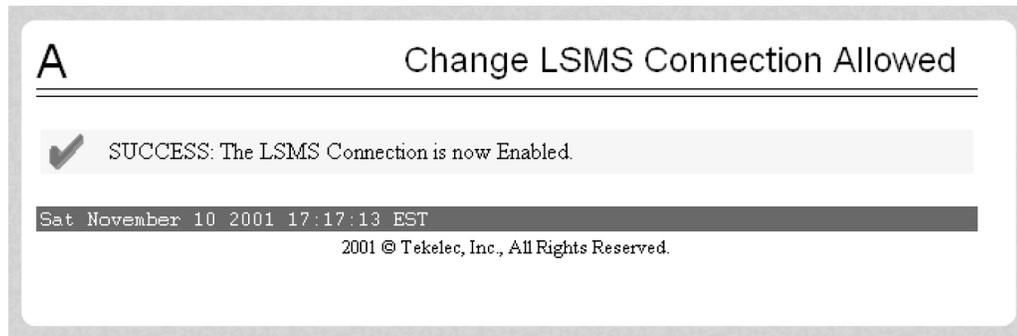
Repeat *Step 22* on page 22 for the other ELAP.

At the LSMS:

23. 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 23* on page 23):

24. 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.

25. Perform a health check of the MPS.

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

At the EAGLE 5 ISS:

26. 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):

27. Disable the LSMS Connection.

    Select **Maintenance ➤ LSMS Connection ➤ View Allowed**. The **View LSMS Connection Allowed Dialog** is displayed in *Figure 8: View LSMS Connection Allowed - Connection Enabled Dialog* on page 23.

    Figure 8: View LSMS Connection Allowed - Connection Enabled Dialog
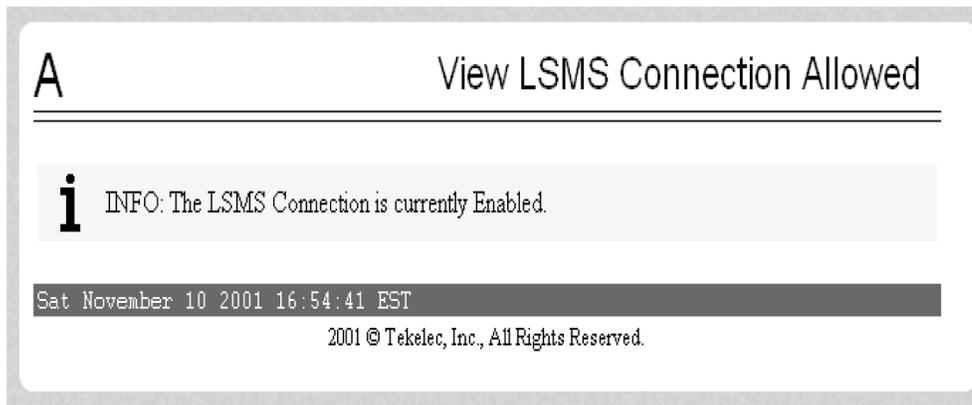
If the connection is disabled, no action is necessary. Go to *Step 28* on page 25. If the connection is enabled, select **Maintenance ➤ LSMS Connection ➤ Change Allowed**. The **Change LSMS Connection Allowed Dialog** is displayed in *Figure 9: Change LSMS Connection Allowed - Connection Enabled Dialog* on page 24.

Figure 9: Change LSMS Connection Allowed - Connection Enabled Dialog
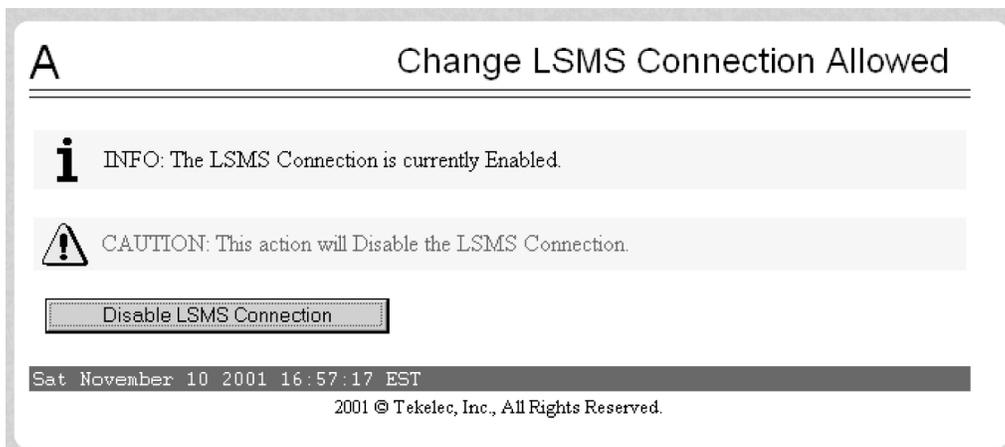
Click the **Disable LSMS Connection** button. The **Change LSMS Connection Allowed Dialog** is displayed in *Figure 10: Change LSMS Connection Allowed - Disable Success Dialog* on page 24.

Figure 10: Change LSMS Connection Allowed - Disable Success Dialog
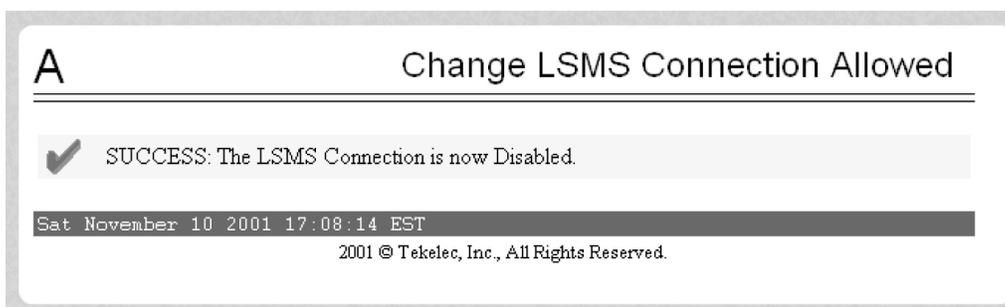
Repeat *Step 27* on page 23 for the other ELAP.

At the MPS (ELAP A or B):

28. Enable LSMS Connection.

Select **Maintenance ➤ LSMS Connection ➤ View Allowed**. The **View LSMS Connection Allowed Dialog** is displayed in *Figure 11: View LSMS Connection Allowed - Connection Enabled Dialog* on page 25.

Figure 11: View LSMS Connection Allowed - Connection Enabled Dialog
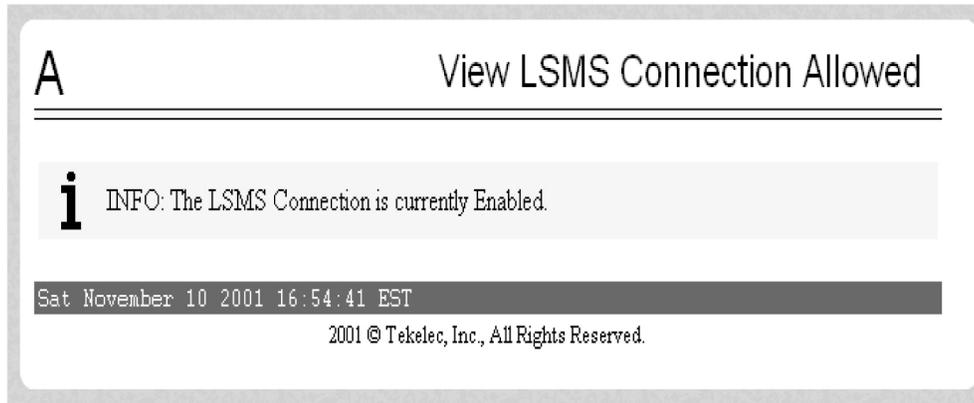
If the connection is enabled, no action is necessary. Go to *Step 29* on page 26. If the connection is disabled, select **Maintenance ➤ LSMS Connection ➤ Change Allowed**. The **Change LSMS Connection Allowed Dialog** is displayed in *Figure 12: Change LSMS Connection Allowed - Connection Disabled Dialog* on page 25.

Figure 12: Change LSMS Connection Allowed - Connection Disabled Dialog
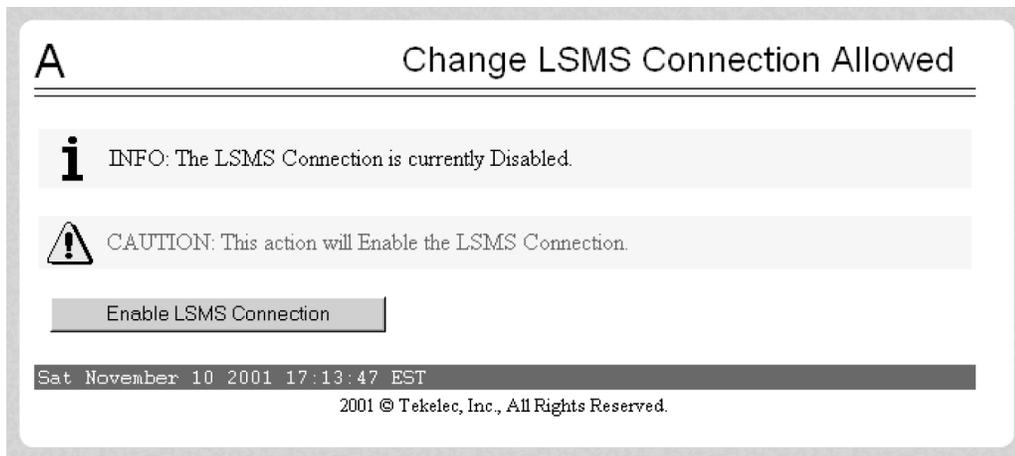
Click the **Enable LSMS Connection** button. The **Change LSMS Connection Allowed Dialog** is displayed in *Figure 13: Change LSMS Connection Allowed - Enabled Success Dialog* on page 25.

Figure 13: Change LSMS Connection Allowed - Enabled Success Dialog
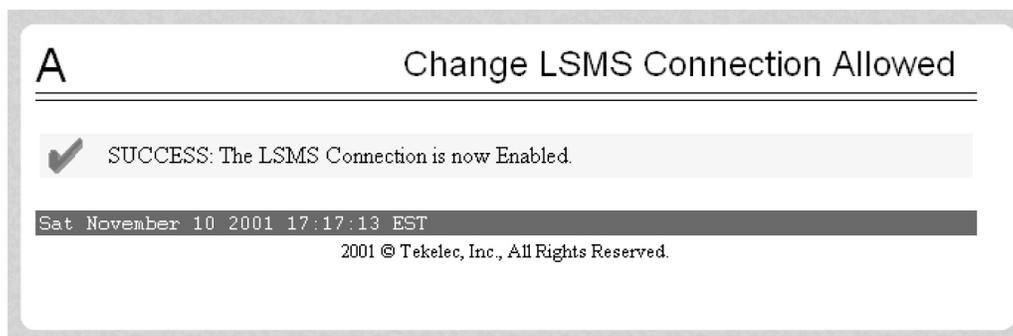
Repeat *Step 28* on page 25 for the other ELAP. **At the LSMS:**

29. 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. One of four Service Module cards can be used, depending on the amount of memory installed on the Service Module card and the feature requirements. If you have purchased the 384 Million LNP Records feature and are running ELAP version 8.0, E5-SM4G cards are required. See the LNP Hardware and Part Number Configuration Table (*Table 2: LNP Hardware and Part Number Configuration Table* on page 13) for card configuration per LNP telephone number quantity.

- DSM 1G – A Service Module card with 1 GB of memory installed
- DSM 2G – A Service Module card with 2 GB of memory installed
- DSM 3G – A Service Module card with 3 GB of memory installed
- 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: 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. This parameter is obsolete and is no longer used.

The shelf to which the card is to be added must already be in the database. This can be verified with the `rtrv-shlf` command. If the shelf is not in the database, see the "Adding a Shelf" procedure in the *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 13) 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 28, skip this step and go to *Step 3* on page 28.

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
   1101    TSM       DSM
   1102    TSM       GLS
   1113    GPSM      EOAM
   1114    TDM-A
   1115    GPSM      EOAM
   1116    TDM-B
   1117    MDAL
   1201    LIMDS0    SS7ANSI   sp2           A    0   sp1           B    0
   1203    LIMDS0    SS7ANSI   sp3           A    0
   1204    TSM       DSM
   1206    LIMDS0    SS7ANSI   nsp3          A    1   nsp4          B    1
   1207    LIMV35    SS7GX25   nsp1          A    0
   1208    LIMV35    SS7GX25   nsp1          A    1
   1215    TSM       EBDABLM
   1216    ACMENET   STPLAN
   1217    DCM       EBDADCM
   1308    LIMDS0    SS7ANSI   sp6           A    1   sp7           B    0
   1314    LIMDS0    SS7ANSI   sp7           A    1   sp5           B    1
   1317    ACMENET   STPLAN
   2101    TSM       DSM
   2105    TSM       DSM
   2112    TSM       DSM
   ```

   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 29.

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:** 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=vDSM`

```
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 and TSM Cards

This procedure is used to remove DSM cards and TSM cards running the SCCP application 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 or TSM cards. Any DSM or TSM 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 13.

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 17 of the *Activating the LNP Feature Overview* on page 16, or shown in the `rept-stat-card` output in *Step 5* on page 17 (TSM cards running the SCCP application that do not contain enough memory for the desired LNP telephone number quantity) of the *Activating the LNP Feature Overview* on page 16 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: If the TSM card running the SCCP application is the last TSM card in service, removing this card from the database will cause global title translation and local number portability traffic to be lost.

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

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

```
tklc1190601 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*.

2. Remove the card from service using the `rmv-card` command and specifying the card location, recorded in *Step 1.c* on page 17 or shown in *Step 5* on page 17 of the *Activating the LNP Feature Overview* on page 16 procedure.

   If the TSM card to be inhibited is the only TSM card running the SCCP application 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 30.

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

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

3. 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.

   ```
   dlt-card:loc=1204
   ```

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

4. Verify the changes using the `rtrv-card` command specifying the card that was removed in *Step 3* on page 31.

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

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

5. Remove the card specified in *Step 3* on page 31 from the shelf.

6. Repeat this procedure for all other TSM or DSM cards in the EAGLE 5 ISS that do not meet the hardware requirements for the desired LNP telephone number quantity.

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

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

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

   You have now completed this procedure.

Removing the DCM Applied to LSMS BLM-Based Operations

This procedure is used to remove the DCM running the `ebdadcm` application from the database, recorded in *Step 1.c* on page 17 of the *Activating the LNP Feature Overview* on page 16 procedure, using the `dlt-card` command. The DCM running the `ebdadcm` application supports BLM-based operations performed from the LSMS. When the LNP feature is activated, BLM-based operations cannot be performed. As a result, this card cannot be in the EAGLE 5 ISS when the LNP feature is activated.

The DCM is shown in the database with the entries DCM in the **TYPE** field and EBDADCM in the **APPL** field of the `rept-stat-card` command output.

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

The DCM must be out of service (OOS-MT-DSBLD) before it can be removed from the database.

CAUTION: Removing this DCM from the database will prevent any BLM-based operations from the LSMS from being performed.

CAUTION

TOPPLE: Canceling the `REPT-STAT-CARD` Command

Because the `rept-stat-card` command can output information for a long period of time, it can be canceled (stopping output to the terminal). There are three ways to cancel the `rept-stat-card` command:

TOPPLE

1. Press the **<F9>** function key on the keyboard at the terminal where the `rept-stat-card` command was entered.

2. Enter the `canc-cmd` without the `trm` parameter at the terminal where the `rept-stat-card` command was entered.

3. From a terminal other than the one where the `rept-stat-card` command was entered, enter the `canc-cmd:trm=<xx>`, where `<xx>` is the terminal where the `rept-stat-card` command was originally entered. To enter the `canc-cmd:trm=<xx>` command, the terminal must allow Security Administration commands to be entered from it. The user must be allowed to enter Security Administration commands. Terminal permissions can be verified with the `rtrv-secu-trm` command. User permissions can be verified with the `rtrv-user` or `rtrv-secu-user` commands.

For more information about the `canc-cmd` command, refer to the *EAGLE 5 ISS Commands Manual*.

1. Display the state of the DCM running the `ebdadcm` application with the `rept-stat-card` command with the card location recorded in *#unique_51* of the *Activating the LNP Feature Overview* on page 16 procedure.

   The state of the DCM is shown in the `PST` field of the `rept-stat-card` command output. After you have determined that these two cards are present, you can cancel the command.

   ```
   rept-stat-card:loc=1217
   ```

   ```
   rlghncxa03w 07-08-01 09:12:36 GMT  EAGLE5 37.0.0
   CARD    VERSION      TYPE      APPL      PST          SST         AST
   1217   123-000-000  DCM       EBDADCM   IS-NR        Active      -----
     ALARM STATUS      = No Alarms.
     BPDCM GPL         = 002-102-000
     IMT BUS A         = Conn
     IMT BUS B         = Conn
   Command Completed.
   ```

   - If the state of the DCM is not `OOS-MT-DSBLD`, go to *Step 2* on page 32.
   - If the state of the DCM is `OOS-MT-DSBLD`, go to *Step 3* on page 32.

2. Place the DCM out of service using the `rmv-card` command and specifying the card location.
   ```
   rmv-card:loc=1217
   ```

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

3. Remove the IP link from the DCM running the `EBDADCM` application by entering the `chg-ip-lnk` command and specifying the IP address 0.0.0.0.

```
chg-ip-lnk:loc=1217:port=a:ipaddr=0.0.0.0
```

```
rlghncxa03w 07-08-01 09:12:36 GMT  EAGLE5 37.0.0
CHG-IP-LNK: MASP A - COMPLTD
```

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

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

   ```
   dlt-card:loc=1217
   ```

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

5. Verify the changes using the `rtrv-card` command specifying the card that was removed in *Step 4* on page 33.
   ```
   rtrv-card:loc=1217
   ```

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

6. Remove the card from the shelf.

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

   The following messages appear. 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.
   ```

You have now completed this procedure.

Removing the BLM Applied to LSMS BLM-Based Operations

This procedure is used to remove the Bulk Load Module (BLM) applied to LSMS BLM-based operations, recorded in *Step 1.c* on page 17 of the *Activating the LNP Feature Overview* on page 16 procedure, using the `dlt-card` command.

When the LNP feature is activated, BLM-based operations cannot be performed. As a result, this card cannot be in the EAGLE 5 ISS when the LNP feature is activated.

The BLM is shown in the database with the entries TSM in the **TYPE** field and EBDABLM in the **APPL** field of the `rept-stat-card` command output.

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

The BLM must be out of service (OOS-MT-DSBLD) before it can be removed from the database.

⚠ **CAUTION:** Removing the BLM from the database will prevent any BLM-based operations from the LSMS.
CAUTION

1. Display the state of the BLM with the `rept-stat-card` command with the card location recorded in *Step 1.c* on page 17 of the *Activating the LNP Feature Overview* on page 16 procedure.

   The state of the BLM is shown in the **PST** field of the `rept-stat-card` command output. After you have determined that these two cards are present, you can cancel the command.

   `rept-stat-card:loc=1215`

   ```
   rlghncxa03w 07-08-01 09:12:36 GMT  EAGLE5 37.0.0
   CARD   VERSION      TYPE       APPL       PST            SST        AST
   1215   123-002-000  TSM        EBDABLM    IS-NR          Active     -----
     ALARM STATUS       = No Alarms.
     IMT GPL            = 123-000-000
     IMT BUS A          = Conn
     IMT BUS B          = Conn
     SCCP % OCCUP       = 0%
   Command Completed.
   ```

   - If the state of the BLM is not `OOS-MT-DSBLD`, go to *Step 2* on page 34.
   - If the state of the BLM is `OOS-MT-DSBLD`, go to *Step 3* on page 34.

2. Place the BLM out of service using the `rmv-card` command and specifying the card location.
   `rmv-card:loc=1215`

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

3. 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.

   `dlt-card:loc=1215`

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

4. Verify the changes using the `rtrv-card` command and specifying the card that was removed in *Step 3* on page 34.
   `rtrv-card:loc=1215`

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

5. Remove the card from the shelf.

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

   The following messages appear. 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.
   ```

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 36 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 `rtrv-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 36 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 36.

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 38 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 38 to change the Ethernet link parameters.

3. 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.
```

4. 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.
```

5. 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
```

6. Verify the new Ethernet link parameters associated with the Service Module card that was changed in *Step 5* on page 38 by entering the `rtrv-ip-lnk` command with the card location specified in *Step 5* on page 38.

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 38 was not performed, skip *Step 9* on page 39 and *Step 10* on page 39, and go to *Step 11* on page 40.

7. 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
```

8. Verify the new parameters associated with the E5-SM4G card that was changed in *Step 7* on page 39 by entering the `rtrv-ip-card` command with the card location specified in *Step 7* on page 39.

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
```

9. Put the Service Module card that was inhibited in *Step 3* on page 38 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.
```

10. 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 56.

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 41
- *ELAP GUI Menu Section* on page 46
- *ELAP GUI Workspace Section* on page 47

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 14: ELAP GUI Main Screen
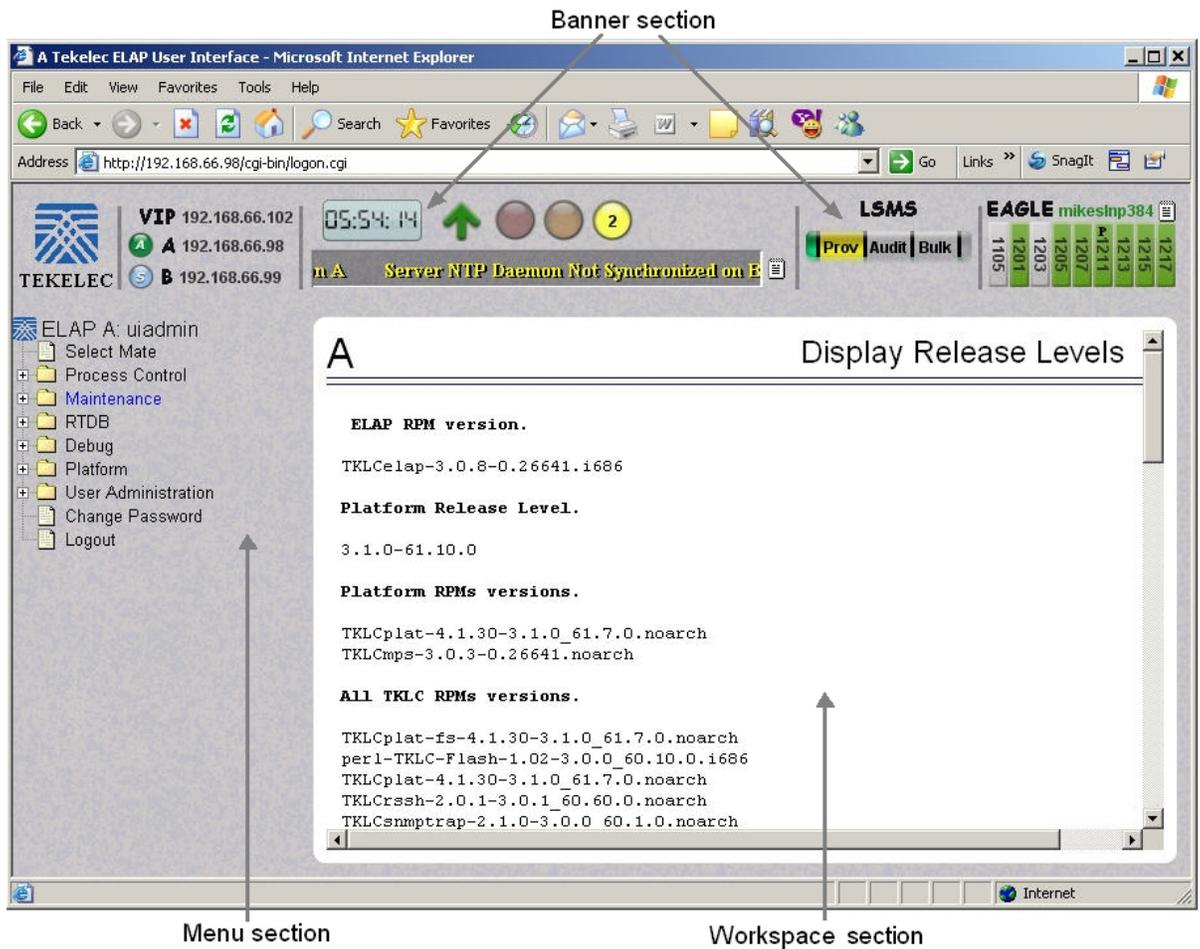
ELAP GUI Banner Section

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 15: ELAP Banner Applet

The banner applet contains five information areas:

- *Busy Icon* on page 42
- *ELAP Host Addresses* on page 42
- *ELAP Alarm Information Area* on page 42
- *LSMS Connection Status* on page 44
- *Service Module Card Status* on page 44

Busy Icon

The Tekelec company logo is located at the top left of the banner applet and performs as the busy icon. Its 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 16: 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 17: ELAP Host Addresses Area
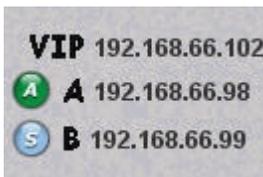
The LEDs provide the following information:

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

Figure 18: ELAP IP Addresses with Inhibited Mate (Standby) ELAP
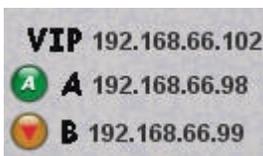
Clicking on an ELAP IP address toggles between the ELAP IP address and the ELAP host name(s).

ELAP Alarm Information Area

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

Figure 19: ELAP Alarm Information Area
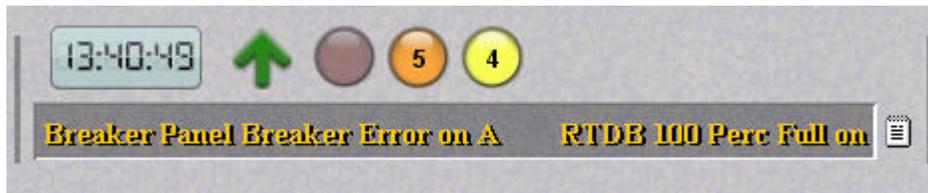
The ELAP alarm information area provides these features:

- 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 19: ELAP Alarm Information Area* on page 42). 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 20: Example of Message History

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 21: LSMS Connection Status Area
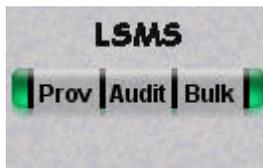
Moving the cursor over any of the five sections displays a pop-up that provides LSMS information.

Figure 22: 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 23: 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 24: 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 25: Service Module Card Status - Java Applet Window

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

Figure 26: 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 27: 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	✔
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 28: Example of an ELAP Menu
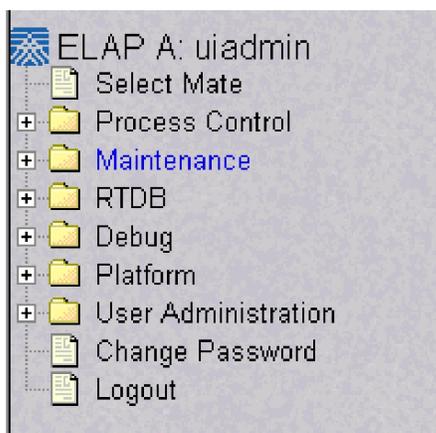
ELAP GUI Workspace Section

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 29: Example of Workspace Section Format
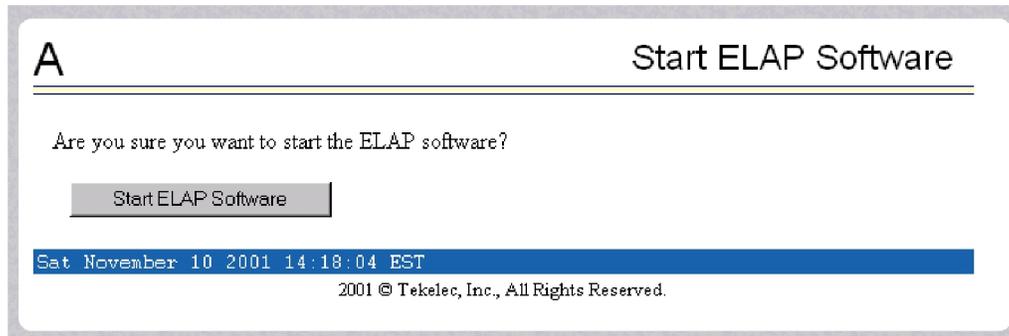
The format for the workspace is a page header and footer, and page margins on either side. In the header two data fields are displayed. The left-justified letter A or B designates the ELAP server that is currently select for menu action. The other data field has the right-justified menu action title. 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 48
2. *Install Java Policy File* on page 50
3. *Add Security Parameters to an Existing Java Policy File* on page 51 or *Create a New Java Policy File* on page 52

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 30: Security Warning Window* on page 48.

Figure 30: 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 31: License Agreement* on page 49.

   Figure 31: License Agreement
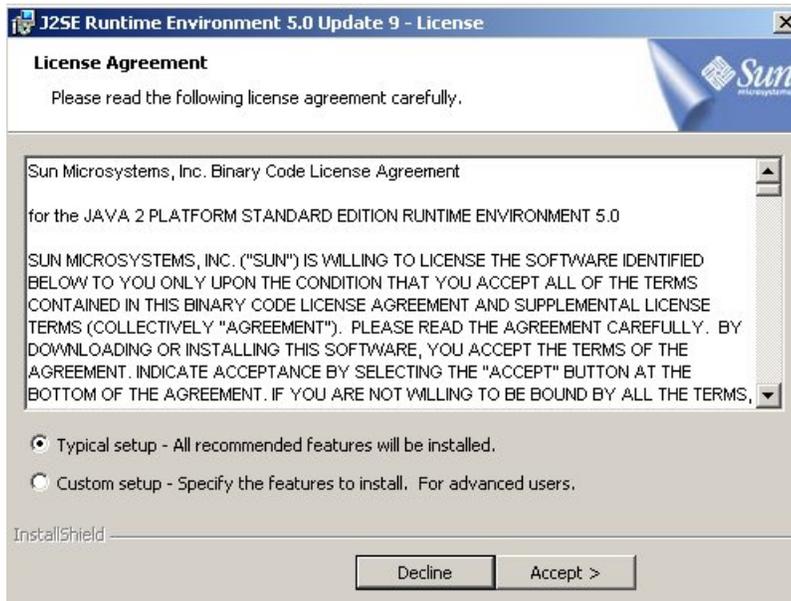
5. Ensure that the **Typical Setup** radio button is selected, and click the **Accept** button to accept the Sun Microsystems agreement.

6. The installation process starts, and a progress window appears as shown in *Figure 32: Java Installation Progress Window* on page 49.

   Figure 32: Java Installation Progress Window
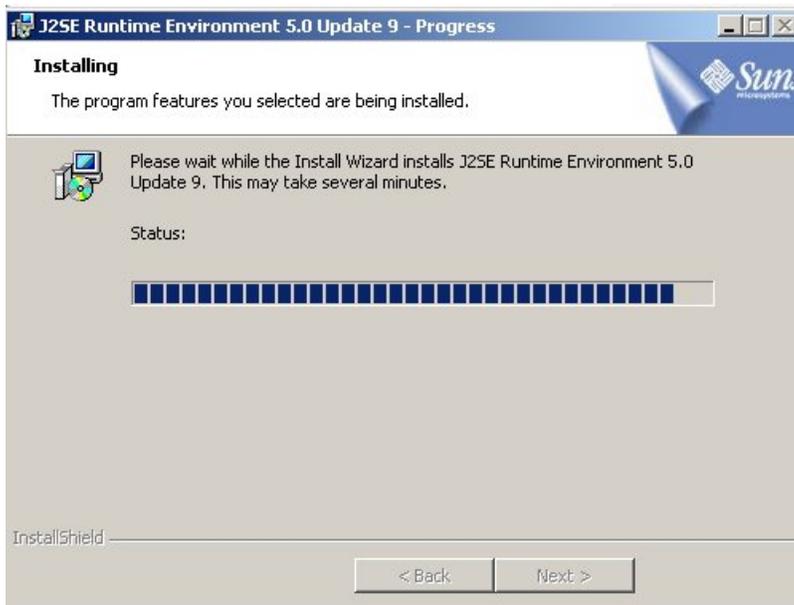
7. When the installation is complete, the Installation Complete window appears as shown in *Figure 33: Java Installation Complete Window* on page 50 .

Figure 33: 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 34: Java Control Panel, Java Tab* on page 51.

   Figure 34: 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 35: Java Runtime Settings Dialog Box* on page 51.

   Figure 35: Java Runtime Settings Dialog Box
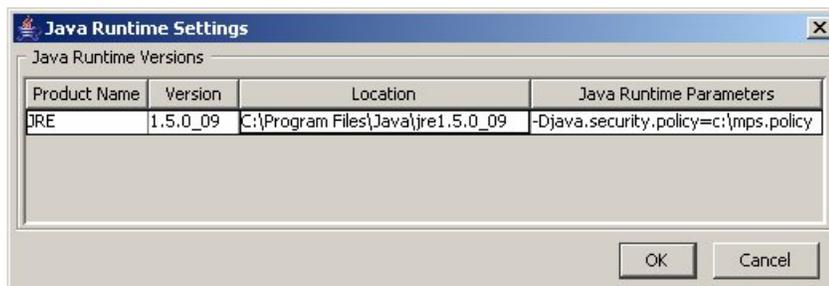
4. Adjust the width of the columns until you can read the contents of the Java Runtime Parameters column (at the far right).

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 51.

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 53 and EAGLE 5 ISS B *Table 7: Information for MPS at EAGLE 5 ISS B* on page 54). 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 A Forwarded LSMS Port	**7483***
MPS A Forwarded Banner Port	
MPS B Forwarded Banner Port	
MPS A Forwarded EBDA Port	**1030***
MPS B Forwarded EBDA Port	**1030***
MPS A Provisioning Static NAT Addr.	. . .

Common Information	
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 Forwarded EBDA Port	**1030***
MPS B Forwarded EBDA Port	**1030***
MPS A Provisioning Static NAT Addr.	. . .

Common Information	
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 headier format in *Figure 36: Configuration Menu Header Format* on page 55.

Figure 36: 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 37: Initial Configuration Text Screen* on page 56.

Figure 37: 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 38: Initial Configuration Continues* on page 57 shows the continuation of the screen information. The installer enters y if the installation is to continue.

Figure 38: 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 53". 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 39: Entering the elapdev Password* on page 57 shows sample output that is generated after the correct password is entered.

Figure 39: 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 39: Entering the elapdev Password* on page 57, the ELAP Configuration Menu is displayed as shown in *Figure 40: ELAP Configuration Menu* on page 58. The `elapconfig` user can now begin configuring the MPS local and remote servers.

Figure 40: 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 41: Example of Display Configuration Output* on page 58.

Figure 41: 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
ELAP A EBDA Connection Port           = Not configured
ELAP B EBDA 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
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 42: Configure Network Interfaces Menu* on page 59. It supports the configuration of all the network interfaces for the ELAP.

Figure 42: 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 43: Configure Provisioning Network Output* on page 60 for the option **1** output.

Figure 43: 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 44: Configure DSM Network* on page 60 for the option **2** output.

Figure 44: 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 54 and *Table 6: Information for MPS at EAGLE 5 ISS A* on page 53.

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 45: Configuring NAT Addresses Prompt* on page 61 shows an example of a resulting prompt.

Figure 45: 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 46: 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 47: Exchange Secure Shell Keys Output* on page 62 for the option 4 output.

Figure 47: 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 48: Change Password* on page 62 for the option 5 output.

Figure 48: 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 49: Platform Menu Output* on page 62 for the option 8 output.

Figure 49: 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:** Rebooting the MPS stops all ELAP processes. Databases cannot be updated until MPS is fully booted.

CAUTION

Halt MPS

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

> ⚠️ **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/rtdbBackup_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 50: Configure NTP Server Output* on page 64 for the option 7 output.

Figure 50: 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 54 .

```
 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
ELAP A EBDA Connection Port            = Not configured
ELAP B EBDA 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**.

```
/-----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
```

4. Choose option **1**, Configure Provisioning Network form 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-\
/----------------------------------------\
| 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 53 and *Table 7: Information for MPS at EAGLE 5 ISS B* on page 54 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...
```

a) 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

5. 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 |
|----|------------------------------------|
|  9 |  Change ELAP A EBDA Connection Port |
|----|------------------------------------|
| 10 |  Change ELAP B EBDA 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 53 and *Table 7: Information for MPS at EAGLE 5 ISS B* on page 54 for the correct information.

Note: The LSMS is not capable of changing the LSMS/EBDA ports it can connect to on the MPS. Therefore, the default values for options 7 through 10 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 53 and *Table 7: Information for MPS at EAGLE 5 ISS B* on page 54.

```
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 (*Step 1.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 lsmssec), 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 73) 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 51: Main Menu View* on page 83.

   Figure 51: 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 52: Platform Folder Open View* on page 83.

   Figure 52: Platform Folder Open View
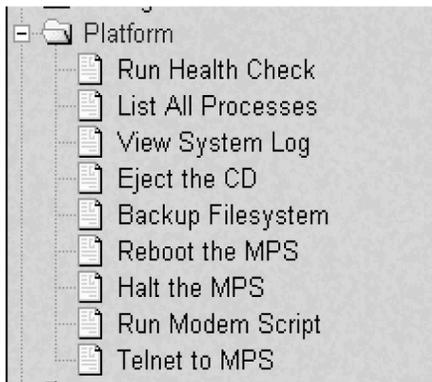
3. When the **GUI** shows you are logged into the desired ELAP, select **Platform ➤ Run Health Check**.

    The Run Health Check dialog opens, *Figure 53: Run Health Check View* on page 84.

    Figure 53: Run Health Check View
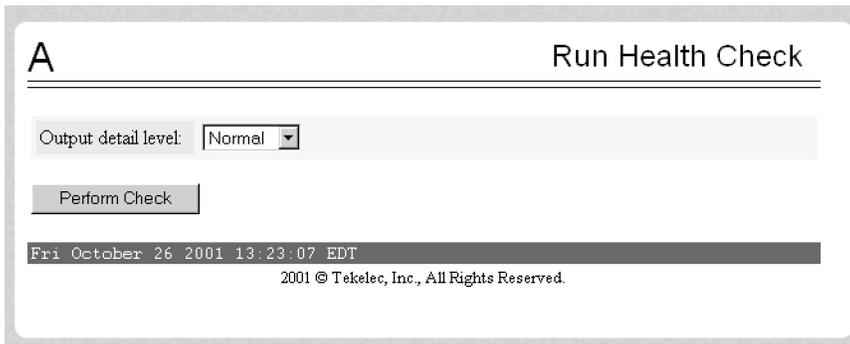
4. On the **Run Health Check** screen, use the pull-down menu to select **Normal** or **Verbose** output detail level.

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

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 54: LNP System Menu – Create EMS* on page 85, select **Configure ➤ LNP System ➤ EMS ➤ Create**.

   Figure 54: LNP System Menu – Create EMS
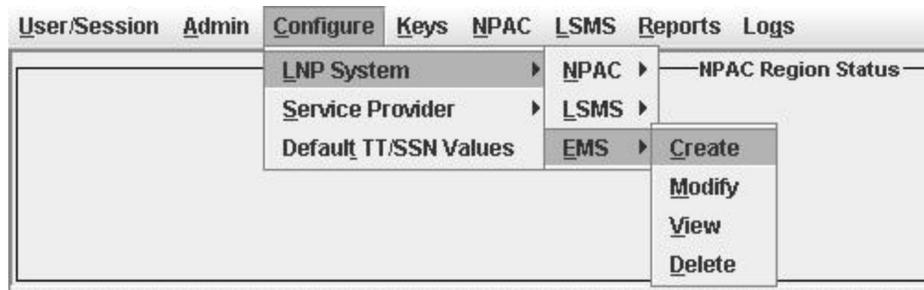
   The EMS Configuration Component window, *Figure 55: Create LNP System EMS Address Info Tab* on page 85 displays. The window usually opens with the **Address Info** tab displayed; if the **Address Info** tab is not displayed, click its tab to display it.

   Figure 55: 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.

   Note: The LSMS no longer supports connections to OAPs.

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 57: Create LNP System EMS Contact Info* on page 88.

Figure 56: 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 56: Create LNP System EMS Component Info* on page 87.

Figure 57: 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 58: Update Successful Dialog* on page 89 appears, click **OK**. The GUI returns to the main console window.

     Figure 58: Update Successful Dialog
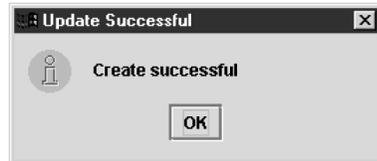
   - When a mandatory field is empty or a field is not properly configured, the **Field Required** *Figure 59: Field Required Dialog* on page 89 dialog displays.

     Figure 59: 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 60: LNP System Menu – Modify EMS* on page 89.

   Figure 60: LNP System Menu – Modify EMS
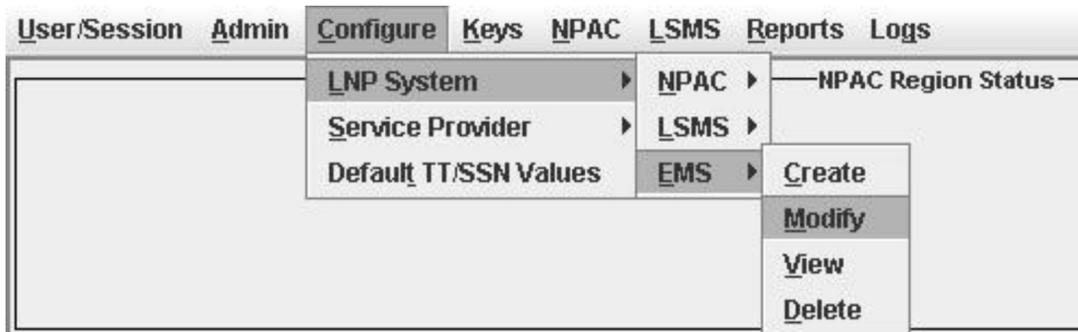
The **Modify LNP System EMS** window, *Figure 61: Modify LNP System EMS Window* on page 90, appears.

Figure 61: 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 62: EMS Routing Dialog* on page 90 .

Figure 62: EMS Routing Dialog
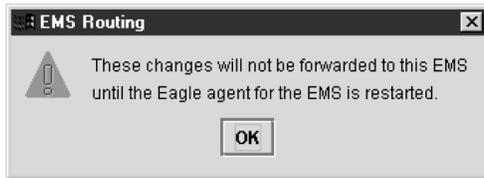
Click **OK**.

The **Update Successful** dialog displays, *Figure 63: Update Successful Dialog* on page 91.

Figure 63: 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 64: More Fields Needed Dialog* on page 91.

Figure 64: 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 65: View LNP System EMS Dialog* on page 91.

   Figure 65: 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 66: Delete LNP System EMS Dialog* on page 92.

   Figure 66: 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 67: Update Successful Dialog* on page 93.

Figure 67: 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 68: ELAP Main Menu* on page 95 .

Figure 68: ELAP Main Menu
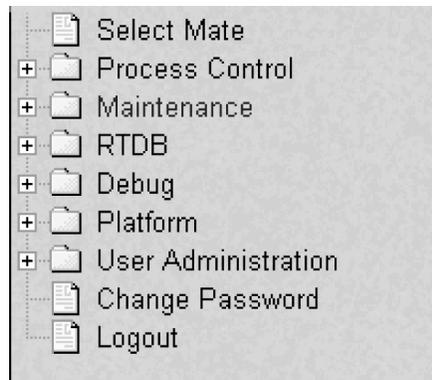
c) Select **Maintenance > LSMS HS Bulk Download > Change Enabled**.

The window shown in *Figure 69: Enabling Change HS Bulk Download* on page 95 displays.

Figure 69: Enabling Change HS Bulk Download
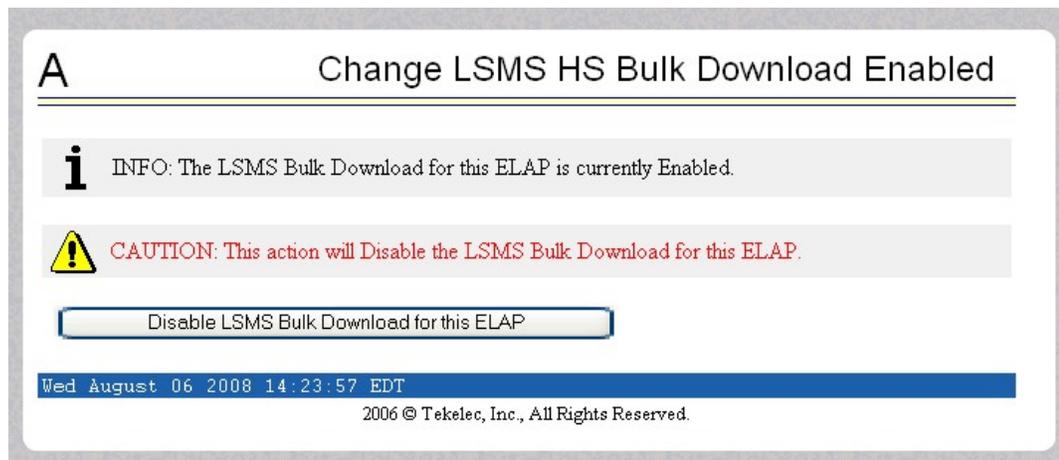
d) If the information field indicates that the Bulkload for the ELAP is currently enabled, click the Disable Bulkload for this ELAP button and this will allow the audit.

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 70: Bulk Load Window* on page 96.

Figure 70: Bulk Load Window
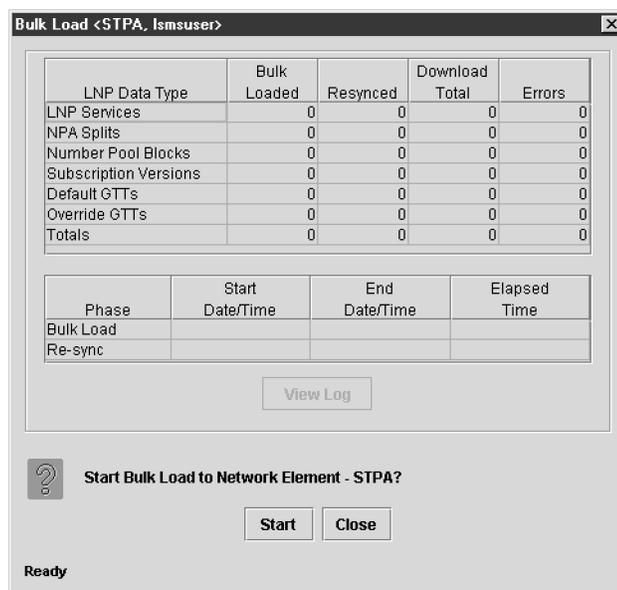
5. To initiate the bulk load, click the **Start** button.

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
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		

Field	Description	Possible Values
ss indicates second, range 00—59		
2 A is appendedat 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 71: Abort Bulk Load Operation Dialog* on page 99.

Figure 71: Abort Bulk Load Operation Dialog
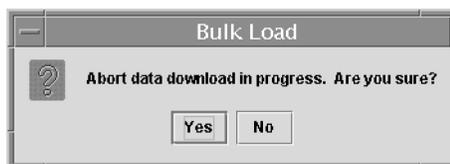
Click the **Yes** button to immediately terminate the operation in progress. Go to *Step 7* on page 99 as if the bulk load had completed.

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 72: Bulk Load Complete Information Dialog* on page 99 displays.

Figure 72: 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 73: Bulk Load Complete* on page 99 .

Figure 73: Bulk Load Complete

Bulk Load <STPA, lsmsall>

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

View Log

Commit or Discard data downloaded to the NE?

Commit   **Discard**

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 74: 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 74: ELAP Reload Via DB Image Function
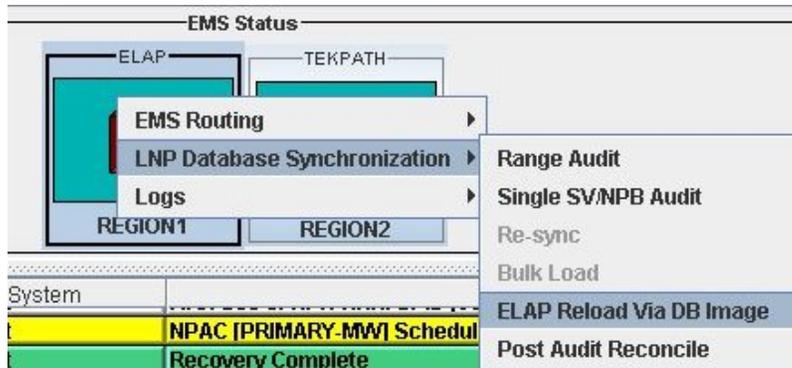
SERVDI Bulk Download

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 75: ELAP Reload Via DB Image
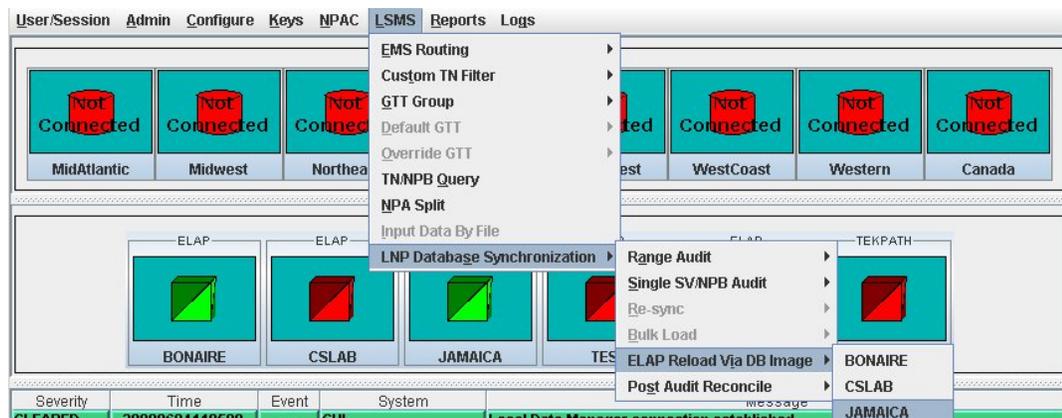
3. Click **Generate Image**.

Figure 76: Generate Image
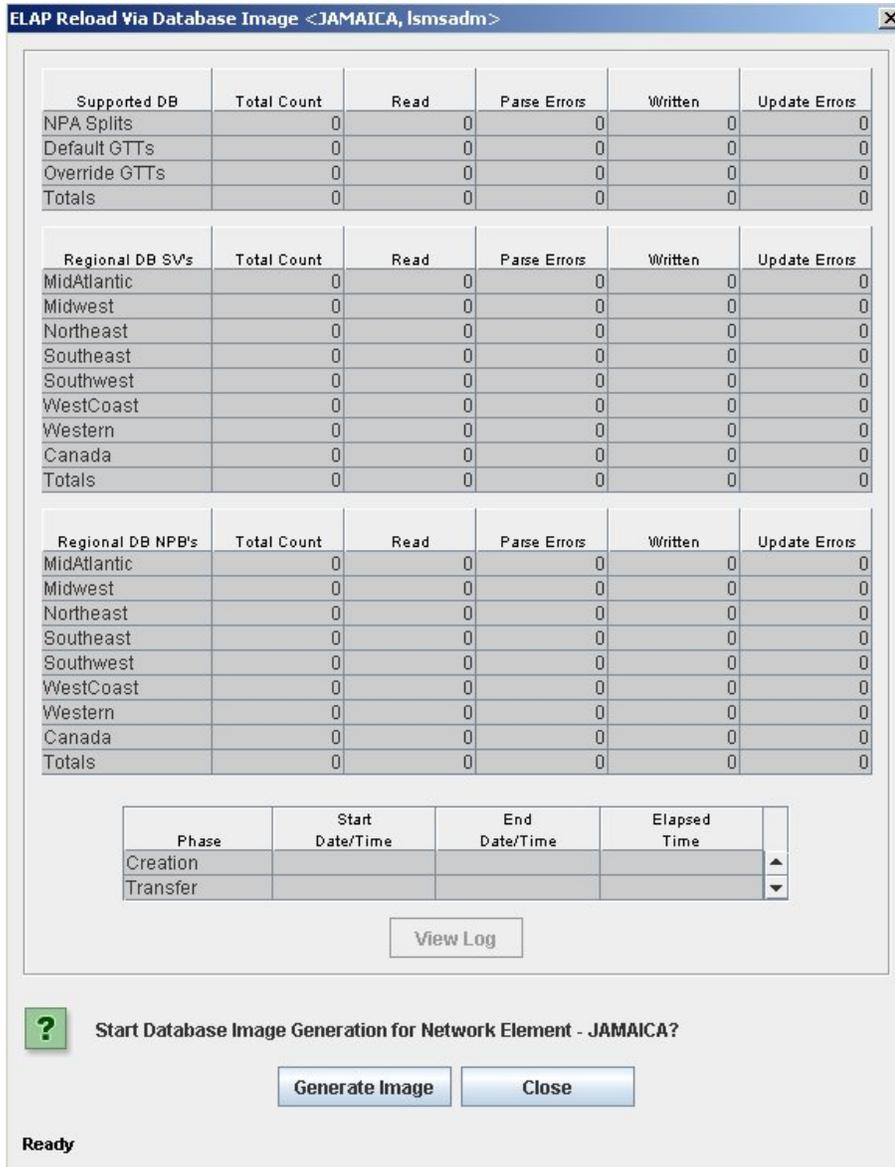
4. The LSMS creates a database file of the ELAP database image. When the process completes, a confirmation dialog appears.

Figure 77: Database Image Completed
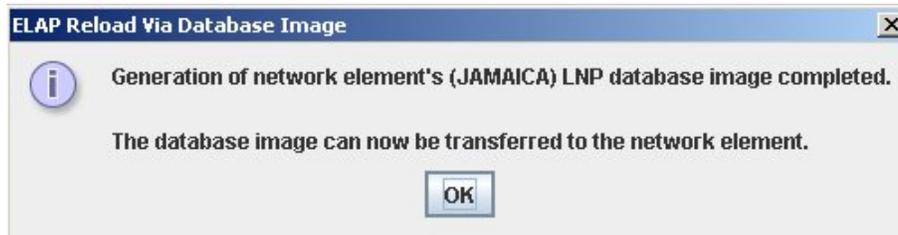
Click **OK** to continue.

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 78: Abort Bulk Download

ELAP Reload Via Database Image <JAMAICA, lsmsadm>

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

Click 'Abort' to Stop Operation.

Abort **Close**

Generating database image, please wait...

Figure 79: 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 80: Transfer Database Image to ELAP
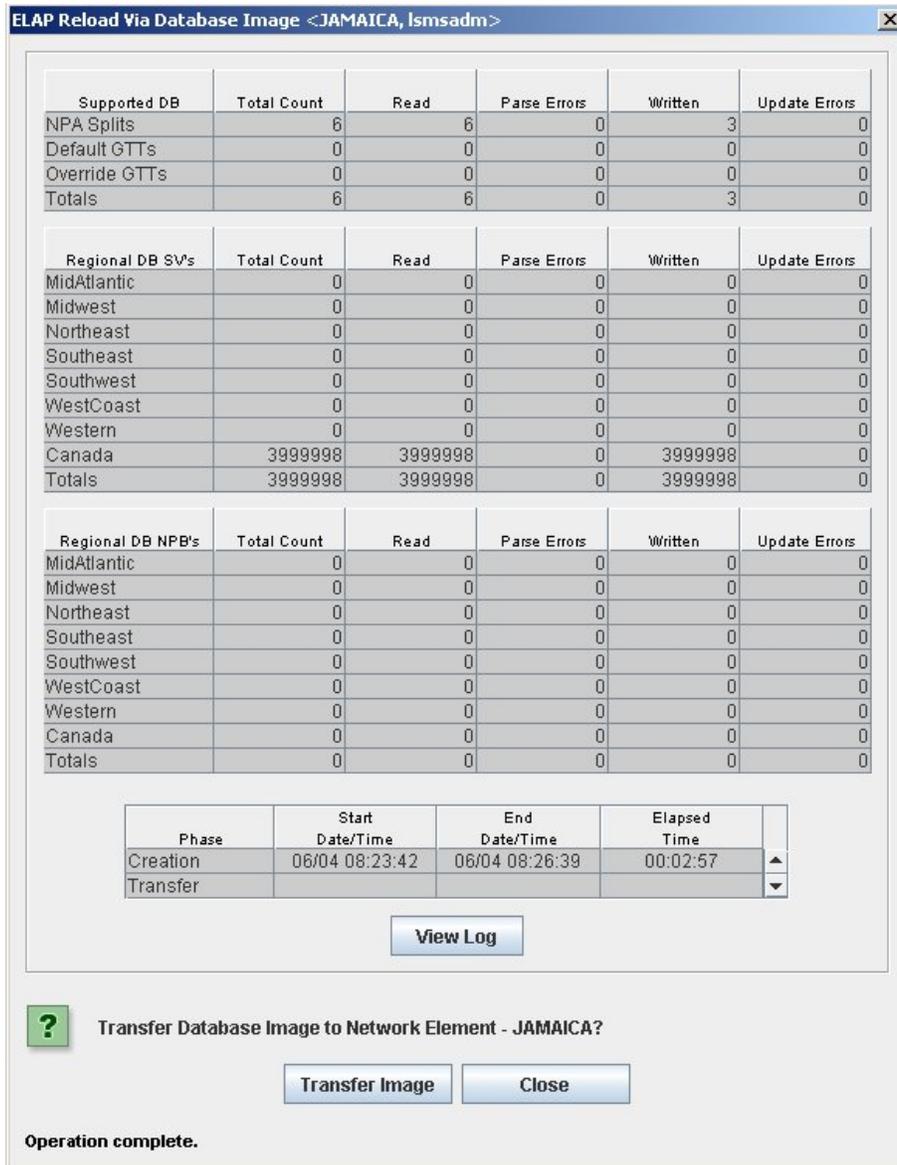
When the transfer completes, a confirmation dialog appears. Click **OK** to continue.

Figure 81: 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 82: 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 82: 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 83: Example Bulk Load Log File on page 107 shows an example of a bulk load log file.

Figure 83: 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 CLLI:  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 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.

```
ELAP A (ACTV)
              C       BIRTHDATE                   LEVEL        EXCEPTION
          -       ----------                  ----------   ----------
RTDB          Y    00-05-01 10:19:18              17283        - RTDB-EAGLE
```

```
00-05-03 16:01:48 17283
     -

ELAP B (STDBY)
               C      BIRTHDATE                LEVEL       EXCEPTION
               -     ----------              ---------    ----------
RTDB           Y      00-05-01 10:19:18        17283        -RTDB-EAGLE
00-05-03 16:01:48 17283
     -
```

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 84: ELAP Main Screen* on page 110 .

    Figure 84: ELAP Main Screen
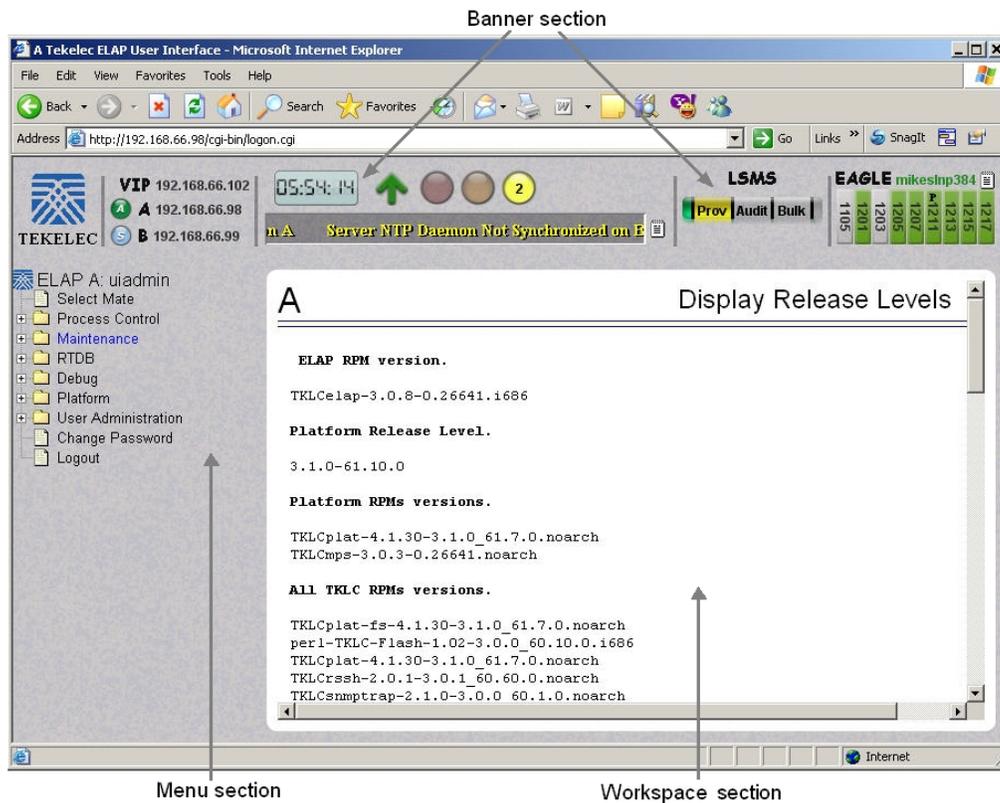
2. From the Main Menu, select **RTDB > View RTDB** Status.

    The ELAP GUI workspace displays the RTDB status, as shown in *Figure 85: ELAP RTDB Status* on page 110.

    Figure 85: 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 86: Stopping Software on the ELAP GUI* on page 111 displays. Click the **Stop ELAP Software** button.

Figure 86: Stopping Software on the ELAP GUI
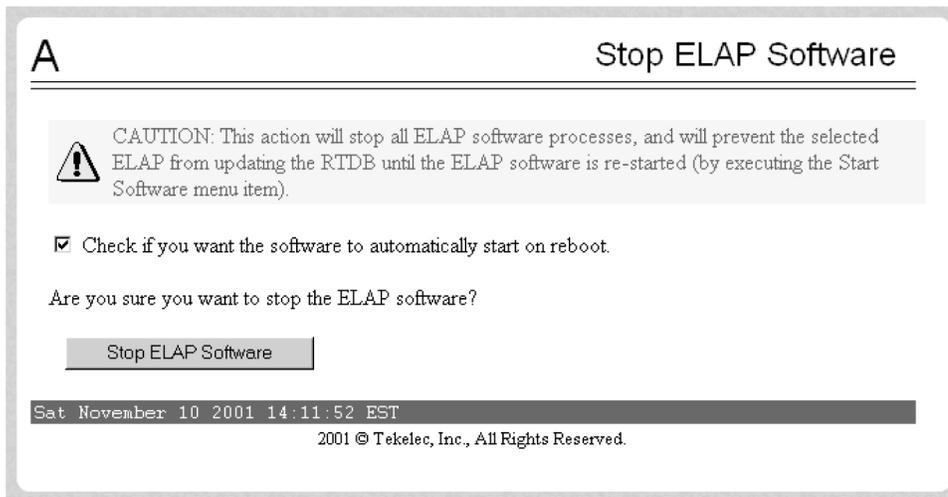
After the software on the selected ELAP has stopped, the screen shown in *Figure 87: Stop ELAP Software - Success* on page 112 is displayed.

Figure 87: Stop ELAP Software - Success

4. Select **RTDB** ➤ **Maintenance** ➤ **Restore RTDB**.

The Restore the RTDB screen displays, *Figure 88: Restore the RTDB* on page 112.

Figure 88: Restore the RTDB
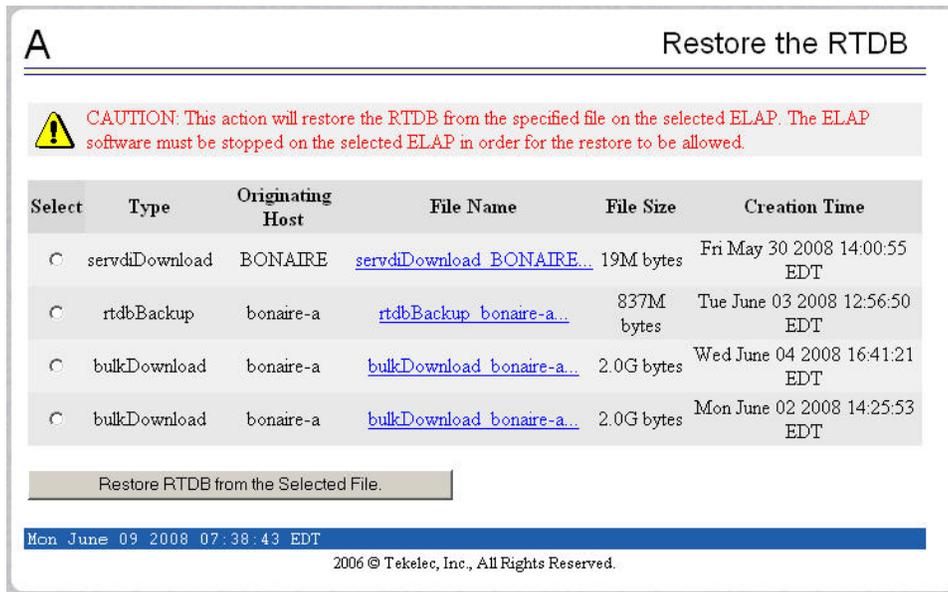
5. Select the appropriate file to restore and click the **Restore RTDB from the Selected File** button.

6. To confirm restoring the file, click the **Confirm RTDB Restore** button on the confirmation dialog, *Figure 89: Confirm RTDB Restore* on page 113.

Figure 89: Confirm RTDB Restore
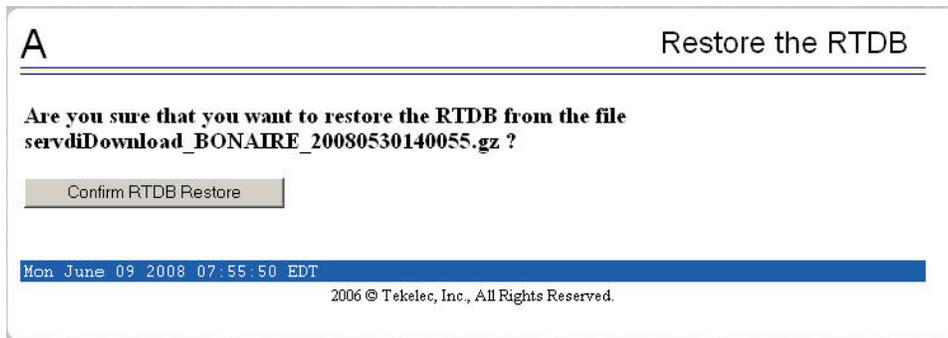
7. After the file is successfully restored, the screen shown in *Figure 90: Successful RTDB Restoration* on page 113 displays.

Figure 90: Successful RTDB Restoration
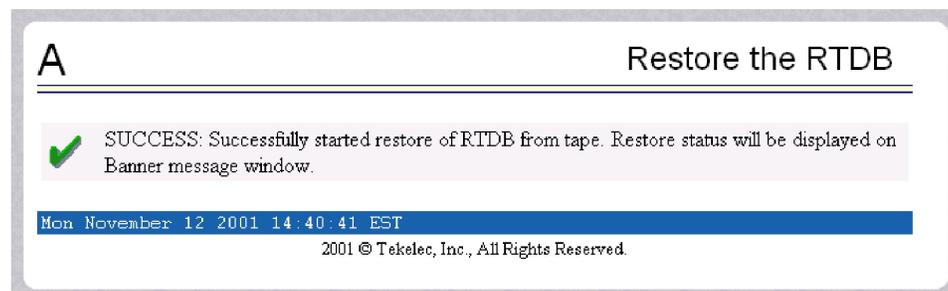
Copy RTDB from Remote on ELAP 8.0

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 91: 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 . Click the **Copy the selected remote RTDB backup** button.

   Figure 92: Copy RTDB from Remote Selection

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:

The LNP feature does not support TSM cards. All TSM cards must be removed to enable this feature. Before performing this procedure, verify the number of TSM cards running the SCCP application in the EAGLE 5 ISS by entering the `rept-stat-sccp` command. The number of TSM cards is shown in the `SCCP Cards Configured` field of the `rept-stat-sccp` output. Perform the *Removing DSM and TSM Cards* on page 30 procedure to remove any TSM cards.

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 13 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 13 for the Service Module card requirements. *Table 2: LNP Hardware and Part Number Configuration Table* on page 13 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 13.

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.

```
rlghncxa03w 07-08-01 16:07:48 GMT  EAGLE5 37.0.0
DATABASE STATUS: >> OK <<
        TDM 1114 ( STDBY)                    TDM 1116 ( ACTV )
         C  LEVEL     TIME LAST BACKUP     C  LEVEL     TIME LAST BACKUP
         - --------  --------------------  - --------  ---------------------
FD BKUP  Y       35 05-03-01 10:19:18 GMT  Y       35 05-03-01 10:19:18 GMT
FD CRNT  Y      106                        Y      106
        MDAL 1117
         - --------
RD BKUP  Y      247 05-02-28 14:29:03 GMT
```

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.

```
rlghncxa03w 07-08-01 16:07:48 GMT  EAGLE5 37.0.0
DATABASE STATUS: >> OK <<
        TDM 1114 ( STDBY)                TDM 1116 ( ACTV )
         C  LEVEL      TIME LAST BACKUP     C  LEVEL      TIME LAST BACKUP
         - --------  --------------------   - --------  --------------------
FD BKUP  Y      106 05-03-01 16:07:48 GMT   Y      106 05-03-01 16:07:48 GMT
FD CRNT  Y      106                         Y      106
        MDAL 1117
         - --------
RD BKUP  Y      106 05-02-28 16:07:48 GMT
```

   • If the databases are not coherent after *Step 2* on page 117 and *Step 3* on page 118 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 118 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    -----
1207  123-001-000   LIMV35   SS7GX25    IS-NR    Active    -----
1208  123-001-000   LIMV35   SS7GX25    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   ACMENET  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 TSM cards running the SCCP application by entering the `rept-stat-sccp` command.

```
tklc1190601 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*.

Note: If the `rtrv-ctrl-feat` output (*Step 1.a* on page 16 in the *Activating the LNP Feature Overview* on page 16) 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 = ntxxxxxxxxxxxxx

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 (*Step 1.a* on page 16 in the *Activating the LNP Feature Overview* on page 16) shows the LNP ELAP Configuration feature is enabled and on, skip *Step 12* on page 120, *Step 13* on page 120 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 120.

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.

13. 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
```

14. 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      ----
```

15. 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 13 in *The LNP Solution* on page 12) 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.

16. 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 TSM card running the SCCP application by entering the `rept-stat-sccp` command.

```
tklc1170501 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 07-08-01 10:23:93 GMT  EAGLE5 37.0.0
                VERSION      PST            SST        AST
ELAP A          030-014-000   IS-NR         Active     -----
    CRITICAL PLATFORM    ALARM DATA = No Alarms
```

```
     MAJOR    PLATFORM    ALARM DATA = No Alarms
     MINOR    PLATFORM    ALARM DATA = No Alarms
     CRITICAL APPLICATION ALARM DATA = No Alarms
     MAJOR    APPLICATION ALARM DATA = No Alarms
     MINOR    APPLICATION ALARM DATA = No Alarms
         ALARM STATUS = No Alarms
                    VERSION      PST            SST        AST
ELAP B              030-014-000  IS-NR          Standby    -----
     CRITICAL PLATFORM    ALARM DATA = No Alarms
     MAJOR    PLATFORM    ALARM DATA = No Alarms
     MINOR    PLATFORM    ALARM DATA = No Alarms
     CRITICAL APPLICATION ALARM DATA = No Alarms
     MAJOR    APPLICATION ALARM DATA = No Alarms
     MINOR    APPLICATION ALARM DATA = No Alarms
         ALARM STATUS = No Alarms
CARD   PST          SST      LNP STAT
1301 P IS-NR        Active   ACT
1303   IS-NR        Active   ACT
1305   IS-NR        Active   ACT
1307   IS-NR        Active   ACT
1311   IS-NR        Active   ACT
CARD 1301 ALARM STATUS = No Alarms
  DSM PORT A:      ALARM STATUS     = No Alarms
  DSM PORT B:      ALARM STATUS     = No Alarms
CARD 1303 ALARM STATUS = No Alarms
  DSM PORT A:      ALARM STATUS     = No Alarms
  DSM PORT B:      ALARM STATUS     = No Alarms
CARD 1305 ALARM STATUS = No Alarms
  DSM PORT A:      ALARM STATUS     = No Alarms
  DSM PORT B:      ALARM STATUS     = No Alarms
CARD 1307 ALARM STATUS = No Alarms
  DSM PORT A:      ALARM STATUS     = No Alarms
  DSM PORT B:      ALARM STATUS     = No Alarms
CARD 1311 ALARM STATUS = No Alarms
  DSM PORT A:      ALARM STATUS     = No Alarms
  DSM PORT B:      ALARM STATUS     = No Alarms
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.

```
rlghncxa03w 07-08-01 16:07:48 GMT  EAGLE5 37.0.0
DATABASE STATUS: >> OK <<
      TDM 1114 ( STDBY )              TDM 1116 ( ACTV )
       C  LEVEL      TIME LAST BACKUP  C  LEVEL      TIME LAST BACKUP
       - --------  --------------------  - --------  --------------------
FD BKUP  Y      35 05-03-01 15:19:18 GMT  Y      35 05-03-01 15:19:18 GMT
FD CRNT  Y      106                       Y      106
      MDAL 1117
       - --------
RD BKUP  -     -          -          -
           ELAP A ( ACTV )
```

```
                    C  BIRTHDATE           LEVEL       EXCEPTION
                    -  -----------------   ----------  --------------
RTDB-EAGLE          Y  05-03-01 15:19:18            0      -
TIME LAST UPDATE       05-03-01 15:19:18
                ELAP B ( STDBY )
                    C  BIRTHDATE           LEVEL       EXCEPTION
                    -  -----------------   ----------  --------------
RTDB-EAGLE          Y  05-03-01 15:19:18            0      -
TIME LAST UPDATE       05-03-01 15:19:18
```

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 15 minutes for an LNP database containing 2,000,000 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: 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 37.5.0
      Card has been inhibited.
      ```

2. Return the Service Module card to service with the `rst-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:

```
rst-card:loc=1301:data=persist
```

After successful completion of this command, the EAGLE 5 ISS returns the following output:

```
rlghncxa03w 06-08-01  11:11:28 GMT  EAGLE5 37.5.0
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 37.5.0
0012.0431    CARD 1301 DSM        LNP database has been corrected
```

4. Repeat steps a and b 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: Enter the `dsm` command.

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=vdsm` command. After the `init-card:appl=vdsm` 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 37.5.0
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.

2. Verify that the Service Module cards are in-service by entering the `rept-stat-dsm` command.

The state of the Service Module cards, shown in the PST field of the `dsm` command output, should be IS-NR (in-service normal). This is an example of the possible output:

```
rlghncxa03w 06-08-01 09:12:36 GMT  EAGLE5 37.5.0
CARD    VERSION     PST            SST        AST       MSU   CPU
                                                        USAGE USAGE
-----------------------------------------------------------------
1301    123-002-001  IS-NR         Active     -----      33%   46%
1303    123-002-001  IS-NR         Active     -----      34%   50%
1305    123-002-001  IS-NR         Active     -----      21%   29%
1307    123-002-001  IS-NR         Active     -----      35%   52%
1311    123-002-001  IS-NR         Active     -----      15%   20%
-----------------------------------------------------------------
DSM 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-dsm` 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-dsm` command, see the `rept-stat-dsm` 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 93: Change LSMS HS Bulk Download Enabled Dialog* on page 127.

Figure 93: Change LSMS HS Bulk Download Enabled Dialog
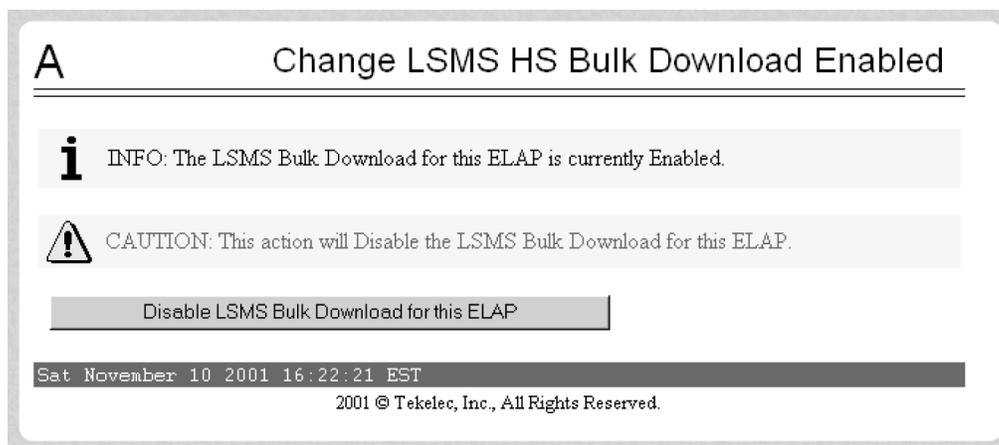
The information field should show that the LSMS Bulk Download for this ELAP is currently enabled.

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_mysqld)
  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 -> RMTP Agent  (rmtpagent)
  proc_app: OK         Found: 1 Expected: 1 -> RMTP Manager  (rmtpmgr)
  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 128.

   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:

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.
- Actvating the ITU TCAP LRN Query (LRNQT) 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 an 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.

1. 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.

2. 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.
Ported MR NPANXX - An MR NPANXX that is marked portable			
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).			
Note: The EAGLE 5 ISS creates an NPANXX entry, if none exists, when it receives a ported subscriber record.			

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 94: 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 94: Message Flow For Global Title and Message Relay

MSU from the
LIM

Does the
MSU require global
title translation?   → No → To
Sheet 2

Notes

1. The number is not known to be ported.

2. Either override MR data or NPAC MR data exists for the 10-digit number and service.

Yes

Is the
translation type an LNP
translation type?   → No → To
Sheet 3

Yes

Is default LNP
translation type data
found?   → No → To
Sheet 4

Yes

Does the result of
GTT indicate message
relay required?   Yes →

No

Use the default data from
LNP GTT   ← No (See Note 1) — Is the 10-digit
telephone number in the
database?   Yes (See Note 2) → To
Sheet 5

To
Sheet 2

From
Sheet 1

Check the Mated
Application table.

Is the DPC in
the mated application
table?

No

Yes

MSU is routed
by MTP.

MSU is routed
to the local
subsystem.

From
Sheet 1

Non-LNP GTT
command: ent-gtt

Is the global title
translation found? — No → Generate UIM

Yes

Use translation data
from non-LNP GTT

Send UDTS if return
on error set

Check the Mated
Application table

Discard MSU

No ← Is the DPC in
the mated application
table? → Yes

MSU is routed
by MTP

MSU is routed
to the local
subsystem

From
Sheet 1

Does the
result of GTT indicate that
message relay is
required?

Yes

Is the 10-digit
telephone number in the
database?

Yes (See
Note 2)

To
Sheet 5

No

No (See
Note 1)

Non-LNP GTT
command: ent-gtt

Is the global title
translation found?

No

Generate UIM

Yes

Notes

1. Either override MR data or NPAC MR
data exists for the 10-digit number and
service.

2. The number is not known to be ported.

Use translation data
from non-LNP GTT

Send UDTS if return
on error set

Check the Mated
Application table

Discard MSU

No

Is the DPC in
the mated application
table?

Yes

MSU is routed
by MTP

MSU is routed
to the local
subsystem

From
Sheet 4

Does the
override MR data exist for
the translation type? — Yes → Use the override
MR data

No

Does the database
contain MR override data,
but not for the translation
type? — No → To
Sheet 6

Yes

Is the Service
Portability option in the
LNP options table set
to yes? — Yes → Use the NPAC
MR data

No

Generate UIM

Check the Mated
Application table

Send UDTS if return
on error set

Is the DPC in
the mated application
table?

No   Yes

Discard MSU

MSU is routed
by MTP

MSU is routed
to the local
subsystem

From
Sheet 5

Does the
database contain
NPAC MR data? — Yes → Use the NPAC
MR data

No

Does NPAC
MR data exist for any
other TT? — No →

Yes

Is the Service
Portability option in the LNP
options table set to yes? — Yes → Use the Default
GTT data → Check the Mated
Application table

No

Generate UIM

Send UDTS if return
on error set

Discard MSU

Is the DPC in
the mated application
table?

No ← → Yes

MSU is routed
by MTP

MSU is routed
to the local
subsystem

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 95: Inter-Network Support for LNP Queries* on page 144.

Figure 95: Inter-Network Support for LNP Queries
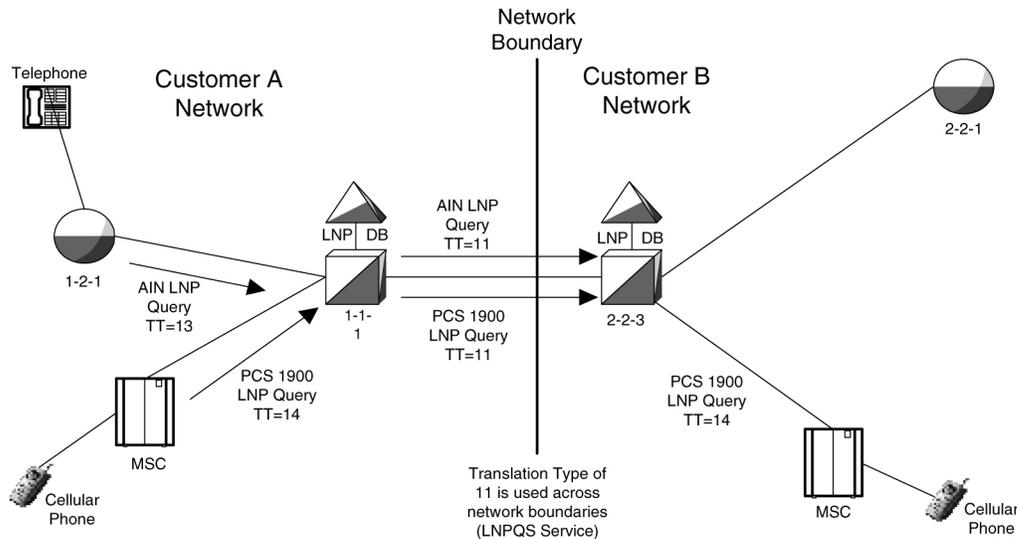
In this example, Network B would not be able to differentiate between the two types of LNP queries received from Network A.

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 96: LNP Query Processing* on page 144

Figure 96: LNP Query Processing

```
  ┌──────────────┐        ┌───────────────────┐
  │  New SCCP    │──────▶ │         1         │
  │   Messge     │        │ Basic MTP and SCCP│
  └──────────────┘        │   Verification    │
                          └───────────────────┘
                                    │
                                    ▼
  ┌──────────────────┐   Yes    ◇────────◇    No
  │        3         │◀─────────│    2   │──────────────┐
  │Service Determination│       │Verification│           │
  └──────────────────┘         │ Passed? │              │
            │                   ◇────────◇               │
            │                        ▼                   │
            │              ◇──────────◇   Yes            │
            └────────────▶ │ Errors?  │─────────────────┐│
                           ◇──────────◇                 ││
                                │ No                     ││
                                ▼                        ││
     ◇──────────◇   Yes  ┌──────────────┐  ◇──────────◇ ││
     │   GTT    │───────▶│      4       │─▶│    5     │No││
     │Required? │        │Find the MSUs │  │Translation│─┴┘
     ◇──────────◇        │ SCCP         │  │ Found?   │  │
          │ No           │Translation   │  ◇──────────◇  ▼
          │              │(RI/PC/SSN)   │      │ Yes  ┌──────────────┐
          │              └──────────────┘      ▼      │      6       │
          │                          ◇──────────◇     │SCCP Error    │
          ▼                          │    7     │     │ Handling     │
  ┌──────────────┐   Yes             │Translated│ No  └──────────────┘
  │      9       │◀──────────────────│ to Local │──┐
  │Forward Message│                  │LNP       │  │
  │to Local      │                   │Subsystem?│  ▼
  │ Subsystem    │                   ◇──────────◇ ┌──────────────┐
  └──────────────┘                                │      8       │
          │                                       │Send Message to│
          ▼                                       │Remote Node   │
  ┌──────────────┐        ◇──────────◇  No  ┌──────────────┐
  │      10      │        │    11    │─────▶│      13      │
  │Protocol Specific│────▶│Verification│    │Protocol Specific│
  │MTP, SCCP,    │        │ Passed?  │      │Error Handling │
  │and TCAP      │        ◇──────────◇      └──────────────┘
  │Verification  │            │ Yes
  └──────────────┘            ▼
                     ┌──────────────┐
                     │      12      │
                     │LRN Look-Up and│
                     │Response      │
                     │Formulation   │
                     └──────────────┘
```

In previous releases, the LNP service (step 3 in *Figure 96: 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 97: LNP Service Determination Process* on page 146 shows the LNP service determination process for queries containing the LNPQS translation type.

Figure 97: LNP Service Determination Process

LNPQS Query successfully passed Basic MTP and SCCP Verification and LNP SERV = LNPQS

MTP portion is already decoded:
MSU Type (ANSI) MSG TYPE (UDT) SCCP CLASS (0)
SCCP portion is already decoded:
CDPA AI (SS Ind, PC Ind, GT Ind, RT Ind, Natl Ind)
CDPA SS, CDPA TT
CGPA AI (SS Ind, PC Ind, GT Ind, RT Ind, Natl Ind)
CGPA PC and Route for it if RT-on-SS
CGPA SS

Decode TCAP portion:
PACKAGE TYPE
TRANSACTION TAG (TCAP TRANSACTION ID)
TRANSACTION ID LENGTH (TCAP_ANSI_TRANS_ID_LENGTH)
COMPONENT TAG (TCAP_COMP_SEQ_ID)
COMPONENT TYPE (INVOKE LAST)
OPCODE TAG (NAT or PRI), FAMILY SPEC
PARAMETER SET ID (SET or SEQUENCE)

TCAP TRANS ID present and has correct length?

No → LNP_ANSI_ABORT (UNRECOG_PACK_TYPE)

Yes ← Pkg Type = QRY_W_Permission?

Yes ↓

Is the Package Length correct?

No → LNP_ANSI_ABORT (BADLY_STRUCT_TRANS_PRTN)

Yes ↓

COMP Portion present and is COMP SEQ

No → LNP_ANSI_REJECT (INCORRECT_COMP_PORT)

Yes ↓

To Sheet 2

LNP_ANSI_ABORT (UNRECOG_PACK_TYPE)

Pkg Type equal to one of these?
QRY_WOUT_PERMISSION
CONV_W_PERMISSION
CONV_WOUT_PERMISSION

Yes ←

No - could be any one of these:
UNIDIRECTIONAL
RESPONSE
ABORT
Any bad PKG TYPE

No Response

Sheet 1 of 3

```
                           ┌─────────┐
                           │  From   │
                           │ Sheet 1 │
                           └────┬────┘
                                │
                                ▼
                            ╱───────╲
                          ╱  COMP has  ╲        No      ┌──────────────────────┐
                          ╲ correct      ╱─────────────▶│   LNP_ANSI_REJECT    │
                            ╲ length?  ╱                 │ (BADLY_STRUCT_COMP)  │
                            ╲───────╱                    └──────────────────────┘
                                │ Yes
                                ▼
                            ╱───────╲
                          ╱ COMPONENT ╲
                        ╱ present and    ╲    No
                        ╲ COMP SEQ has    ╱────────────────────────────────┐
                          ╲ correct length?                                │
                            ╲───────╱                                      │
                                │ Yes                                      │
                                ▼                                          │
                            ╱───────╲                                      │
                          ╱ INVOKE_LAST ╲      No     ┌──────────────────────┐
                          ╲ Component     ╱──────────▶│   LNP_ANSI_REJECT    │
                            ╲ present?   ╱            │ (UNRECOG_COMP_TYPE)  │
                            ╲───────╱                 └──────────────────────┘
                                │ Yes                                      │
                                ▼                                          │
                            ╱───────╲                                      │
                          ╱ INVOKE_LAST ╲     No     ┌──────────────────────┐ │
                          ╲ Component has ╱─────────▶│   LNP_ANSI_REJECT    │ │
                            ╲ INVOKE ID? ╱           │(INCORRECT_COMP_PORT) │ │
                            ╲───────╱                └──────────────────────┘ │
                                │ Yes                                         │
                                ▼                                             ▼
                            ╱───────╲                          ┌──────────────────────┐
                          ╱ INVOKE_LAST ╲     No                │   LNP_ANSI_REJECT    │
                          ╲ Component has ╱──────────────────▶  │ (BADLY_STRUCT_COMP)  │
                            ╲ correct length?                   └──────────────────────┘
                            ╲───────╱
                                │ Yes
                                ▼
                           ┌─────────┐
                           │   To    │
                           │ Sheet 3 │
                           └─────────┘
```

Sheet 2 of 3

```
                              From
                             Sheet 2


              OPCODE TAG = PRI
        OPCODE FAMILY = REQUEST INSTRUCT        Yes        LNP Service is AIN
          OPCODE SPEC = INFO ANALYZED

                    No


               OPCODE TAG = NAT
           OPCODE FAMILY = PROVIDE            Yes          LNP Service is IN
               INSTRUCTION
          OPCODE SPEC = IN START

                    No


              OPCODE TAG = PRI
        OPCODE FAMILY = IS41 OP FAMILY         Yes         LNP Service is WNP
          OPCODE SPEC = IS41 NUM PORT
                   REQ

                    No
                                                          Continue to LNP Query SCCP
                                                          Global Title Translation (see the
              LNP Service is                              LNP Query Processing figure,
               Undefined                                  block 4)
```

Sheet 3 of 3

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 a 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=wsmsc` 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 192 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 158 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
    HC-MIM SLK Capacity      893012707  on            64
    Command Class Management 893005801  on          ----
    LNP Short Message Service 893006601 on          ----
    Prepaid SMS Intercept Ph1 893006701 on          ----
    Intermed GTT Load Sharing 893006901 on          ----
    MNP Circ Route Prevent   893007001  on          ----
    XGTT Table Expansion     893006101  on        400000
    XMAP Table Expansion     893007710  on          3000
    Large System # Links     893005910  on          2000
    Routesets                893006403  on          8000
    EAGLE5 Product           893007101  on          ----
    EAGLE Product            893007201  off         ----
    IP7 Product              893007301  off         ----
    Network Security Enhance 893009101  off         ----
    Telnet                   893005701  on          ----
    Port Chk for MO SMS      893009301  on          ----
    SCCP Loop Detection      893016501  off         ----
    LNP ELAP Configuration   893010901  on          ----
    LNP ported TNs           893011036  on     384000000
    LNP ported LRNs          893010501  on        200000
    LNP ported NPANXXs       893009402  on        350000
    15 Minute Measurements   893012101  off         ----
    EIR                      893012301  on          ----
    EAGLE OA&M IP Security   893400001  off         ----
    SCCP Conversion          893012001  on          ----
    SE-HSL SLK Capacity      893013005  on            64
    GPORT                    893017201  on          ----
    APORT                    893016601  on          ----
    IS41 GSM Migration       893017301  off         ----
    MTP Msgs for SCC Apps    893017401  off         ----
    INP                      893017901  on          ----
    G-Flex MAP Layer Routing 893021701  on          ----
    ```

```
    G-Flex                    893021901  on          ----
;
```

If the LNP feature is not enabled, perform the procedures in *LNP Feature Activation* on page 11 to enable the LNP feature. Go to *Step 2* on page 154. If the LNP feature is enabled, go to *Step 2* on page 154.

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 155, and go to *Step 6* on page 155.

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 155 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 155 and go to *Step 7* on page 155.

6. If the `rtrv-ctrl-feat` output in *Step 1* on page 153shows 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 192 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.

7. 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 154 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 158 and change the translation type of the service using translation type 11.

8. 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=wsmsc:tt=139:ttn=wsmsc1:dv=tcap`
- `ent-lnp-serv:serv=lnpqs:tt=11:ttn=lnpqs:dv=tcap`

If the LNP services CLASS, CNAM, LIDB, or ISVM are specified by the `serv` parameter of the `ent-lnp-serv` command, this caution message is displayed indicating that the OAP configuration must be updated with the new LNP service information.

```
CAUTION: LNP service TTs have changed, OAP configuration is required
```

There is no need to update the OAP configuration because the OAP is no longer used for the LNP feature. You may go to the next step. When each of these commands have successfully completed, this message should appear.

```
rlghncxa03w 07-08-28 14:42:38 GMT EAGLE5 37.0.0
ENT-LNP-SERV: MASP A - COMPLTD
```

9. 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)
```

10. 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`

    If the LNP services CLASS, CNAM, LIDB, or ISVM are specified by the `serv` parameter of the `dlt-lnp-serv` command, this caution message is displayed indicating that the OAP configuration must be updated with the new LNP service information.

    ```
    CAUTION: LNP service TTs have changed, OAP configuration is required
    ```

    There is no need to update the OAP configuration because the OAP is no longer used for the LNP feature. You may go to the next step. When each of this command has successfully completed, this message should appear.

    ```
    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 `wsmsc`, the value of the `ndv` parameter must be `sccp`.

If the value of the `serv` parameter is a 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`, `lidb`, `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 159.

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 159, 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 160. 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 160, *Step 4* on page 160, *Step 5* on page 160, and *Step 6* on page 161, and go to *Step 7* on page 161. 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 160, *Step 4* on page 160, and *Step 5* on page 160, and go to *Step 6* on page 161.

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 160 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
```

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 the LNP service name (`serv` parameter value) is being changed to a service name other than WSMSC, skip *Step 6* on page 161 and go to *Step 7* on page 161.

6. 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 161. 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 192 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 161, and go to *Step 9* on page 162 to add the new alias translation type values.

7. Change the LNP service using the `chg-lnp-serv` command.

   For this example, enter these commands.

```
chg-lnp-serv:serv=ain:ntt=55:nttn=ainlidb
chg-lnp-serv:serv=class:ntt=140:nttn=none:ndv=tcap
chg-lnp-serv:serv=wnp:ntt=75:nttn=wnp75:ndv=tcap
```

   If the LNP services CLASS, CNAM, LIDB, or ISVM are specified by the `serv` parameter of the `chg-lnp-serv` command, this caution message is displayed indicating that the OAP configuration must be updated with the new LNP service information.

```
CAUTION: LNP service TTs have changed, OAP configuration is required
```

   There is no need to update the OAP configuration because the OAP is no longer used for the LNP feature. You may go to the next step. When each of these commands have successfully completed, this message should appear.

```
rlghncxa03w 07-08-28 14:42:38 GMT EAGLE5 37.0.0
CHG-LNP-SERV: MASP A - COMPLTD
```

8. 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)
```

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`

   If the LNP services CLASS, CNAM, LIDB, or ISVM are specified by the `serv` parameter of the `ent-lnp-serv` command, this caution message is displayed indicating that the OAP configuration must be updated with the new LNP service information.

   ```
   CAUTION: LNP service TTs have changed, OAP configuration is required
   ```

   There is no need to update the OAP configuration because the OAP is no longer used for the LNP feature. You may go to the next step. When each of these commands have successfully completed, this message should appear.

   ```
   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 11 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         ----
      Prepaid SMS Intercept Ph1 893006701  on         ----
      Intermed GTT Load Sharing 893006901  on         ----
      MNP Circ Route Prevent    893007001  on         ----
      XGTT Table Expansion      893006101  on       400000
      XMAP Table Expansion      893007710  on         3000
      Large System # Links      893005910  on         2000
      Routesets                 893006403  on         8000
      EAGLE5 Product            893007101  on         ----
      EAGLE Product             893007201  off         ----
      IP7 Product               893007301  off         ----
      Network Security Enhance  893009101  off         ----
      Telnet                    893005701  on         ----
      Port Chk for MO SMS       893009301  on         ----
      SCCP Loop Detection       893016501  off         ----
      LNP ELAP Configuration    893010901  on         ----
      LNP ported TNs            893011036  on    384000000
      LNP ported LRNs           893010501  on       200000
      LNP ported NPANXXs        893009402  on       350000
      15 Minute Measurements    893012101  off         ----
      EIR                       893012301  on         ----
      EAGLE OA&M IP Security     893400001  off         ----
      SCCP Conversion           893012001  on         ----
      SE-HSL SLK Capacity       893013005  on           64
      GPORT                     893017201  on         ----
      APORT                     893016601  on         ----
      IS41 GSM Migration        893017301  off         ----
      MTP Msgs for SCC Apps     893017401  off         ----
      INP                       893017901  on         ----
      G-Flex MAP Layer Routing  893021701  on         ----
      G-Flex                    893021901  on         ----
;
```

If the LNP feature is not enabled, perform the procedures in *Activating the LNP Feature Overview* on page 16 to enable the LNP feature. Go to *Step 2* on page 164. If the LNP feature is enabled, go to *Step 2* on page 164.

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
SS-APPL table is (0 of 1)  0% full
```

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 164) 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 (1 of 1) 100% full
   ```

7. 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.

1. 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% LNPMR = 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 (1 of 1) 100% full
```

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 166, skip *Step 3* on page 167 and *Step 4* on page 167, and go to *Step 5* on page 168.

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 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.
```

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% LNPMR = 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.

5. Remove the LNP subsystem application from the database using the dlt-ss-appl command.

For this example, enter this command. dlt-ss-appl:appl=lnpWhen each of this command has successfully completed, this message should appear.

```
rlghncxa03w 07-08-28 14:42:38 GMT EAGLE5 37.0.0
DLT-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
SS-APPL table is (0 of 1) 0% full
```

7. 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 (1 of 1) 100% full
```

   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% LNPMR = 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.

3. Place the LNP subsystem out of service with the inh-map-ss command specifying the LNP subsystem number displayed in *Step 2* on page 169.

   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% LNPMR = 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.

5. 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
```

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        OFFLINE
SS-APPL table is (1 of 1) 100% full
```

7. 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

`:aud` – the audit indicator

`: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 11 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 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 192.

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 changes these LNP options to these values.

AMASLPID = 909873583

AMACTYPE = 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
 IPGWx Signaling TPS     893012805  on          2000
 HC-MIM SLK Capacity     893012707  on            64
 ISUP Normalization      893000201  on          ----
 Large System # Links    893005910  on          2000
 Routesets               893006403  on          8000
 EAGLE5 Product          893007101  on          ----
 EAGLE Product           893007201  off         ----
 Telnet                  893005701  on          ----
 LNP ELAP Configuration  893010901  on          ----
 LNP ported TNs          893011023  on     228000000
 LNP ported LRNs         893010501  on        150000
```

```
    LNP ported NPANXXs        893009402  on        300000
;
```

If the LNP feature is not enabled, perform the procedures in the *LNP Feature Activation* on page 11 to enable the LNP feature. Go to *Step 2* on page 174. If the LNP feature is enabled, go to *Step 2* on page 174.

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
AMACTYPE    = 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 174).

Note: If the `rtrv-ctrl-feat` output in *Step 1* on page 173 showed that the LNP feature was not enabled, skip this step and go to step *Step 4* on page 174.

Note: If the `wqredrct`, `jipprv`, or `jipdigits` parameters are not being specified in this procedure, skip steps *Step 3* on page 174, *Step 4* on page 174, and *Step 5* on page 175, and go to step *Step 6* on page 175.

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 174 are on, skip this step and go to *Step 5* on page 175.

4. If either the `WNP`, `PLNP`, or `TLNP` fields in *Step 3* on page 174 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 `wsmsc10dig` parameter is not being specified in this procedure, skip this step and go to step 5.

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 192 and enable and turn on the LNP SMS feature.

6. 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
```

7. 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
AMACTYPE   = 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.
```

Mapping LNP Translation Types

This procedure is used to change globally administered NGT and RGTA indications for each point code and translation type combinations for a group of existing telephone numbers in the database using the `chg-lnp-ttmap` command.

The `chg-lnp-ttmap` command uses these parameters.

`:tt` – the LNP translation type

`:pc/pca` – the point code assigned to the LNP translation type

`:nngt` – the LNP new translation type

`:nrgta` – the new value showing whether the global title address is replaced by the location routing number

The LNP feature must be enabled. Verify this by entering the `rtrv-ctrl-feat` command. If the LNP feature is enabled, the entry `LNP 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 11 and enable the LNP feature.

The translation type (`tt`) cannot be in the database as an alias translation type, but must be assigned to an LNP service. 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 translation type cannot be assigned to either the AIN or IN services. This is shown in the `SERV` field of the `rtrv-lnp-serv` command output.

The message relay default global title translation point code must be in the routing table. This can be verified with the `rtrv-rte` command. If the default global title translation point code is not in the routing table, it must be added using one of the "Adding a Route" procedures or the "Changing a Route" procedure in the Database *Administration Manual – SS7* .

At least one of these parameters, `nngt` or `nrgta`, must be specified.

If the `nngt` or `nrgta` parameters are specified, the NGT or RGTA portions of the message relay global title translation entries in the database that contain the specified translation type and point code are changed. Any future message relay global title translations entered into the database that contain the specified point code and translation type will use the values for theNGT andRGTA specified by the `chg-lnp-ttmap` command.

All NPANXXs and telephone number entries in the database that reference the point code specified with the `pc/pca` parameter are changed by the `chg-lnp-ttmap` command.

If the `nrgta=yes` parameter is specified, a location routing number must be associated with the message relay global title translation. This is verified by examining the LNP data on the ELAP. See the *EAGLE 5 ISSELAP Administration Manual* for the procedures for examining the LNP data.

If `nngt` parameter is specified, the XLAT portion of the message relay global title translation must be equal to DPCNGT and the RI portion of the message relay global title translation must be equal to GT. If they are not, these values will be changed to DPCNGT and GT respectively.

If the `nngt=none` parameter is specified, the XLAT portion of the message relay global title translation is changed to DPC and the RI portion of the message relay global title translation is changed to GT. If the translation type and point code combination does not exist in the database, this command creates one.

Canceling the `RTRV-RTE` Command

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

- Press the `F9` function key on the keyboard at the terminal where the `rtrv-rte` command was entered.

- Enter the `canc-cmd` without the `trm` parameter at the terminal where the `rtrv-rte` command was entered.

- Enter the `canc-cmd:trm=<xx>`, where `<xx>` is the terminal where the `rtrv-rte` command was entered, from another terminal other that the terminal where the `rtrv-rte` 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 LNP feature is enabled by entering the `rtrv-ctrl-feat` command.

   If the LNP feature is enabled, the entry `LNP 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         ----
    Prepaid SMS Intercept Ph1 893006701 on         ----
    Intermed GTT Load Sharing 893006901 on         ----
    MNP Circ Route Prevent  893007001  on          ----
    XGTT Table Expansion    893006101  on        400000
    XMAP Table Expansion    893007710  on          3000
    Large System # Links    893005910  on          2000
    Routesets               893006403  on          8000
    EAGLE5 Product          893007101  on          ----
    EAGLE Product           893007201  off         ----
    IP7 Product             893007301  off         ----
    Network Security Enhance 893009101 off         ----
```

```
      Telnet                    893005701  on            ----
      Port Chk for MO SMS       893009301  on            ----
      SCCP Loop Detection       893016501  off           ----
      LNP ELAP Configuration    893010901  on            ----
      LNP ported TNs            893011036  on       384000000
      LNP ported LRNs           893010501  on          200000
      LNP ported NPANXXs        893009402  on          350000
      15 Minute Measurements    893012101  off           ----
      EIR                       893012301  on            ----
      EAGLE OA&M IP Security    893400001  off           ----
      SCCP Conversion           893012001  on            ----
      SE-HSL SLK Capacity       893013005  on              64
      GPORT                     893017201  on            ----
      APORT                     893016601  on            ----
      IS41 GSM Migration        893017301  off           ----
      MTP Msgs for SCC Apps     893017401  off           ----
      INP                       893017901  on            ----
      G-Flex MAP Layer Routing  893021701  on            ----
      G-Flex                    893021901  on            ----
;
```

If the LNP feature is not enabled, perform the procedures in *LNP Feature Activation* on page 11 and enable the LNP feature. Go to *Step 2* on page 178. If the LNP feature is enabled, go to *Step 2* on page 178.

2. Display the mapped LNP global title translations in the database with the `rtrv-lnp-ttmap` command.

This is an example of the possible output.

```
rlghncxa03w 07-08-28 14:42:38 GMT EAGLE5 37.0.0
TT   PCA          NGT  RGTA
16   001-001-001  0    yes
16   100-100-100  28   yes
18   002-002-002  10    no
20   006-006-006  80    no
25   010-010-010  40   yes
Message Relay Table is 1% full
```

Note:

If the `nrgta=yes` parameter will not be specified with the `chg-lnp-ttmap` command, skip *Step 3* on page 178, and go to *Step 4* on page 178.

3. If the `nrgta=yes` parameter is to be specified with the `chg-lnp-ttmap` command, a location routing number must be associated with the message relay global title translation.

This is verified by examining the LNP data on the ELAP. See the EAGLE *5* ISS ELAP *Administration Manual* for the procedures for examining the LNP data.

Note: If the `nrgta=yes` parameter will be specified with the `chg-lnp-ttmap` command and *Step 3* on page 178 was performed, skip *Step 4* on page 178, and go to *Step 5* on page 179.

4. Display the LNP translation types 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)
```

5. Display the routes in the database using the `rtrv-rte` command.

   The following is an example of the possible output.

```
rlghncxa03w 07-08-28 14:42:38 GMT EAGLE5 37.0.0
DPCA           ALIASI      ALIASN/N24     LSN        RC     APCA
001-001-001 ---------- --------------    lsn4       10     001-001-001
                                         ls04       20     001-002-003
                                             RTX:No  CLLI=lsn4clli
001-001-002 ---------- --------------    lsn2       10     001-001-002
                                             RTX:No  CLLI=lsn2clli
001-002-003 ---------- --------------    ls04       10     001-002-003
                                             RTX:No  CLLI=ls04clli
002-002-002 ---------- --------------    ls01       10     002-002-002
                                         ls02       20     004-004-004
                                         ls03       30     003-003-003
                                             RTX:No  CLLI=ls01clli
002-002-004 ---------- --------------    lsn3       10     002-002-004
                                             RTX:No  CLLI=lsn3clli
002-007-008 ---------- --------------    ls06       10     002-007-008
                                             RTX:No  CLLI=ls06clli
003-003-003 ---------- --------------    ls03       10     003-003-003
                                         ls01       20     002-002-002
                                         ls02       30     004-004-004
                                             RTX:No  CLLI=ls03clli
003-003-005 ---------- --------------    lsn4       10     003-003-005
                                             RTX:No  CLLI=lsn4clli
004-004-004 ---------- --------------    ls02       10     004-004-004
                                         ls01       20     002-002-002
                                         ls03       30     003-003-003
                                             RTX:No  CLLI=ls02clli
005-005-005 ---------- --------------    lsn5       10     005-005-005
                                             RTX:No  CLLI=lsn5clli
006-006-006 ---------- --------------    lsn6       10     006-006-006
                                             RTX:No  CLLI=lsn6clli
007-007-007 ---------- --------------    lsn7       10     007-007-007
                                             RTX:No  CLLI=lsn7clli
010-010-010 ---------- --------------    lsn8       10     010-010-010
                                             RTX:No  CLLI=lsn8clli
100-100-100 ---------- --------------    lsn9       10     100-100-100
                                             RTX:No  CLLI=lsn9clli
100-100-110 ---------- --------------    lsn0       10     100-100-110
                                         lsn9       20     100-100-100
                                             RTX:No  CLLI=lsn0clli
150-175-000 ---------- --------------    ls10       10     150-175-000
                                             RTX:No  CLLI=lsn10clli
200-150-007 ---------- --------------    ls11       10     200-150-007
                                         ls10       10     150-175-000
                                             RTX:No  CLLI=lsn11clli
200-200-200 ---------- --------------    ls12       10     200-200-200
                                             RTX:No  CLLI=lsn12clli
DPCI        ALIASN/N24       ALIASA      LSN        RC     APC
DPCN           ALIASA        ALIASI      LSN        RC     APC
DPCN24         ALIASA        ALIASI      LSN        RC     APC
```

6. Using the outputs of *Step 3* on page 178, *Step 4* on page 178, and *Step 5* on page 179 as a guide, enter the mapped LNP translation types into the database using the chg-lnp-ttmap command.

   If *Step 3* on page 178 was performed, select a translation type and point code combination from LNP database on the ELAP that have an LRN associated with it. If *Step 4* on page 178 was performed, select a translation type from the rtrv-lnp-serv output (*Step 4* on page 178) that is not assigned to the AIN or IN LNP services and a point code from the rtrv-rte output (*Step 5* on page 179). For this example, enter these commands.

   ```
   chg-lnp-ttmap:tt=10:pc=003-003-005:nngt=60
   chg-lnp-ttmap:tt=50:pc=005-005-005:nngt=70:nrgta=yes
   chg-lnp-ttmap:tt=18:pc=200-200-200:nrgta=yes
   ```

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

   ```
   rlghncxa03w 07-08-28 14:42:38 GMT EAGLE5 37.0.0
   CHG-LNP-TTMAP: MASP A - COMPLTD
   ```

7. Verify the changes with the rtrv-lnp-ttmap command.

   This is an example of the possible output.

   ```
   rlghncxa03w 07-08-28 14:42:38 GMT EAGLE5 37.0.0
   TT    PCA           NGT   RGTA
   10    003-003-005   60    yes
   16    001-001-001   0     yes
   16    100-100-100   28    yes
   18    002-002-002   10     no
   18    200-200-200   0     yes
   25    003-003-003   40    yes
   35    005-005-005   80     no
   50    005-005-005   70    yes
   Message Relay Table is 1% full
   ```

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 186 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 185 in this procedure.

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

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 16 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 that 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 . 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 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
    HC-MIM SLK Capacity        893012707   on           64
    Command Class Management   893005801   on         ----
    LNP Short Message Service  893006601   on         ----
    Prepaid SMS Intercept Ph1  893006701   on         ----
    Intermed GTT Load Sharing  893006901   on         ----
    MNP Circ Route Prevent     893007001   on         ----
    XGTT Table Expansion       893006101   on       400000
    XMAP Table Expansion       893007710   on         3000
    Large System # Links       893005910   on         2000
    Routesets                  893006403   on         8000
    EAGLE5 Product             893007101   on         ----
    EAGLE Product              893007201   off        ----
    IP7 Product                893007301   off        ----
    Network Security Enhance   893009101   off        ----
    Telnet                     893005701   on         ----
    Port Chk for MO SMS        893009301   on         ----
    SCCP Loop Detection        893016501   off        ----
    LNP ELAP Configuration     893010901   on         ----
    LNP ported TNs             893011036   on    384000000
    LNP ported LRNs            893010501   on       200000
    LNP ported NPANXXs         893009402   on       350000
    15 Minute Measurements     893012101   off        ----
    EIR                        893012301   on         ----
    EAGLE OA&M IP Security     893400001   off        ----
    SCCP Conversion            893012001   on         ----
    SE-HSL SLK Capacity        893013005   on           64
    GPORT                      893017201   on         ----
    APORT                      893016601   on         ----
    IS41 GSM Migration         893017301   off        ----
    MTP Msgs for SCC Apps      893017401   off        ----
    INP                        893017901   on         ----
    G-Flex MAP Layer Routing   893021701   on         ----
    G-Flex                     893021901   on         ----
;
```

Note: If the `rtrv-ctrl-feat` output in *Step 3* on page 183 shows that the LNP feature is enabled, skip this step and go to *Step 5* on page 183.

4. Enable the LNP feature by performing the procedures in *Activating the LNP Feature Overview* on page 16.

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
```

6. 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*.

7. 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 184, otherwise go to *Step 10* on page 185.

8. 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
```

9. 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 185. Otherwise, go to *Step 12* on page 185.

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 182 of this procedure was performed, skip this step and *Step 14* on page 186 and *Step 15* on page 187, and go to *Step 16* on page 187.

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)   SCRN  SET  SET BEI  LST LNKS GWSA GWSM GWSD SLSCI NIS
atmansi0  179-100-087  scr2  1    1   no   a   0    on   off  off  no    off
atmansi1  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)   SCRN  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)   SCRN  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)   SCRN  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                 GWS GWS GWS
LSN         APCN24 (SS7)   SCRN  SET SET BEI LST LNKS ACT MES DIS SLSCI NIS
                            L3T SLT                 GWS GWS GWS
LSN (CHINA)  APCN   (SS7)   SCRN  SET SET BEI LST LNKS ACT MES DIS SLSCI NIS
                            L3T SLT                 GWS GWS GWS
LSN (CHINA)  APCN24 (SS7)   SCRN  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 SCRN field of the `rtrv-ls` command output, go to *Step 16* on page 187.

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 SCRN 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 187 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 187. Otherwise, go to *Step 16* on page 187.

15. Display the allowed SIO screen shown in the output of the `rtrv-scrset` command executed in *Step 14* on page 186.

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 187 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 187, *Step 17* on page 187, and *Step 18* on page 188, and go to *Step 19* on page 188 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 187 must be assigned to a linkset.

If the screen set name used in *Step 16* on page 187 is shown in the `SCRN` field of the `rtrv-ls` command output displayed in *Step 13* on page 186, go to *Step 18* on page 188. If the screen set name used in *Step 16* on page 187 is not shown in the `SCRN` field of the `rtrv-ls` command output displayed in *Step 13* on page 186, 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 187, *Step 17* on page 187, and *Step 18* on page 188 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 186 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 186 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 189.

Note: If new DPC, BLKDPC, or ISUP screens were not added to the screen set in *Step 19* on page 188, skip this step and go to *Step 21* on page 189.

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 186 did not show any of the following screens: DESTFLD, CGPA, TT, CDPA, or AFTPC, do not perform *Step 21* on page 189. 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 186, by performing these procedures as necessary.

a) Allowed DESTFLD – see the "Removing an Allowed Affected Destination Field Screen" procedure

b) Allowed CGPA – see the "Removing an Allowed Calling Party Address Screen" procedure

c) Allowed TT – see the "Removing an Allowed Translation Type Screen" procedure

d) Allowed CDPA – see the "Removing an Allowed Called Party Address Screen" procedure

e) 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.
>
> **CAUTION**

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 198 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
    HC-MIM SLK Capacity     893012707  on            64
    Command Class Management 893005801 on          ----
    LNP Short Message Service 893006601 on         ----
    Prepaid SMS Intercept Ph1 893006701 on         ----
    Intermed GTT Load Sharing 893006901 on         ----
    MNP Circ Route Prevent  893007001  on          ----
    XGTT Table Expansion    893006101  on        400000
    XMAP Table Expansion    893007710  on          3000
    Large System # Links    893005910  on          2000
    Routesets               893006403  on          8000
    EAGLE5 Product          893007101  on          ----
    EAGLE Product           893007201  off         ----
    IP7 Product             893007301  off         ----
    Network Security Enhance 893009101 off         ----
    Telnet                  893005701  on          ----
    Port Chk for MO SMS     893009301  on          ----
    SCCP Loop Detection     893016501  off         ----
    LNP ELAP Configuration  893010901  on          ----
    LNP ported TNs          893011036  on     384000000
    LNP ported LRNs         893010501  on        200000
    LNP ported NPANXXs      893009402  on        350000
    15 Minute Measurements  893012101  off         ----
    EIR                     893012301  on          ----
    EAGLE OA&M IP Security   893400001  off         ----
    SCCP Conversion         893012001  on          ----
    SE-HSL SLK Capacity     893013005  on            64
    GPORT                   893017201  on          ----
    APORT                   893016601  on          ----
    IS41 GSM Migration      893017301  off         ----
    MTP Msgs for SCC Apps   893017401  off         ----
    INP                     893017901  on          ----
    G-Flex MAP Layer Routing 893021701 on         ----
    G-Flex                  893021901  on          ----
;
```

   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 198, 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 that the configured quantity on the EAGLE 5 ISS. If either the NPANXX and LRN quantity on the ELAP is greater that 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 that the quantity shown in the `rtrv-ctrl-feat` output in *Step 1* on page 190, or is less than the quantity that will be configured in this procedure, go to *Step 3* on page 191.

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* ISSDatabase *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 16 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 171.

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
   IPGWx Signaling TPS       893012814  on      20000
   ISUP Normalization        893000201  on      ----
   INTERMED GTT LOAD SHARING 893006901  off     ----
   HC-MIM SLK Capacity       893012707  on      64
   The following features have been temporarily enabled:
   Feature Name              Partnum    Status  Quantity    Trial Period Left
   Zero entries found.
   The following features have expired temporary keys:
   Feature Name              Partnum
   Zero entries found.
   ```

   If the `rtrv-ctrl-feat` output shows that the 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 193 and *Step 3* on page 193, and go to *Step 4* on page 194. 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 193 and go to *Step 3* on page 193. If the LNP Short Message Service feature is to remain temporarily enabled, and its status is `off`, skip *Step 2* on page 193 and go to *Step 3* on page 193. 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 16 to enable the LNP feature.

   Note: If the output from *Step 1* on page 193 shows that the LNP Short Message Service feature is enabled, either temporarily or permanently, skip *Step 2* on page 193 and go to *Step 3* on page 193.

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-crtl-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 21:17:37 GMT EAGLE5 37.0.0
   The following features have been permanently enabled:
   Feature Name              Partnum    Status  Quantity
   IPGWx Signaling TPS       893012814  on      20000
   ISUP Normalization        893000201  on      ----
   LNP Short Message Service 893006601  on      ----
   INTERMED GTT LOAD SHARING 893006901  on      ----
   HC-MIM SLK Capacity       893012707  on      64
   The following features have been temporarily enabled:
   Feature Name              Partnum    Status  Quantity    Trial Period Left
   Zero entries found.
   The following features have expired temporary keys:
   Feature Name              Partnum
   Zero entries found.
   ```

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 `lnptndbvl1` 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 `lnptndbvl2` 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 16 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 13.

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 13 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
HC-MIM SLK Capacity      893012707  on            64
Command Class Management 893005801  on          ----
LNP Short Message Service 893006601 on          ----
Prepaid SMS Intercept Ph1 893006701 on          ----
Intermed GTT Load Sharing 893006901 on          ----
MNP Circ Route Prevent   893007001  on          ----
XGTT Table Expansion     893006101  on        400000
XMAP Table Expansion     893007710  on          3000
Large System # Links     893005910  on          2000
Routesets                893006403  on          8000
EAGLE5 Product           893007101  on          ----
EAGLE Product            893007201  off         ----
IP7 Product              893007301  off         ----
Network Security Enhance 893009101  off         ----
Telnet                   893005701  on          ----
Port Chk for MO SMS      893009301  on          ----
SCCP Loop Detection      893016501  off         ----
LNP ELAP Configuration   893010901  on          ----
LNP ported TNs           893011036  on     384000000
LNP ported LRNs          893010501  on        200000
LNP ported NPANXXs       893009402  on        350000
15 Minute Measurements   893012101  off         ----
EIR                      893012301  on          ----
EAGLE OA&M IP Security   893400001  off         ----
SCCP Conversion          893012001  on          ----
SE-HSL SLK Capacity      893013005  on            64
GPORT                    893017201  on          ----
```

```
    APORT                       893016601  on           ----
    IS41 GSM Migration          893017301  off          ----
    MTP Msgs for SCC Apps       893017401  off          ----
    INP                         893017901  on           ----
    G-Flex MAP Layer Routing    893021701  on           ----
    G-Flex                      893021901  on           ----
;
```

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 16 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 200 and *Step 3* on page 200, and go to *Step 4* on page 201. 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.

```
tklc1190601 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 13) 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 200 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 200.

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 26procedure 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 13). After the new Service Module cards have been added, perform the *Removing DSM and TSM Cards* on page 30 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 199 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 13 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 201.
   `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

   The following features have been temporarily enabled:

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

   The following features have expired temporary keys:

   Feature Name    Partnum
   Zero entries found.
   ```

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.
- 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. If DSM/E5-SM4G card is not already provisioned, provision the card and the IP address and allow the card:

   a) Provision the card by entering the following command.

      `ent-card:loc=<card location as stenciled on the system shelf>:type=dsm:appl=vsccp`

      When the command has successfully completed, a text-based output displays.

      ```
      rlghncxa03w 06-06-01 11:11:28 EST  EAGLE 35.0.0
      ENT-CARD: MASP A - COMPLTD
      ```

   b) Provision the IP address for the card by entering the following command.

      `ch-ip-card:loc=<card location as stenciled on the system shelf>`

      When the command has successfully completed, a text-based output displays.

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

   c) Allow the card by entering the following command.

      `alw-card:loc<card location as stenciled on the system shelf>.`

      When the command has successfully completed, a text-based output displays.

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

   Note: If there are not enough slots to add DSM/E5-SM4G cards and TSM cards are provisioned to process just the GTT traffic, remove enough TSM/SCCPs to get at least one DSM or E5-SM4G card added before removing the next TSM/SCCPs, and so on. For information on removing TSM cards, refer to *Removing DSM and TSM Cards* on page 30.

3. Verify that the LNP ELAP Configuration feature is enabled and turned on by entering the `rtrv-ctrl-feat` command.
   When the command has successfully completed, a text-based output displays.

   ```
   rlghncxa03w 08-10-09 16:40:40 EST  EAGLE 40.0.0

   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          ----
   ```

   Note: The `rtrv-ctrl-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-ctrl-feat`command, see the command description in the *Eagle 5 ISS Commands Manual*.

Note: If the LNP ELAP Configuration feature is on, go to *Step 5* on page 204.

4. Enable and turn on the LNP ELAP Configuration feature by performing *Step 12* on page 120 through *Step 14* on page 121.

5. Enable the LNP telephone number quantity to a number >= 24 million telephone numbers 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 13) and the feature access key for that quantity.

```
enable-ctrl-feat:partnum=<LNP quantity part number>:fak=<LNP telephone
number quantity feature access key>
```

```
rlghncxa03w 06-06-01 16:40:40 EST  EAGLE 35.0.0
ENABLE-CTRL-FEAT:  MASP A - COMPLTD
```

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.

6. Configure the system's True Point Code (`ANSI point code`) (pca) and Capability Point Code (cpc) using the chg-sid command.

> **CAUTION:** Changing a system's point code requires a system reboot using the `init-sys` command to fully implement the changes. The `init-sys` command causes a complete system reload and should be used only in an environment that is not in service. Using this command ensures the updated self identification information is loaded onto all cards but does interrupt service.

a) Change the true point code using chg-sid:pca=<ANSI point code>
b) Add a new LNP-type Capability Point Code (cpc) using
    chg-sid:cpctype=lnp:cpc=<lnp capability point code>
    After successful completion of this command, the system returns the following output:

```
rlghncxa03w 04-01-07 09:17:40 EST  EAGLE 31.3.0
CHG-SID: MASP A - COMPLTD
```

When any of the pca or cpc parameters change, the following caution messages displays warning that the system needs to be reinitialized.

```
CAUTION: SYSTEM SITE ID HAS BEEN CHANGED, MANUAL RE-INITIALIZATION IS NEEDED
```

> **CAUTION:** The `init-sys` command causes a complete system reload and should be used only in an environment that is not in service. Using this command ensures the updated self identification information is loaded on to all cards, but does interrupt service. When the `init-sys`command executes, the system does not retain the manually initiated state (for example, OOS-MT-DSBLD) for the signaling link card, or terminal. After the command executes, the system attempts to After the command executes, the system attempts to bring all provisioned links, cards, and terminals on line, including those that were previously out of service. You will need to manually put each device back into its previous state after the system is back on line. Print or electronically capture the output of the `rept-stat-slk`, `rept-stat-card`, and`rept-stat-trm` commands for reference prior to issuing the `init-sys` command. To restore a device to its previous state, issue the appropriate

inhibit/deactivate command listed in the *Commands Manual* in the Related Commands section for each of the above `rept-stat` commands.

7. Reinitialize the system by entering the `init-sys` command

   Note: The `init-sys` command must be entered twice within 30 seconds for the system to reinitialize. If the `init-sys` command is not executed twice within 30 seconds, the attempt to re-initialize the system is aborted.

   When the `init-sys` command is first entered, this message should appear.

   ```
   rlghncxa03w 01-10-07 00:57:31 GMT EAGLE 37.5.0
   CAUTION: This command causes a complete system reload, and
   will result in traffic loss.
   Re-enter command within 30 seconds to confirm.
   ```

   When the `init-sys` command is re-entered within the 30 second time limit, this message should appear.

   ```
   rlghncxa03w 01-10-07 00:57:31 GMT EAGLE 35.0.0
   Init System command issued at terminal #3
   ```

8. Add a MATED application using True Point Codes using the `ent-map` command.

   `ent-map:pc=<ANSI point code>:ssn=<lnp subsystem number>:rc=<relative cost>:mpc=<mate ANSI point code>:mssn=<lnp subsystem number>:materc=<mate relative cost>`

   When this command has successfully completed, a text-based output displays.

   ```
   tekelecstp 06-06-01 15:28:46 EST  EAGLE 35.0.0

   New MAPSET Created : MAPSETID = 362
   ENT-MAP: MASP A - COMPLTD
   ```

9. 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
   ```

10. 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.

11. 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
```

12. 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
    ```

13. 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.

14. 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.
       ```

Chapter

4

Automatic Call Gapping (ACG) Configuration

Topics:

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 overlaod 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 208 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. (dgts=9194602:drtn=3:ent-acg-mic:serv=ain:aintvl=1).

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. (serv=ain:dgts=919460:drtn=12:ent-acg-mic:aintvl=10).

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. (type=all: nd=6:drtn=12:aintvl=7:ent-acg-mic:intvl=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 TSM cards running the SCCP 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 `dlt-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: 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 TSM cards running the SCCP application installed in the EAGLE 5 ISS (N). Each TSM card running the SCCP application can handle 850 messages per second. The number of TSM cards used in this calculation is one less than the total number of TSM cards in the EAGLE 5 ISS. To determine the total SCCP EAGLE 5 ISS traffic capacity (S), subtract 1 from the total number of TSM cards running the SCCP application and multiply the result by 850 messages per second.

(N-1) x 850 messages per second = 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 x 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 x 0.8 x 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 x 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 TSM cards running the SCCP application

NL = 7 ACG node overload control levels - ACG node overload control levels 3 though 9

1. Determine the total SCCP EAGLE 5 ISS traffic capacity

   (N-1) x 850 messages per second = Total SCCP traffic capacity (S)

   (11-1) x 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 x P = Q

   8500 messages per second x 0.50 = 4250 messages per second

3. Determine the query rate of the first ACG node overload control level

   Q x 0.8 x 30 = F

   4250 messages per second x 0.8 x 30 = 102,000 messages per 30 seconds

4. Determining the query rate of the last ACG node overload control level

   S x 30 = L

   8500 messages per second x 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 messages per 30 seconds - 102,000 messages per 30 seconds)/(7 - 1) = 25,500 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 TSM cards running the SCCP application

NL = 7 ACG node overload control levels - ACG node overload control levels 3 though 9

1. Determine the total SCCP EAGLE 5 ISS traffic capacity

   (N-1) x 850 messages per second = Total SCCP traffic capacity (S)

   (21-1) x 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 x P = Q

   17,000 messages per second x 0.70 = 11,900 messages per second

3. Determine the query rate of the first ACG node overload control level

   Q x 0.8 x 30 = F

   11,900 messages per second x 0.8 x 30 = 285,600 messages per 30 seconds

4. Determining the query rate of the last ACG node overload control level

   S x 30 = L

   17,000 messages per second x 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 messages per 30 seconds - 285,600 messages per 30 seconds)/ (7 - 1) = 37,400 messages per 30 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 TSM cards running the SCCP 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) x 850 messages per second = Total SCCP traffic capacity (S)

   (17-1) x 850 messages per second = 13,600 messages per second

2. Determine the LNP query portion of the total SCCP EAGLE 5 ISS traffic capacity in messages per second

   S x P = Q

   13,600 messages per second x 0.60 = 8160 messages per second

3. Determine the query rate of the first ACG node overload control level

   Q x 0.8 x 30 = F

   8160 messages per second x 0.8 x 30 = 195,840 messages per 30 seconds

4. Determining the query rate of the last ACG node overload control level

   S x 30 = L

   13,600 messages per second x 30 = 408,000 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 messages per 30 seconds - 195,840 messages per 30 seconds)/ (4 - 1) = 70,720 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 208.

`: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 208.

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 11 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 220.

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
   IPGWx Signaling TPS     893012805   on          2000
   HC-MIM SLK Capacity     893012707   on            64
   ISUP Normalization      893000201   on          ----
   Large System # Links    893005910   on          2000
   Routesets               893006403   on          8000
   EAGLE5 Product          893007101   on          ----
   EAGLE Product           893007201   off         ----
   Telnet                  893005701   on          ----
   LNP ELAP Configuration  893010901   on          ----
   ```

```
    LNP ported TNs              893011023  on     228000000
    LNP ported LRNs             893010501  on        150000
    LNP ported NPANXXs          893009402  on        300000
;
```

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. If the LNP feature is not enabled, perform the procedures in the *LNP Feature Activation* on page 11 to enable the LNP feature. After the LNP feature is enabled, go to *Step 2* on page 218.

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 though 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 220 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 though 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 208.

`: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 208.

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

`:dgts` – 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 208.

`:intvl` – 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 208.

`: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 208.

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 11 to enable the LNP feature.

If the `type=all` parameter is specified, the `nd`, `intvl`, and `aintvl` parameters must be specified and the `serv` and `dgts` 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 `dgts` 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 `aintvl` parameter must be specified and the `intvl` parameter cannot be specified.

If the `serv=in` parameter is specified, the `intvl` parameter must be specified and the `aintvl` 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
    IPGWx Signaling TPS       893012805  on          2000
    HC-MIM SLK Capacity       893012707  on            64
    ISUP Normalization        893000201  on          ----
    Large System # Links      893005910  on          2000
    Routesets                 893006403  on          8000
    EAGLE5 Product            893007101  on          ----
    EAGLE Product             893007201  off         ----
    Telnet                    893005701  on          ----
    LNP ELAP Configuration    893010901  on          ----
    LNP ported TNs            893011023  on     228000000
    LNP ported LRNs           893010501  on        150000
    LNP ported NPANXXs        893009402  on        300000
   ;
   ```

   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 223. If the LNP feature is not enabled, perform the procedures in the *LNP Feature Activation* on page 11 to enable the LNP feature. After the LNP feature is enabled, go to *Step 2* on page 223.

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 .

   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 225.

    If the ACG manual initiated controls were successfully removed in *Step 2* on page 225, 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.

`:dgts` – 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 208.

`: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 208.

: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 208.

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 dgts parameters cannot be specified.

If the type=sd parameter is specified, the serv and dgts 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 227.

   If the ACG manual initiated controls were successfully removed in *Step 2* on page 227, 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

Automatic Call Gapping

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.

AFTPC

Affected Point Code

The point code in subsystem-prohibited (SSP), subsystem-status-test (SST), and subsystem-allowed (SSA) SCCP management messages used by gateway screening to determine if the messages containing these point codes are allowed in to the network. This point code is in the SCMG Data (SCCP Management) portion of the signaling information field in the MSU.

AIN

Advanced Intelligent Network

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.

Allowed Affected Destination Field

The gateway screening entity that identifies the point code in the affected destination field (the concerned signaling point code) of incoming MTP network management messages from

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

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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.

BLM   A card that is provisioned with the EBDABLM GPL to support the bulk download feature. During LNP bulk download operations, the LNP database is downloaded to the card's RAM.

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

C

The CLLI uniquely identifies the STP in terms of its physical location. It is usually comprised of a combination of identifiers for the STP's city (or locality), state (or province), building, and traffic unit identity. The format of the CLLI is:

The first four characters identify the city, town, or locality.

The first character of the CLLI must be an alphabetical character.

The fifth and sixth characters identify state or province.

The seventh and eighth characters identify the building.

The last three characters identify the traffic unit.

CNAM   Calling Name Delivery Service

D

Database   All data that can be administered by the user, including cards, destination point codes, gateway screening tables, global title translation tables, links, LNP services, LNP service providers, location routing numbers, routes, shelves, subsystem applications, and 10 digit telephone numbers.

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

D

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
Communications (GSM), EAGLE
Local Number Portability (ELAP),
and interface to Local Service
Management System (LSMS).

DV   Digits Valid

E

EBDA   Enhanced Bulk Download and
Audit

EIR   Equipment Identity Register

E

	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

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	General Purpose Service Module

G

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.

GT

Global Title Routing Indicator

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
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

I

ID   Identity, identifier

IMT   Inter-Module-Transport

                                                The communication software that
                                                operates the
                                                inter-module-transport bus on all
                                                cards except the LIMATM, DCM,
                                                DSM, and HMUX.

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
                                                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.

I

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

LIDB   Line Information Database

LIM   Link Interface Module

                                   Provides access to remote SS7,
                                   X.25, IP and other network
                                   elements, such as a Signaling
                                   Control Point (SCP) through a
                                   variety of signaling interfaces
                                   (V.35, OCU, DS0, MPL, E1/T1
                                   MIM, LIM-ATM, E1-ATM, IPLIMx,
                                   IPGWx). The LIMs consist of a
                                   main assembly and possibly, an

L

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 (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

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.

M

MDAL	Maintenance Disk and Alarm Card

Provides Alarming and cartridge-based loading of software. It contains a 2.3 Gbyte removable cartridge drive and alarm logic. There is only one MDAL card in the maintenance and administration subsystem and it is shared between the two MASPs.

MPS	Multi-Purpose Server

The Multi-Purpose Server provides database/reload functionality and 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.

M

- The type of message and the priority of the message in the signaling information octet of the message.

- The routing information for the message, shown in the routing label of the message, with the identification of the node that sent message (originating point code), the identification of the node receiving the message (destination point code), and the signaling link selector which the EAGLE 5 ISS uses to pick which link set and signaling link to use to route the message.

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.

NGT   New Global Title

N

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

OAP   A stand-alone processor that acts
                                    as an interface between:

                                    • The EAGLE 5 ISS and OSS
                                      (operation support system)
                                      devices using standard
                                      interfaces and converting the
                                      communications to the EAGLE
                                      5 ISS proprietary serial
                                      interface.

                                    • The EAGLE 5 ISS LNP and the
                                      SEAC (Signaling Engineering
                                      and Administration Center), for
                                      the SEAS feature, converting
                                      SEAS commands into EAGLE
                                      5 ISS LNP commands and
                                      EAGLE 5 ISS LNP commands
                                      into SEAS commands.

                                    • The EAGLE 5 ISS LNP and the
                                      SMS (Service Management
                                      System), for the LNP feature,
                                      receiving LNP data and
                                      commands from the SMS and
                                      converting the SMS commands
                                      into EAGLE 5 ISS LNP
                                      commands and loading the
                                      LNP data onto the EAGLE 5 ISS
                                      LNP.

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
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

RFC	Request for Comment
RI	Routing Indicator
Route	A path to another signaling point.
RTDB	Real Time Database

S

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

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

T

TCP/IP	Transmission Control Protocol/Internet Protocol
TDM	Terminal Disk Module
	The MAS card that contains the fixed disk drive (hard disk storage), the terminal processor for the 16 serial I/O ports, and an interface to the MDAL (maintenance disk and alarm) card, which contains the removable cartridge drive and alarm logic.
	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.
TSM	Translation Services Module
	Provides SCCP functionality or GLS functionality for Local Number Portability (LNP)/SCCP (GTT). The SCCP software allows the TSM to be used as a memory board for Global Title Translation (GTT).
TT	Translation Type.

T

Resides in the Called Party
Address (CdPA) field of the MSU
and determines which service
database is to receive query
messages. The translation type
indicates which Global Title
Translation table determines the
routing to a particular service
database.

TTN   Translation Type Name

U

UAM   Unsolicited Alarm Message.

UDP   User Datagram Protocol

UDTS   Unit Data Transfer Service

UI   User Interface

UIM   Unsolicited Information Message

V

VIOL   A value displayed on an
                                                  application GUI that indicates that
                                                  the client brower's Java policy file
                                                  is incorrect.

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

V

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

X

XLAT

Translate Indicator

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