Tekelec EAGLE® 5 Integrated Signaling System

TEKELEC

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Introduction

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.

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.

Chapter 1, "Introduction," contains general information about the database and the organization of this manual.

Chapter 2, "LNP Feature Activation," describes how to activate the LNP feature.

Chapter 3, "LNP Services Configuration," describes the procedures necessary to configure these 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.

Chapter 4, "Automatic Call Gapping (ACG) Configuration," 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 07-03-01 21:20:37 GMT EAGLE5 35.6.0
    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>**.

Related Publications

The *LNP Feature Activation Guide* is part of the EAGLE 5 ISS documentation set and may refer to one or more of the following manuals:

- The *Commands Manual* contains procedures for logging into or out of the EAGLE 5 ISS, a general description of the terminals, printers, the disk drive used on the EAGLE 5 ISS, and a description of all the commands used in the EAGLE 5 ISS.

- The *Commands Error Recovery Manual* contains the procedures to resolve error message conditions generated by the commands in the *Commands Manual*. These error messages are presented in numerical order.

- The *Database Administration Manual – Features* contains procedural information required to configure the EAGLE 5 ISS to implement these features:

  - X.25 Gateway

  - STPLAN

  - Database Transport Access

  - GSM MAP Screening

  - EAGLE 5 ISS Integrated Monitoring Support

- The *Database Administration Manual – Global Title Translation* contains procedural information required to configure an EAGLE 5 ISS to implement these features:

  - Global Title Translation

  - Enhanced Global Title Translation

  - Variable Length Global Title Translation

  - Interim Global Title Modification

  - Intermediate GTT Load Sharing

  - ANSI-ITU-China SCCP Conversion

  - Flexible GTT Load Sharing

  - Origin-Based SCCP Routing

- The *Database Administration Manual - Gateway Screening* contains a description of the Gateway Screening (GWS) feature and the procedures necessary to configure the EAGLE 5 ISS to implement this feature.

- The *Database Administration Manual - IP^7 Secure Gateway* contains procedural information required to configure the EAGLE 5 ISS to implement the SS7-IP Gateway.

- The *Database Administration Manual – SEAS* contains the EAGLE 5 ISS configuration procedures that can be performed from the Signaling Engineering and Administration Center (SEAC) or a Signaling Network Control Center (SNCC). Each procedure includes a brief description of the procedure, a flowchart showing the steps required, a list of any EAGLE 5 ISS commands that may be required for the procedure but that are not supported by SEAS, and a reference to optional procedure-related information, which can be found in one of these manuals:

  – Database Administration Manual – Gateway Screening

  – Database Administration Manual – Global Title Translation

  – Database Administration Manual – SS7

- The *Database Administration Manual – SS7* contains procedural information required to configure an EAGLE 5 ISS to implement the SS7 protocol.

- The *Database Administration Manual – System Management* contains procedural information required to manage the EAGLE 5 ISS database and GPLs, and to configure basic system requirements such as user names and passwords, system-wide security requirements, and terminal configurations.

- The *Dimensioning Guide for EPAP Advanced DB Features* is used to provide EPAP planning and dimensioning information. This manual is used by Tekelec personnel and EAGLE 5 ISS customers to aid in the sale, planning, implementation, deployment, and upgrade of EAGLE 5 ISS systems equipped with one of the EAGLE 5 ISS EPAP Advanced Database (EADB) Features.

- The *ELAP Administration Manual* defines the user interface to the EAGLE 5 ISS LNP Application Processor on the MPS/ELAP platform. The manual defines the methods for accessing the user interface, menus, screens available to the user and describes their impact. It provides the syntax and semantics of user input, and defines the output the user receives, including information and error messages, alarms, and status.

- The *EPAP Administration Manual* describes how to administer the EAGLE 5 ISS Provisioning Application Processor on the MPS/EPAP platform. The manual defines the methods for accessing the user interface, menus, and screens available to the user and describes their impact. It provides the syntax and semantics of user input and defines the output the user receives, including messages, alarms, and status.

- The *Feature Manual - EIR* provides instructions and information on how to install, use, and maintain the EIR feature on the Multi-Purpose Server (MPS) platform of the EAGLE 5 ISS. The feature provides network operators with the capability to prevent stolen or disallowed GSM mobile handsets from accessing the network.

- The *Feature Manual - G-Flex C7 Relay* provides an overview of a feature supporting the efficient management of Home Location Registers in various networks. This manual gives the instructions and information on how to

install, use, and maintain the G-Flex feature on the Multi-Purpose Server (MPS) platform of the EAGLE 5 ISS.

- The *Feature Manual - G-Port* provides an overview of a feature providing the capability for mobile subscribers to change the GSM subscription network within a portability cluster while retaining their original MSISDNs. This manual gives the instructions and information on how to install, use, and maintain the G-Port feature on the Multi-Purpose Server (MPS) platform of the EAGLE 5 ISS.

- The *Feature Manual - INP* provides the user with information and instructions on how to implement, utilize, and maintain the INAP-based Number Portability (INP) feature on the Multi-Purpose Server (MPS) platform of the EAGLE 5 ISS.

- The *FTP-Based Table Retrieve Application (FTRA) User Guide* describes how to set up and use a PC to serve as the offline application for the EAGLE 5 ISS FTP Retrieve and Replace feature.

- The *Hardware Manual - EAGLE 5 ISS* contains hardware descriptions and specifications of Tekelec's signaling products. These include the EAGLE 5 ISS, OEM-based products such as the AS*i* 4000 Service Control Point (SCP), the Netra-based Multi-Purpose Server (MPS), and the Integrated Sentinel with Extended Services Platform (ESP) subassembly.

  The Hardware Manual provides an overview of each system and its subsystems, details of standard and optional hardware components in each system, and basic site engineering. Refer to this manual to obtain a basic understanding of each type of system and its related hardware, to locate detailed information about hardware components used in a particular release, and to help configure a site for use with the system hardware.

- The *Hardware Manual - Tekelec 1000 Application Server* provides general specifications and a description of the Tekelec 1000 Applications Server (T1000 AS). This manual also includes site preparation, environmental and other requirements, procedures to physically install the T1000 AS, and troubleshooting and repair of Field Replaceable Units (FRUs).

- The *Hardware Manual - Tekelec 1100 Application Server* provides general specifications and a description of the Tekelec 1100 Applications Server (T1000 AS). This manual also includes site preparation, environmental and other requirements, procedures to physically install the T1100 AS, and troubleshooting and repair of Field Replaceable Units (FRUs).

- The *Installation Manual - EAGLE 5 ISS* contains cabling requirements, schematics, and procedures for installing the EAGLE 5 ISS along with LEDs, connectors, cables, and power cords to peripherals. Refer to this manual to install components or the complete systems.

- The *Installation Manual - Integrated Applications* provides the installation information for integrated applications such as EPAP 4.0 or earlier (Netra-based Multi-Purpose Server (MPS) platform) and Sentinel. The

manual includes information about frame floors and shelves, LEDs, connectors, cables, and power cords to peripherals. Refer to this manual to install components or the complete systems.

- The *LNP Database Synchronization Manual - LSMS with EAGLE 5 ISS* describes how to keep the LNP databases at the LSMS and at the network element (the EAGLE 5 ISS is a network element) synchronized through the use of resynchronization, audits and reconciles, and bulk loads. This manual is contained in both the LSMS documentation set and in the EAGLE 5 ISS documentation set.

- The *Maintenance Manual* contains procedural information required for maintaining the EAGLE 5 ISS. The *Maintenance Manual* provides preventive and corrective maintenance procedures used in maintaining the different systems.

- The *MPS Platform Software and Maintenance Manual - EAGLE 5 ISS with Tekelec 1000 Application Server* describes the platform software for the Multi-Purpose Server (MPS) based on the Tekelec 1000 Application Server (T1000 AS) and describes how to perform preventive and corrective maintenance for the T1000 AS-based MPS. This manual should be used with the EPAP-based applications (EIR, G-Port, G-Flex, and INP).

- The *MPS Platform Software and Maintenance Manual - EAGLE 5 ISS with Tekelec 1100 Application Server* describes the platform software for the Multi-Purpose Server (MPS) based on the Tekelec 1100 Application Server (T1100 AS) and describes how to perform preventive and corrective maintenance for the T1100 AS-based MPS. This manual should be used with the ELAP-based application (LNP).

- The *Provisioning Database Interface Manual* defines the programming interface that populates the Provisioning Database (PDB) for the EAGLE 5 ISS features supported on the MPS/EPAP platform. The manual defines the provisioning messages, usage rules, and informational and error messages of the interface. The customer uses the PDBI interface information to write his own client application to communicate with the MPS/EPAP platform.

- The *Previously Released Features Manual* summarizes the features of previous EAGLE, EAGLE 5 ISS, and IP[7] Secure Gateway releases, and it identifies the release number of their introduction.

- The *Release Documentation* contains the following documents for a specific release of the system:

  - *Feature Notice* - Describes the features contained in the specified release. The Feature Notice also provides the hardware baseline for the specified release, describes the customer documentation set, provides information about customer training, and explains how to access the Customer Support Website.

- *Release Notice* - Describes the changes made to the system during the lifecycle of a release. The Release Notice includes Generic Program Loads (GPLs), a list of PRs resolved in a build, and all known PRs.

  NOTE: **The *Release Notice* is maintained solely on Tekelec's Customer Support site to provide you with instant access to the most up-to-date release information.**

- *System Overview* - Provides high-level information on SS7, the IP7 Secure Gateway, system architecture, LNP, and EOAP.

- *Master Glossary* - Contains an alphabetical listing of terms, acronyms, and abbreviations relevant to the system.

- *Master Index* - Lists all index entries used throughout the documentation set.

- The *System Manual – EOAP* describes the Embedded Operations Support System Application Processor (EOAP) and provides the user with procedures on how to implement the EOAP, replace EOAP-related hardware, device testing, and basic troubleshooting information.

- The *LSMS Database Administration Manual* provides information about using the LSMS (Local Service Management System) local and web-based graphical user interface (GUI), using the command-line interface, managing NPAC relations, managing locally provisioned data, report generation, logs and measurements, and local time calculation and world time zone data.

- The *LSMS Configuration Manual* contains information you need to configure the LSMS. Topics include integrating LSMS into your network, using key lists, configuring and starting LSMS processes, configuration components and service provider contact information, working with NPAC associations, and configuring optional features, and configuring the query server.

- The *LSMS Maintenance Manual, Enterprise 450* describes the LSMS design for high availability, the LSMS software, and procedures for routine, preventive, and corrective maintenance. The manual also contains a reference of LSMS commands and notifications.

Documentation Packaging and Updates

Customer documentation is updated whenever significant changes that affect system operation or configuration are made.

The document part number is shown on the title page along with the current revision of the document, the date of publication, and, if applicable, the software release that the document covers. The bottom of each page contains the document part number and the date of publication.

Documentation Admonishments

Admonishments are icons and text that may appear in this and other EAGLE 5 ISS and LSMS manuals that alert the reader to assure personal safety, to minimize possible service interruptions, and to warn of the potential for equipment damage.

Following are the admonishments, listed in descending order of priority.

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

Customer Care Center

The Customer Care Center offers a point of contact through which customers can receive support for problems that may be encountered during the use of Tekelec's products. The Customer Care Center is staffed with highly trained engineers to provide solutions to your technical questions and issues seven days a week, twenty-four hours a day. A variety of service programs are available through the Customer Care Center to maximize the performance of Tekelec products that meet and exceed customer needs.

To receive technical assistance, call the Customer Care Center at one of the following locations:

- Tekelec, UK

  Phone: +44 1784 467 804
  Fax: +44 1784 477 120
  Email: `ecsc@tekelec.com`

- Tekelec, USA

  Phone (within the continental US) 888-367-8552 (888-FOR-TKLC)
             (outside the continental US) +1 919-460-2150.
  Email: `support@tekelec.com`.

When your call is received, the Customer Care Center issues a Customer Service Report (CSR). Each CSR includes an individual tracking number. When a CSR is issued, the Customer Care Center determines the classification of the trouble. The CSR contains the serial number of the system, problem symptoms, and messages. The Customer Care Center assigns the CSR to a primary engineer, who will work to solve the problem. The Customer Care Center closes the CSR when the problem is resolved.

If a critical problem exists, the Customer Care Center initiates emergency procedures (see the following topic, "Emergency Response").

Emergency Response

If a critical service situation occurs, the Customer Care Center offers emergency response twenty-four hours a day, seven days a week. The emergency response provides immediate coverage, automatic escalation, and other features to ensure a rapid resolution to the problem.

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

- Failure in the system that prevents transaction processing

- Reduction in EAGLE 5 ISS capacity or in EAGLE 5 ISS traffic-handling capability

- Inability to restart the EAGLE 5 ISS

- Corruption of the database

- Inability to perform maintenance or recovery operations

- Inability to provide any required critical or major trouble notification

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

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 1-1.

Figure 1-1. EAGLE 5 ISS Database Partitions

ACTIVE FIXED DISK   STANDBY FIXED DISK

| Backup Data |
| Current Data |
| Measurements |
| GPLs |

| Backup Data |
| Current Data |
| Measurements |
| GPLs |
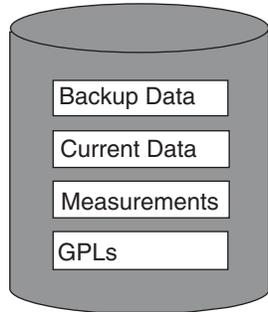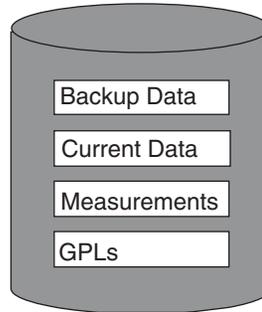
System Data
Removable
Cartridge

| Backup Data |
| GPLs |
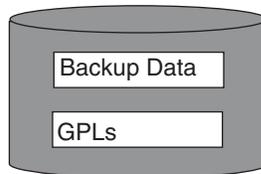
Measurements
Removable
Cartridge

| Measurements |
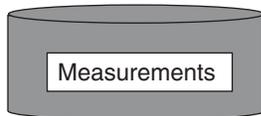
Fixed Disk Drive

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.

List of Acronyms and Abbreviations

ACG .... Automatic Call Gapping

ACT .... The action taken, either copy the MSU for the STPLAN feature or redirect the MSU for the gateway screening redirect function, if the NSFI is STOP.

ADMHIPRI .... An LNP option indicating that LNP updates have a higher priority than STP updates.

AFTPC .... Affected Point Code

AINTVL .... AIN Interval Index

ALIAS .... The Alias LNP Translation Type

AMA .... Automatic Message Accounting

AMACTYPE .... AMA Call Type

AMAFEATID .... AMA Feature ID

AMASLPID .... AMA Service Logic ID

AND .... The number of digits in the global title address of an AIN query

ANSI .... American National Standards Institute

APCA...................................The ANSI adjacent point code

APCI ....The ITU international adjacent point code

APCN ....The ITU national adjacent point code

APPL..................................Application

AUD...................................Audit Indicator

BEI.....................................Broadcast Exception Indicator

BLKDPC............................Blocked Destination Point Code

BLKOPC............................Blocked Originating Point Code

BLM ....Bulk Load Module

BPDCM ....Application software for flash memory management on the DCM or DSM

CIC ....Carrier Identification Code

CD ....Compact Disc

CDPA ....Called Party Address

CGPA ....Calling Party Address

CIC ....Carrier Identification Code

CLLI...................................Common Language Location Identifier

CNCF.................................Calling Name Conversion Facility

COPY ....Copy Gateway Screening Stop Action

CPCA ....ANSI Capability Point Code

CPCI...................................ITU International Capability Point Code

CPCN.................................ITU National Capability Point Code

DB......................................Database

DCM ....Database Communications Module

DESTFLD ....Allowed Affected Destination Field

DGTS ....The digits of a global title address

DPC....................................Destination Point Code

DRTN.................................Duration Index

DSM ....Database Service Module

DV ....Digits Valid

EBDABLM ....The application used by the TSM to store the LNP database downloaded from the LSMS for the Enhanced Bulk Download feature

EBDADCM ....The application used by the DCM to transmit the LSMS LNP database at high speed over an ethernet connection for the Enhanced Bulk Download feature

EIR.....................................Equipment Identity Register

ELAP..................................EAGLE 5 ISS LNP Application Processor

EMS...................................Element Management System

EO.....................................End Office

Esc ....Escape

FRCSMPLX ....An LNP option indicating that LNP updates are accepted when the EAGLE 5 ISS is in the simplex mode.

GPL ....Generic Program Load

GPSM.................................General Purpose Service Module

GT......................................Global Title Routing Indicator

GTT ....Global Title Translation

GTWYSTP ....An LNP option indicating that the EAGLE 5 ISS is configured as a gateway STP and running the LNP feature.

GUI....................................Graphical User Interface

GWS ....Gateway Screening

GWSA................................Gateway Screening Application

GWSD................................Gateway Screening Message Discard

GWSM ....Gateway Screening Mode

H0......................................The H0 heading code in the service information octet.

H1......................................The H1 heading code in the service information octet.

HMUX ....High-Speed Multiplexer Card

HSOP ....High Speed Operations Protocol

I/O ....Input/Output

IAM....................................Initial Address Message

ID.......................................Identity

IMT....................................Interprocessor Message Transport

INCSLP..............................Include AMA service logic ID

IND ....The number of digits in the global title address of an IN query

INTVL..................................Interval Index

IPADDR..............................IP Address

IPM.....................................Initial Platform Manufacture

IPM.....................................Initial Platform Manufacture

IPMX..................................Interprocessor Message Transport Multiplexer Card

IS-NR ....In Service - Normal

ISUP ....ISDN User Part

ITU ....International Telecommunications Union

ITU-I ....ITU International

ITU-N.................................ITU National

JIP.......................................Jurisdiction Indicator Parameter

JIPDIGITS..........................The 6-digit value of the Jurisdiction Indicator Parameter.

JIPPROV ....An LNP option indicating that the Jurisdiction Indicator Parameter is added to the Initial Address Message (IAM).

LAN ....Local Area Network

LIM ....Link Interface Module

LNKS ....A field in the `rtrv-ls` output showing the number of signaling links in a linkset.

LNP.....................................Local Number Portability

LNPQS................................LNP Query Service

LRN.....................................Location Routing Number - A 10 digit number identifying the new location of the ported 10 digit telephone number.

LS..Link Set

LSMS...................................Local Service Management System

LSN ....Link Set Name

LST ....The linkset type of the specified linkset

LVL......................................Level

MAP....................................Mated Application

MASP..................................Maintenance and Administration Subsystem Processor

MDAL..................................Maintenance Disk and Alarm Card

MR......................................Message Relay

MRGT ....Message Relay Global Title Translation

MSC..................................Mobile Switching Center

MTP..................................Message Transfer Part

NAT..................................Network Address Translation

ND....................................The number of digits in a global title address

NIC...................................The network indicator code in the service information octet.

NMRGT ....New Message Relay Global Title Translation

NPA..................................Numbering Plan Area (Area Code)

NPAC................................Number Portability Administration Center

NPA-NXX..........................Area Code and Office Prefix

NPANXX ....The area code and office prefix of a telephone number. For example, with the telephone number 919-555-1212, the digits 919 are the area code (NPA) and the digits 555 are the office prefix (NXX).

NSERV ....The new LNP service

NSFI..................................Next Screening Function Identifier

NSR...................................Next Screening Reference

NSTAT ....The new state of the subsystem application

NTP...................................Network Time Protocol

OAP..................................Operations System Support Applications Processor

OOS..................................Out of Service

OOS-MT-DSBLD...............Out of Service - Maintenance Disabled

PC.....................................Personal Computer

PC.....................................Point Code

PCA...................................ANSI Point Code

PCI....................................ITU International Point Code

PCN..................................ITU National Point Code

PCTYPE.............................Point Code Type

PRI....................................The priority of a single message or the beginning message priority in a range of priorities in the service information octet.

QR.....................................Query Rate

RD BKUP...........................Removable Disk Backup

REPT-STAT ....Report Status

RDCT ....rdct (redirect) gateway screening actions

RTDB...................................Real-Time Database

RI ....Routing Indicator

RMV....................................Remove

SCCP...................................Signaling Connection Control Part – The application software for the global title translation (GTT) feature

SCRN ....Screen Set Name

SERV ....LNP Service

SI...The service indicator for the service information octet, which are the last two bits of the subservice field.

SIO ....Status Indication Out of Alignment or Service Information Octet

SLSCI ....5- to 8-bit SLS Conversion Indicator

SP..Service Provider

SR ....The name of the screening reference.

SSN.....................................Subsystem Number

STPLAN ....A feature in the EAGLE 5 ISS that copies MSUs selected through the gateway screening process and sends these MSUs over the ethernet to an external host computer for further processing

TCP ....Transmission Control Protocol

TCAP ....Transaction Capability Application Part

TDM....................................Terminal Disk Module

TLNP ....Triggerless LNP

TN ....Telephone Number

TSM....................................Translation Service Module

TT ....Translation Type

TTN.....................................Translation Type Name

UI..User Interface

UIM.....................................Unsolicited Information Message

VSCCP ....The application software used for the global title translation, LNP, LNP 48 MIllion Number, GFLEX, INP, and G-PORT features

WNP.....................................Wireless Number Portability

WSMSC ....Wireless Short Message Service Center

2

LNP Feature Activation

Introduction

This chapter describes how to activate the LNP feature.

The following hardware is required for the LNP feature:

- DSMs must be configured and installed in the EAGLE 5 ISS. TSMs 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 running release 8.5 or greater to use the maximim 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.

If any of these systems are not running the required release, contact the Customer Care Center. Refer to "Customer Care Center" on page 1-9 for the contact information.

The LNP telephone number quantity for the EAGLE 5 ISS is set with feature access keys corresponding to the quantity. To configure a particular LNP telephone number quantity in the EAGLE 5 ISS, the EAGLE 5 ISS must contain DSMs with a minimum amount of RAM. Table 2-1 shows the LNP telephone number quantities, the part numbers that correspond to these quantities, and the DSM requirements for that LNP telephone number quantity. Perform the "Activating the LNP Feature on the EAGLE 5 ISS" procedure on page 2-124 for more information on setting these quantities.

Table 2-1. 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 DSM
4 Million	893-0110-02	1 GB DSM
6 Million	893-0110-03	1 GB DSM
8 Million	893-0110-04	1 GB DSM
12 Million	893-0110-05	1 GB DSM
24 Million	893-0110-06	2 GB DSM

Table 2-1. LNP Hardware and Part Number Configuration
Table (Continued)

LNP Telephone Number Quantity	LNP Telephone Number Part Number	Minimum Hardware Required for the LNP Telephone Number Quantity
36 Million	893-0110-07	3 GB DSM
48 Million	893-0110-08	4 GB DSM
60 Million	893-0110-09	4 GB DSM
72 Million	893-0110-10	4 GB DSM
84 Million	893-0110-11	4 GB DSM
96 Million	893-0110-12	4 GB DSM
108 Million	893-0110-13	4 GB DSM
120 Million	893-0110-14	4 GB DSM
132 Million	893-0110-15	4 GB DSM
144 Million	893-0110-16	4 GB DSM
156 Million	893-0110-17	4 GB DSM
168 Million	893-0110-18	4 GB DSM
180 Million	893-0110-19	4 GB DSM
192 Million	893-0110-20	4 GB DSM
204 Million	893-0110-21	4 GB DSM
216 Million	893-0110-22	4 GB DSM
228 Million	893-0110-23	4 GB DSM

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 EAGLE 5 ISS's DSMs from the ELAP using two dedicated Ethernet networks between the MPS platform and the EAGLE 5 ISS's DSMs.

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 150,000 LRNs and 300,000 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" procedure on page 3-76.

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.

Procedure

☐ **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 whether or not the LNP telephone number quantity feature is enabled, and what the quantity is.

   b. `rtrv-feat` – to verify whether or not the GPORT, GFLEX, or INP features are off. 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, executing this command is not necessary. 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, the GPORT, GFLEX, or INP features must be off.

   c. `rtrv-ip-lnk` – to verify the DSM Ethernet configuration to the ELAPs

   d. `rept-stat-card` – to verify the state and location of the cards running the EBDADCM, EBDABLM, VSCCP, and SCCP applications.

   e. `rept-stat-sccp` – to verify the number of SCCP cards currently provisioned in the EAGLE 5 ISS.

   Record the values displayed in these steps.

   ⚠ CAUTION: If the `rtrv-feat` output shows that the GPORT, GFLEX, or INP features are on, this procedure cannot be performed. The LNP feature cannot be enabled if the GPORT, GFLEX, or INP features are on. If you wish to enable the LNP feature, contact the Customer Care Center (refer to "Customer Care Center" on page 1-9 for the contact information).

   ⚠ CAUTION: Verify the number of SCCP cards in the EAGLE 5 ISS by entering the `rept-stat-sccp` command. The number of SCCP cards is shown in the `SCCP Cards Configured` field of the `rept-stat-sccp` output. If the number of SCCP cards is 26 to 32, the LNP feature cannot be enabled. If the LNP feature is enabled, the maximum number of SCCP cards the EAGLE 5 ISS can have is 25. To enable the LNP feature, perform the "Removing an SCCP Card" procedure on page 2-22, to reduce the number of SCCP cards to 25 or less. Total GTT capacity for the EAGLE 5 ISS will be reduced to a maximum of 40,800 transactions per second by removing SCCP cards in order to enable the LNP feature.

☐   **NOTE:** If the `rtrv-ctrl-feat` output in step 1a shows that the EAGLE 5 ISS's LNP ELAP Configuration feature is enabled, skip steps 2 through 4, and go to step 5.

2. If step 1d shows no cards running the VSCCP application (DSMs), perform the "Adding a DSM" procedure on page 2-18 to make sure that DSMs are configured and installed in the EAGLE 5 ISS according to the hardware requirements shown in Table 2-1 on page 2-2.

☐   3. If step 1d shows cards running the SCCP application (TSMs), perform the "Removing an SCCP Card" procedure on page 2-22 to make sure that any TSMs are removed.

☐   4. If step 1d shows cards running the EBDADCM and EBDABLM applications, perform the "Removing the DCM Applied to LSMS BLM-Based Operations" procedure on page 2-24 and "Removing the BLM Applied to LSMS BLM-Based Operations" procedure on page 2-27 to make sure that these cards are removed from the EAGLE 5 ISS.

☐   **NOTE:** If steps 2 through 4 were performed, skip step 5, and go to step 6.

5. Verify the memory installed on the DSM is enough based on the LNP telephone number quantity being assigned (see Table 2-1 on page 2-2). Enter the `rept-stat-card` command specifying the location of a DSM with the `mode=full` parameter. The amount of memory is shown in the `DBD MEMORY SIZE` field and is measured in megabytes.

```
rlghncxa03w 07-03-01 10:09:55 GMT  EAGLE5 35.6.0
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 DSM" procedure on page 2-18 and add a DSM with the correct amount of memory (see Table 2-1 on page 2-2). After the new DSM has been added, perform the "Removing an SCCP Card"

procedure on page 2-22 and remove the DSM specified in this step from the database.

Repeat this step for every DSM shown in step 1d.

☐ **6.** If step 1c does not show IP links from the DSMs to the MPS, or if DSMs were configured in steps 2 or 5, configure the IP Link from the DSMs to MPS A and B using the "Configuring the DSM Ethernet Link to the MPS" procedure on page 2-29.

☐ **7.** If step 6 was not performed, enter the `rept-stat-sccp` command to verify that the state of all DSMs is IS-NR (In-Service Normal). The state of the DSMs is shown in the `PST` column of the output.

```
rlghncxa03w 07-03-01 09:12:36 GMT  EAGLE5 35.6.0

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%
-----------------------------------------------------------------
SCCP Service Average MSU Capacity =  28%  Average CPU Capacity =   40%
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 DSMs shown in steps 1c, 5, or 7 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 steps 1c, 5, or 7 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 07-03-01 21:20:37 GMT EAGLE5 35.6.0
Card has been allowed.
```

☐ **9.** Test port A of one of the DSMs using the `ping` pass command with the card location of the DSM recorded in step 1 and the IP address for port A of that DSM shown in either step 1c or step 6.

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

```
Command Accepted - Processing

    rlghncxa03w 07-03-27 08:30:44 GMT EAGLE5 35.6.0
```

```
        pass: loc=1301: cmd="ping 192.168.120.1"
        Command entered at terminal #1.
    ;
        rlghncxa03w 07-03-27 08:30:44 GMT EAGLE5 35.6.0
        PASS: Command sent to card
    ;
        rlghncxa03w 07-03-27 08:30:44 GMT EAGLE5 35.6.0

        PING command in progress
    ;
    rlghncxa03w 07-03-27 08:30:46 GMT EAGLE5 35.6.0
    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 DSM specified in step 9 using the **ping** pass command with the card location of the DSM specified in step 9 and the IP address for port B shown in either step 1c or step 6.

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

```
Command Accepted - Processing

    rlghncxa03w 07-03-27 08:30:44 GMT EAGLE5 35.6.0
    pass: loc=1301: cmd="ping 192.168.121.1"
    Command entered at terminal #1.
;
    rlghncxa03w 07-03-27 08:30:44 GMT EAGLE5 35.6.0
    PASS: Command sent to card
;
    rlghncxa03w 07-03-27 08:30:44 GMT EAGLE5 35.6.0

    PING command in progress
;
rlghncxa03w 07-03-27 08:30:46 GMT EAGLE5 35.6.0
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 steps 9 and 10 for all other DSMs 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 page 2-2). If the ELAP version is not correct, contact the Customer Care Center (refer to "Customer Care Center" on page 1-9 for the contact information) before performing the "ELAP Configuration Procedure" procedure on page 2-57.

☐ **14.** Perform a health check of the MPS. Perform the "MPS Health Check Procedure" section on page 2-75.

☐ **15.** Disable the LSMS Connection. Select **Maintenance > LSMS Connection > View Allowed**. The window shown in Figure 2-1 is displayed.

Figure 2-1. LSMS Connection View
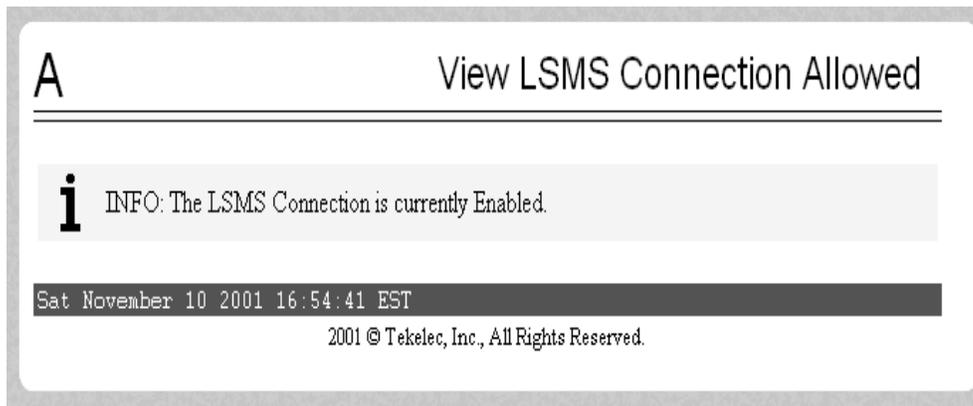
If the connection is disabled, no action is necessary. Go to step 16.

If the connection is enabled, select **Maintenance > LSMS Connection > Change Allowed**. The window shown in Figure 2-2 is displayed.

Figure 2-2.   Disabling the LSMS Connection

Click the **Disable LSMS Connection** button. The window shown in Figure 2-3 on page 2-9 is displayed.

Figure 2-3.   Confirming the LSMS Connection is Disabled
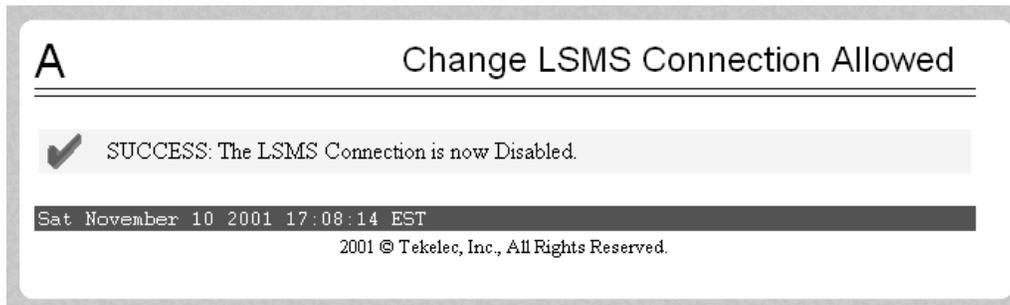
☐ **16.** Verify that the LSMS High-Speed Audit is on. Select **Maintenance > LSMS HS Audit > View Enabled**. The window shown in Figure 2-4 is displayed.

Figure 2-4.   LSMS High-Speed Audit View
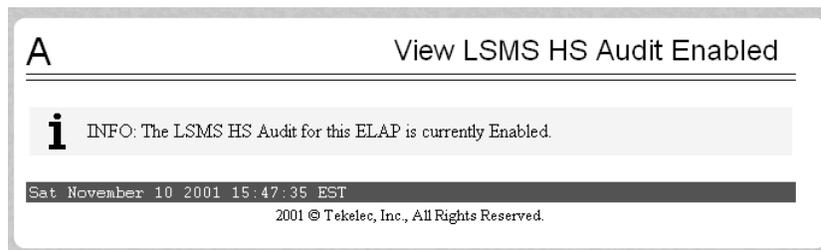
If the LSMS High-Speed Audit is enabled, no action is necessary. Go to step 17.

If the LSMS High-Speed Audit is disabled, select **Maintenance > LSMS HS Audit > Change Enabled**. The window shown in Figure 2-5 is displayed.

Figure 2-5.   Enabling the LSMS High-Speed Audit
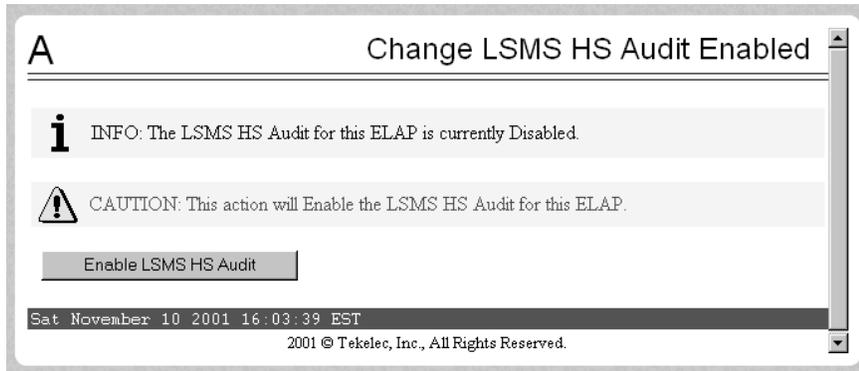
Click the **Enable LSMS HS Audit** button. The window in Figure 2-6 on page 2-10 is displayed.

Figure 2-6.   Confirming the LSMS High-Speed Audit
            is Enabled
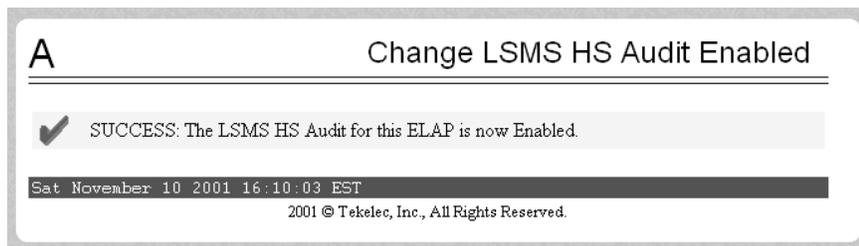
17. Verify that the LSMS High-Speed Bulk Download/High-Speed Resynch is enabled for the ELAP and its Mate. Select **Maintenance > LSMS HS Bulk Download > View Enabled**.

Figure 2-7.   LSMS High-Speed Bulk Download View
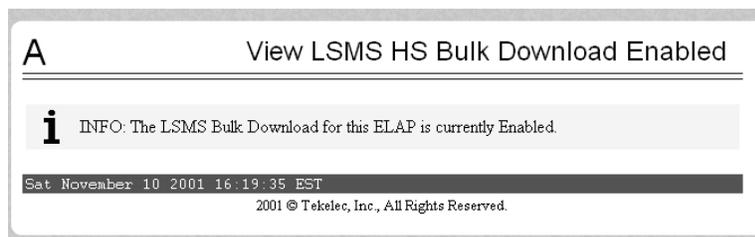
If the LSMS High-Speed Bulk Download is enabled, no action is necessary. Go to step 18.

If the LSMS High-Speed Bulk Download is disabled, select **Maintenance > LSMS HS Bulk Download > Change Enabled**. The window shown in Figure 2-8 is displayed.

Figure 2-8.   Enabling the LSMS High-Speed Bulk Download
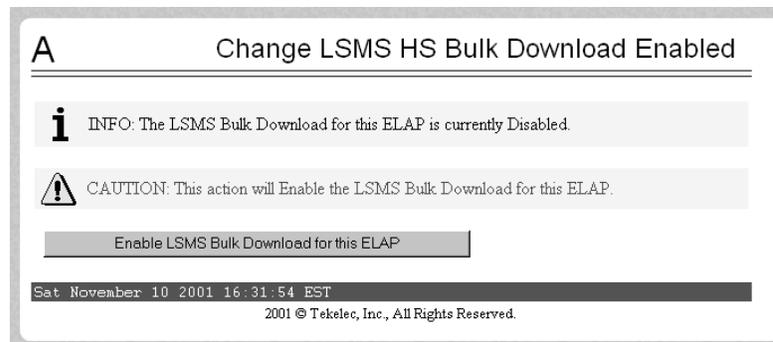
Click the **Enable LSMS Bulk Download for this ELAP** button.   The window shown in Figure 2-9 on page 2-11 is displayed.

Figure 2-9.   Confirming the LSMS HS Bulk Download
             is Enabled
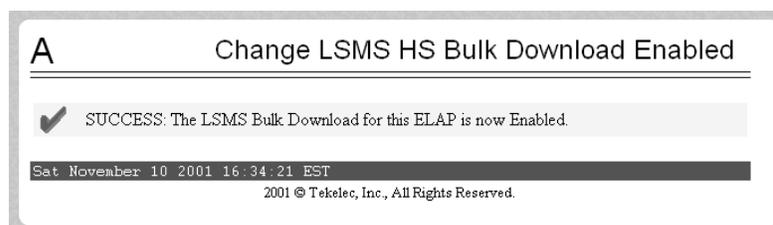
☐ **18.** Repeat steps 12 through 17 for the other ELAP.

☐ **19.** Verify the telephone number quantity on the ELAP. Perform the "Verifying RTDB Status at the ELAP User Interface" procedure on page 2-107.

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 1a on page 2-4.

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 20, go to step 20.

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 DSMs on the EAGLE 5 ISS. Some of the DSMs load the ELAP RTDB to provide a restricted level of GTT/LNP service. The remainder of the DSMs are put into a restricted state. UIM 1323 is generated at the EAGLE 5 ISS. To avoid this situation, make sure when performing step 20 that the telephone number quantity configured on the EAGLE 5 ISS is greater than the ELAP telephone number quantity.

At the EAGLE 5 ISS:

20. Activate the LNP feature for the desired LNP telephone number quantity. Perform the "Activating the LNP Feature on the EAGLE 5 ISS" procedure on page 2-124.

At the LSMS:

21. Contact the Customer Care Center to enable the LNP telephone quantity on the LSMS. Refer to "Customer Care Center" on page 1-9 for the contact information.

---

22. Create a new EMS for the new MPSs by performing the "Creating an EMS Configuration Component" procedure on page 2-77.

---

23. Configure new MPSs in the EMS Routing window. Perform the "EMS Routing" section on page 2-89.

At the MPS (ELAP A or B):

24. Enable the LSMS Connection. Select **Maintenance > LSMS Connection > View Allowed**. The window shown in Figure 2-10 is displayed.

Figure 2-10. LSMS Connection View
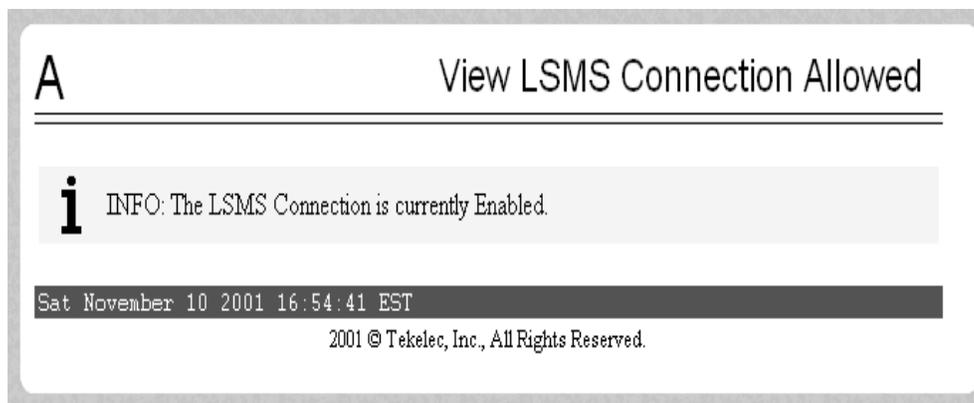
If the connection is enabled, no action is necessary. Go to step 25.

If the connection is disabled, select **Maintenance > LSMS Connection > Change Allowed**. The window shown in Figure 2-11 is displayed.

Figure 2-11. Enabling the LSMS Connection
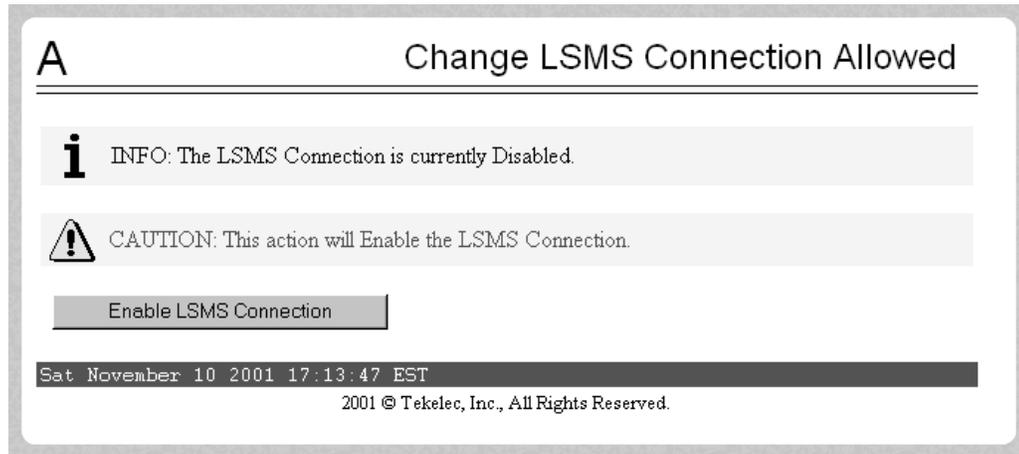
Click the **Enable LSMS Connection** button. The window shown in Figure 2-12 on page 2-13 is displayed.

Figure 2-12. Confirming the LSMS Connection is Enabled

Repeat step 24 for the other ELAP.

At the LSMS:

25. Perform a bulk download to one of the ELAPs. Perform the procedures in the "Bulk Load Procedure" section on page 2-93.

☐ **At the MPS (the ELAP specified in step 25):**

26. Copy the bulk down loaded database to the other ELAP. Perform the procedures in the "Copying One RTDB from Another RTDB" section on page 2-105.

☐ **27.** Perform a health check of the MPS. Perform the "MPS Health Check Procedure" section on page 2-75.

☐ **At the EAGLE 5 ISS:**

28. Distribute the RTDB database to each DSM in the EAGLE 5 ISS. Perform the procedures in the "Distributing the LNP Database after LSMS-Based Operation or RTDB Copy" section on page 2-135.

☐ **At the MPS (ELAP A or B):**

29. Disable the LSMS Connection. Select **Maintenance > LSMS Connection > View Allowed**. The window shown in Figure 2-13 is displayed.

Figure 2-13. LSMS Connection View
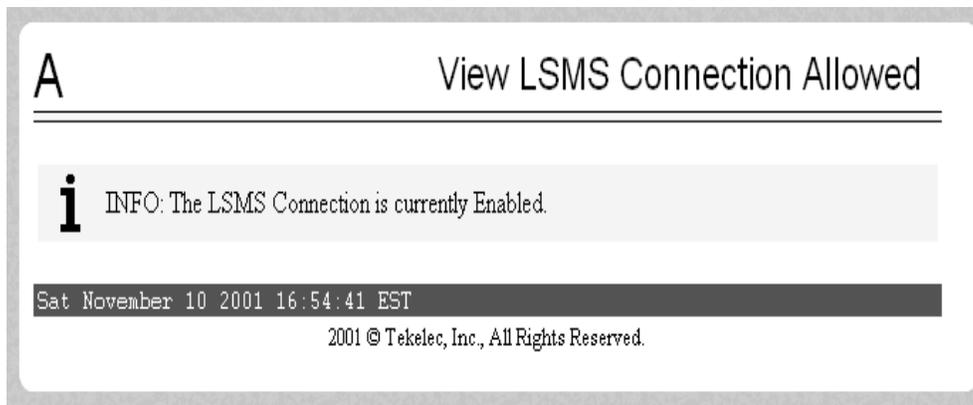
If the connection is disabled, no action is necessary. Go to step 30.

If the connection is enabled, select **Maintenance > LSMS Connection > Change Allowed**. The window shown in Figure 2-14 is displayed.

Figure 2-14. Disabling the LSMS Connection
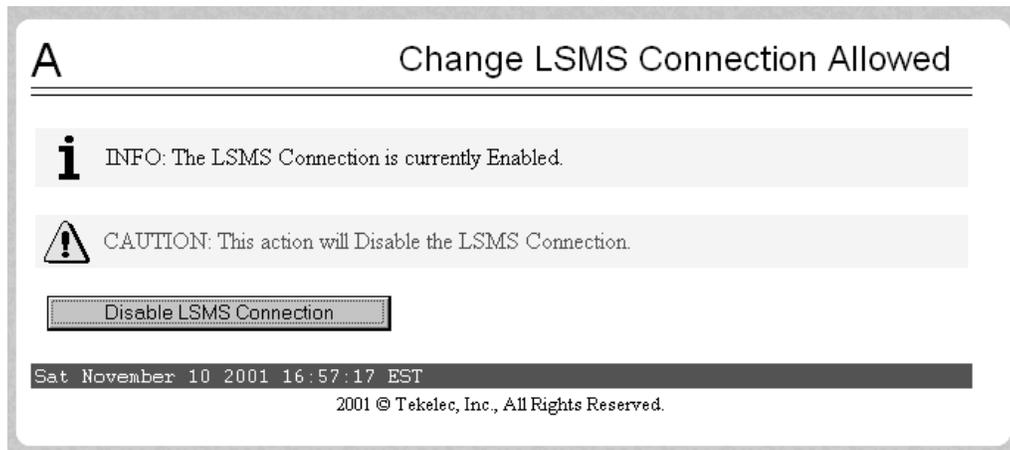
Click the **Disable LSMS Connection** button. The window shown in Figure 2-15 on page 2-15 is displayed.

Figure 2-15. Confirming the LSMS Connection is Disabled
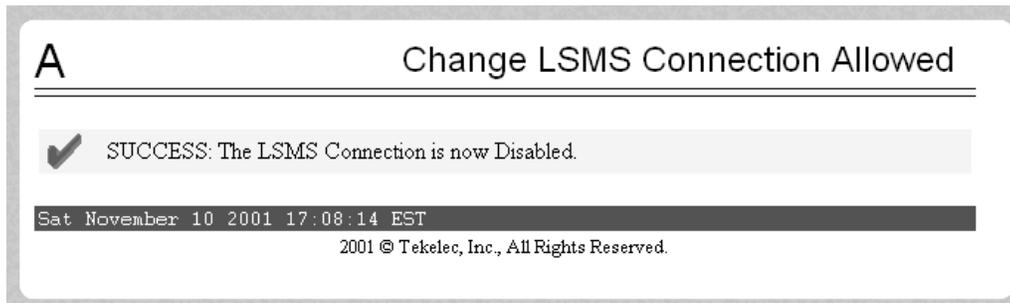
Repeat step 29 for the other ELAP.

☐ **At the MPS (ELAP A or B):**

30. Enable LSMS Connection. Select **Maintenance > LSMS Connection > View Allowed**.   The window shown in Figure 2-16 is displayed.

Figure 2-16. LSMS Connection View

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.
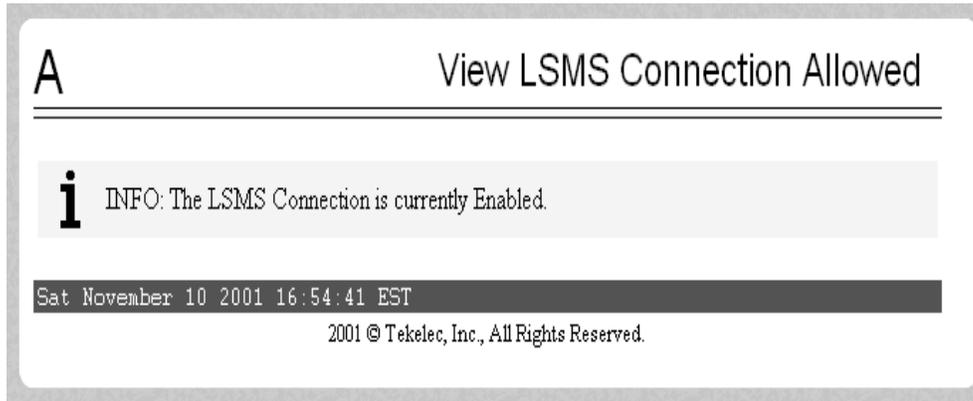
If the connection is enabled, no action is necessary. Go to step 31.

If the connection is disabled, select **Maintenance > LSMS Connection > Change Allowed**. The window shown in Figure 2-17 on page 2-16 is displayed.

Figure 2-17. Enabling the LSMS Connection

A   Change LSMS Connection Allowed

ℹ INFO: The LSMS Connection is currently Disabled.

⚠ CAUTION: This action will Enable the LSMS Connection.

[Enable LSMS Connection]

Sat November 10 2001 17:13:47 EST
2001 © Tekelec, Inc., All Rights Reserved.
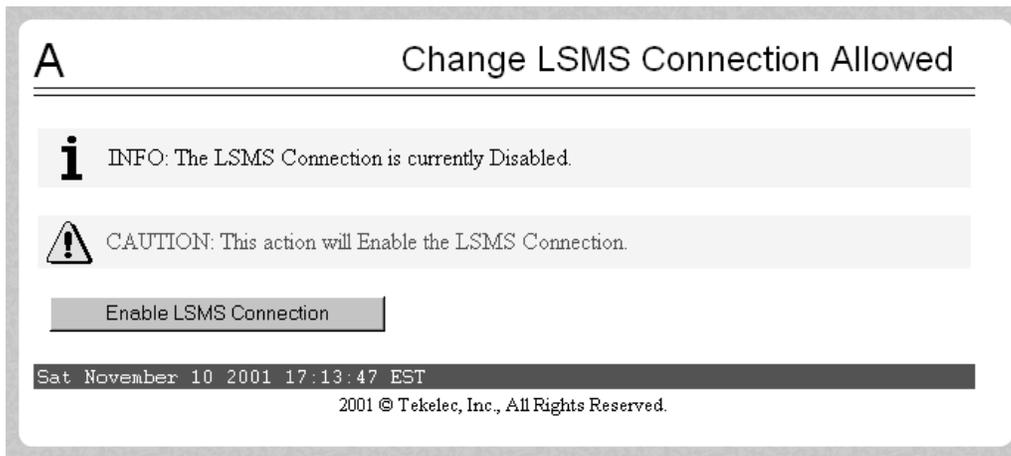
Click the **Enable LSMS Connection** button. The window shown in Figure 2-18 is displayed.

Figure 2-18. Confirming the LSMS Connection is Enabled
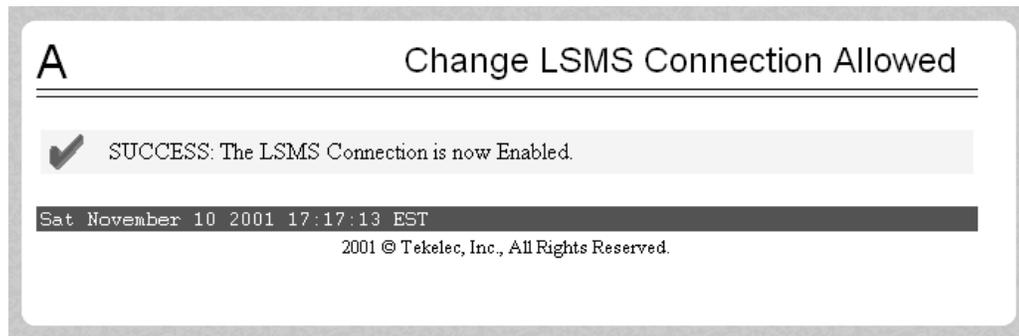
Repeat step 30 for the other ELAP.

☐ **At the LSMS:**

31. 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.

32. The procedure is completed.

Adding a DSM

This procedure is used to add a DSM to support the LNP feature using the `ent-card` command. One of four DSMs can be used, depending on the amount of memory installed on the DSM.

- DSM 1G – A DSM with 1 GB of memory installed

- DSM 2G – A DSM with 2 GB of memory installed

- DSM 3G – A DSM with 3 GB of memory installed

- DSM 4G – A DSM with 4 GB of memory installed

The DSM can be inserted only in the odd numbered card slots of the extension shelf. Slot 09 of each shelf contains the HMUX card or HIPR card (EAGLE 5 ISS release 33.0 or later), thus the DSM cannot be inserted in slot 09. The DSM can be inserted in the control shelf, but only in slots 01, 03, 05, 07, and 11. The DSM occupies two card slots, so the even numbered card slot adjacent to the odd numbered slot where the DSM has been inserted must be empty, as shown in Table 2-2. The DSM is connected to the network through the odd numbered card slot connector.

Table 2-2. DSM Card Locations

Location of the DSM	Empty Card Location	Location of the DSM	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 to be added to the database even if there are not enough SCCP 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 DSM 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 your Tekelec Sales Representative or Account Representative.**

The EAGLE 5 ISS can contain a maximum of 25 DSMs.

Procedure

☐ **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, skip this step and go to step 3.

2. Turn the global title translation feature on by entering this command.

`chg-feat:gtt=on`

> **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 your Tekelec Sales Representative or Account Representative.**

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

```
rlghncxa03w 07-03-01 09:57:41 GMT EAGLE5 35.6.0
CHG-FEAT: MASP A - COMPLTD
```

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

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.**

This is an example of the possible output.

```
rlghncxa03w 07-03-01 09:58:31 GMT EAGLE5 35.6.0
CARD    TYPE      APPL       LSET NAME      LINK SLC LSET NAME     LINK SLC
1101    TSM       SCCP
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       SCCP
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       SCCP
2105    TSM       SCCP
2112    TSM       SCCP
```

4. Verify that the DSM has been physically installed into the proper location.

CAUTION: If the version of the BPDCM GPL on the DSM card does not match the BPDCM GPL version in the database when the DSM 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 *EAGLE 5 ISS Maintenance Manual* **before proceeding with this procedure.**

5. Add the DSM to the database using the `ent-card` command. For this example, enter this command.

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

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

```
rlghncxa03w 07-03-01 09:57:51 GMT  EAGLE5 35.6.0
ENT-CARD: MASP A - COMPLTD
```

☐ **6.** Verify the changes using the **rtrv-card** command with the card location specified.   For this example, enter this command.

rtrv-card:loc=1301

This is an example of the possible output.

```
rlghncxa03w 07-03-01 09:58:31 GMT EAGLE5 35.6.0
CARD   TYPE      APPL      LSET NAME     LINK SLC LSET NAME     LINK SLC
1301   DSM       VSCCP
```

☐ **7.** Repeat this procedure to add other DSMs to the EAGLE 5 ISS.

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

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

You have now completed this procedure.

Removing an SCCP Card

This procedure is used to remove SCCP cards that do not meet the hardware requirements for the desired LNP telephone number quantity from the database, using the `dlt-card` command. The hardware requirements for SCCP cards and LNP telephone number quantities are shown in Table 2-1 on page 2-2.

These card locations were recorded in step 1d on page 2-4 (TSMs), or shown in the `rept-stat-card` output in step 5 on page 2-5 (DSMs that do not contain enough memory for the desired LNP telephone number quantity) of the "Activating the LNP Feature Overview" 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 SCCP card is the last SCCP 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 SCCP card in card location 1204.

Procedure

1. Display the status of the SCCP cards by entering the `rept-stat-sccp` command. This is an example of the possible output.

```
rlghncxa03w 07-03-01 09:12:36 GMT  EAGLE5 35.6.0

CARD    VERSION     PST          SST          AST          MSU   CPU
                                                           USAGE USAGE
-----------------------------------------------------------------
1101    123-002-001 IS-NR        Active       -----         33%   40%
1204    123-002-001 IS-NR        Active       -----         21%   25%
2101    123-002-001 IS-NR        Active       -----         15%   14%
2105    123-002-001 IS-NR        Active       -----         25%   26%
2112    123-002-001 IS-NR        Active       -----         40%   35%
1301    123-002-001 IS-NR        Active       -----         20%   23%
1303    123-002-001 IS-NR        Active       -----         11%   14%
1305    123-002-001 IS-NR        Active       -----         10%   12%
1307    123-002-001 IS-NR        Active       -----         16%   18%
1311    123-002-001 IS-NR        Active       -----         24%   30%
-----------------------------------------------------------------
SCCP Service Average MSU Capacity =  22%  Average CPU Capacity =   24%
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 1d on page 2-4 or shown in step 5 on page 2-5 of the "Activating the LNP Feature Overview" procedure. If the SCCP card to be inhibited is the only SCCP card in service, the **force=yes** parameter must also be specified. The cards that are in service are shown by the entry **IS-NR** in the **PST** field in the output in step 1. For this example, enter this command.

rmv-card:loc=1204

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

```
rlghncxa03w 07-03-01 09:12:36 GMT  EAGLE5 35.6.0
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. For this example, enter this command.

dlt-card:loc=1204

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

```
rlghncxa03w 07-03-01 09:12:36 GMT  EAGLE5 35.6.0
DLT-CARD: MASP A - COMPLTD
```

☐ **4.** Verify the changes using the **rtrv-card** command specifying the card that was removed in step 3. For this example, enter this command.

rtrv-card:loc=1204

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

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

☐ **5.** Remove the card specified in step 3 from the shelf.

☐ **6.** Repeat this procedure for all other SCCP 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 1d on page 2-4 of the "Activating the LNP Feature Overview" 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.

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.

Canceling the `REPT-STAT-CARD` Command

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

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

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

- Enter the `canc-cmd:trm=<xx>`, where `<xx>` is the terminal where the `rept-stat-card` command was entered, from another terminal other than the terminal where the `rept-stat-card` command was entered. To enter the `canc-cmd:trm=<xx>` command, the terminal must allow Security Administration commands to be entered from it and the user must be allowed to enter Security Administration commands. The terminal's permissions can be verified with the `rtrv-secu-trm` command. The user's permissions can be verified with the `rtrv-user` or `rtrv-secu-user` commands.

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

Procedure

☐ **1.** Display the state of the DCM running the **ebdadcm** application with the **rept-stat-card** command with the card location recorded in step 1d on page 2-4 of the "Activating the LNP Feature Overview" 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 (see "Canceling the **REPT-STAT-CARD** Command" on page 2-24). For this example, enter this command.

rept-stat-card:loc=1217

This is an example of the possible output:

```
rlghncxa03w 07-03-01 09:12:36 GMT  EAGLE5 35.6.0
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.

If the state of the DCM is **OOS-MT-DSBLD**, go to step 3.

☐ **2.** Place the DCM out of service using the **rmv-card** command and specifying the card location. For this example, enter this command:

rmv-card:loc=1217

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

```
rlghncxa03w 07-03-01 09:12:36 GMT  EAGLE5 35.6.0
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. For this example, enter this command:

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

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

```
rlghncxa03w 07-03-01 09:12:36 GMT  EAGLE5 35.6.0
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. For this example, enter this command:

`dlt-card:loc=1217`

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

```
rlghncxa03w 07-03-01 09:12:36 GMT  EAGLE5 35.6.0
DLT-CARD: MASP A - COMPLTD
```

☐ **5.** Verify the changes using the `rtrv-card` command specifying the card that was removed in step 4. For this example, enter this command:

`rtrv-card:loc=1217`

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

```
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 1d on page 2-4 of the "Activating the LNP Feature Overview" 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.

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.

Procedure

☐ **1.** Display the state of the BLM with the **rept-stat-card** command with the card location recorded in step 1d on page 2-4 of the "Activating the LNP Feature Overview" 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 (see "Canceling the **REPT-STAT-CARD** Command" on page 2-24). For this example, enter this command.

```
rept-stat-card:loc=1215
```

This is an example of the possible output:

```
rlghncxa03w 07-03-01 09:12:36 GMT  EAGLE5 35.6.0
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.

If the state of the BLM is **OOS-MT-DSBLD**, go to step 3.

☐ **2.** Place the BLM out of service using the `rmv-card` command and specifying the card location. For this example, enter this command:

`rmv-card:loc=1215`

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

```
rlghncxa03w 07-03-01 09:12:36 GMT  EAGLE5 35.6.0
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. For this example, enter this command:

`dlt-card:loc=1215`

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

```
rlghncxa03w 07-03-01 09:12:36 GMT  EAGLE5 35.6.0
DLT-CARD: MASP A - COMPLTD
```

☐ **4.** Verify the changes using the `rtrv-card` command and specifying the card that was removed in step 3. For this example, enter this command.

`rtrv-card:loc=1215`

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

```
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 DSM Ethernet Link to the MPS

This procedure is used to configure the Ethernet link parameters for the DSMs using the **chg-ip-lnk** command.

The **chg-ip-lnk** command uses the following parameters.

> **:loc** – The card location of the DSM.
>
> **:port** – The Ethernet interface on the DSM, A or B.
>
> **:ipaddr** – IP address assigned to the Ethernet interface on the DSM. 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 zero's. There must be at least two one's in the mask, and the mask cannot be all one's. See Table 2-3 on page 2-30 to assign the correct parameter values.
>
> **:auto** – Tells hardware whether to automatically detect the **duplex** and **speed**. This parameter cannot be used in this procedure.
>
> **:duplex** – This is the mode of operation of the interface.
>
> **:speed** – This is the bandwidth in megabits per second of the interface.
>
> **:mactype** – This is the Media Access Control Type of the interface.

When a DSM is entered into the database, these values are automatically configured in the IP Link table for both Ethernet interfaces on the DSM.

- DUPLEX = HALF

- SPEED = 10

- MACTYPE = DIX

- AUTO = NO

- MCAST = NO

The **IPADDR** and **SUBMASK** columns in the **rtrv-ip-lnk** output are shown as dashes. Each Ethernet link assigned to the DSM requires the IP address and submask of the MPS. The speed of one of the links must be 100 (**speed=100**). The **MCAST** value for both Ethernet links must be yes (**mcast=yes**). No other values need to be changed. It is preferable that the speed of the link on Port A is 100 (**speed=100**), and that the speed of the link on port B is 10 (**speed=10**).

A zero **ipaddr** parameter value (**0.0.0.0**) indicates the DSM Ethernet interface to the MPS is disabled.

The DSM 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 DSM.

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 DSM) and the default value .121 for the backup network (port B of the DSM). 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 **ipadddr** setting. See Table 2-3 for the valid input values for the **submask** and **ipaddr** parameter combinations.

Table 2-3. 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

Table 2-3. Valid Subnet Mask Parameter Values (Continued)

		255.255.255.0 (the default value for a class C IP address)
A+B+C	192.0.0.0 to 223.255.255.0	255.255.255.192
		255.255.255.224
		255.255.255.240
		255.255.255.248
		255.255.255.252

Procedure

☐ **1.** Display the current Ethernet link parameters associated with the DSM in the database by entering the `rtrv-ip-lnk` command. The following is an example of the possible output.

```
rlghncxa03w 07-03-01 21:14:37 GMT EAGLE5 35.6.0
LOC   PORT IPADDR          SUBMASK         DUPLEX  SPEED MACTYPE AUTO MCAST
1203  A    192.001.001.001 255.255.255.0   HALF    10    802.3   NO   NO
1203  B    --------------- --------------- HALF    10    DIX     NO   NO
1205  A    192.001.001.014 255.255.255.0   FULL    100   DIX     NO   NO
1205  B    --------------- --------------- HALF    10    DIX     NO   NO
1301  A    --------------- --------------- HALF    10    DIX     NO   NO
1301  B    --------------- --------------- HALF    10    DIX     NO   NO
1303  A    --------------- --------------- HALF    10    DIX     NO   NO
1303  B    --------------- --------------- HALF    10    DIX     NO   NO
1305  A    --------------- --------------- HALF    10    DIX     NO   NO
1305  B    --------------- --------------- HALF    10    DIX     NO   NO
1307  A    --------------- --------------- HALF    10    DIX     NO   NO
1307  B    --------------- --------------- HALF    10    DIX     NO   NO
1311  A    --------------- --------------- HALF    10    DIX     NO   NO
1311  B    --------------- --------------- HALF    10    DIX     NO   NO

IP-LNK   table is (12 of 512) 2% full.
```

☐ **2.** Verify the status of the DSM 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 07-03-01 17:00:36 GMT EAGLE5 35.6.0
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 DSM being configured in this procedure is in service-normal (IS-NR), go to step 3 to inhibit the card. If the state of the DSM is

out-of-service-maintenance disabled (OOS-MT-DSBLD), go to step 5 to change the Ethernet link parameters.

☐ **3.** Place the DSM out of service using the `inh-card` command. For example, enter this command.

> `inh-card:loc=1301`

This message should appear.

```
rlghncxa03w 07-03-01 21:18:37 GMT EAGLE5 35.6.0
Card has been inhibited.
```

☐ **4.** Display the status of the DSM 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 07-03-01 17:00:36 GMT EAGLE5 35.6.0
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 DSM 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:speed=100`
> `:submask=255.255.255.0:mcast=yes`

> `chg-ip-lnk:loc=1301:port=b:ipaddr=192.168.121.1:speed=10`
> `:submask=255.255.255.0:mcast=yes`

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

```
rlghncxa03w 07-03-01 21:18:37 GMT EAGLE5 35.6.0
CHG-IP-LNK: MASP A - COMPLTD
```

☐ **6.** Verify the new Ethernet link parameters associated with the DSM that was changed in step 5 by entering the `rtrv-ip-lnk` command with the card location specified in step 5. For this example, enter this command.

`rtrv-ip-lnk:loc=1301`

The following is an example of the possible output.

```
rlghncxa03w 07-03-01 21:19:37 GMT EAGLE5 35.6.0
LOC    PORT IPADDR          SUBMASK        DUPLEX  SPEED MACTYPE AUTO MCAST
1301   A    192.168.120.001 255.255.255.0  HALF    100   DIX     NO   YES
1301   B    192.168.121.001 255.255.255.0  HALF    10    DIX     NO   YES
```

☐ **NOTE: If step 3 was not performed, skip steps 7 and 8, and go to step 9.**

7. Put the DSM that was inhibited in step 3 back into service by using the `alw-card` command. For example, enter this command.

`alw-card:loc=1301`

This message should appear.

```
rlghncxa03w 07-03-01 21:20:37 GMT EAGLE5 35.6.0
Card has been allowed.
```

☐ **8.** Verify the in-service normal (IS-NR) status of the DSM 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 07-03-01 17:00:36 GMT EAGLE5 35.6.0
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.
```

☐ **9.** Repeat this procedure for all other DSMs in the EAGLE 5 ISS.

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

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

You have now completed this procedure.

ELAP Software Configuration Overview

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," in the *ELAP Administration Manual*.

- The text-based user interface has a configuration menu that performs the ELAP configuration and initialization, and is described in the "ELAP Configuration Menu" section on page 2-45.

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," in 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 section.

After setting up the PC workstation, perform the "ELAP Configuration and Initialization" section on page 2-41.

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.

Java

The ELAP GUI uses a Java "banner" applet to display real-time updates and status for both A and B sides of the MPS. A Java virtual machine version 1.2 or later is required.

The Java installation must be performed in the sequence shown:

- "Installing the Java Plug-In"

- "Installing the Java Policy File" on page 2-39

- "Adding Security Parameters to an Existing Java Policy File" on page 2-40 or "Creating a New Java Policy File" on page 2-40

Installing the Java Plug-In

Because the Java applet is required for the ELAP GUI to operate, perform the following procedure to install the Java plug-in. You will perform this after completing the ELAP configuration described in the "ELAP Configuration and Initialization" section on page 2-41.

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.

Procedure

☐ **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 ELAP A machine. You will see the login screen. See Figure 2-19.

Figure 2-19. ELAP User Interface Login Screen
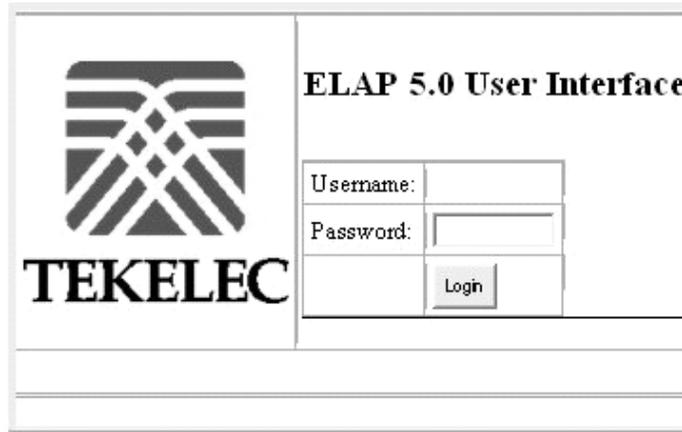
☐ **2.** Log in to the ELAP User Interface screen. When you have successfully entered the Username and Password, the login process checks for the required Java plug-in. When it finds the Java plug-in not present, the system displays a 'Security Warning' window, shown in Figure 2-20.

Figure 2-20. Security Warning Window
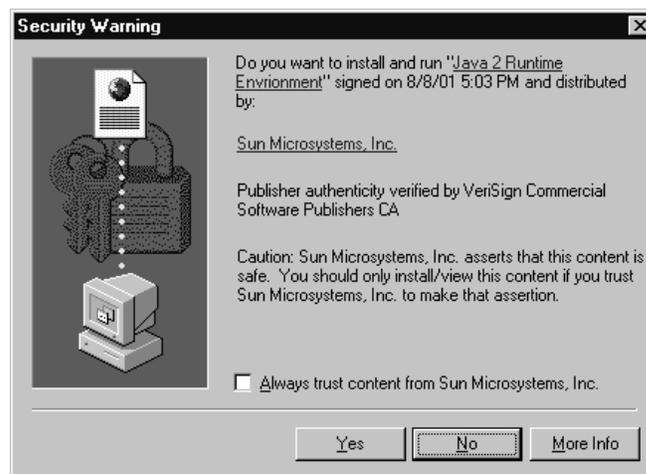
☐ **3.** Click the **Yes** button to begin the process of loading the Java plug-in.

☐ **4.** The loading and unpacking of the Java runtime environment begins, as shown in Figure 2-21.

Figure 2-21. Unpacking Java Runtime
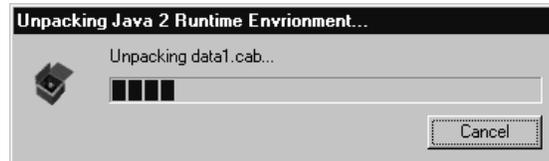
☐ **5.** Next, the Java installation presents a Software Licensing Agreement screen shown in Figure 2-22.

Figure 2-22. Software Licensing Agreement
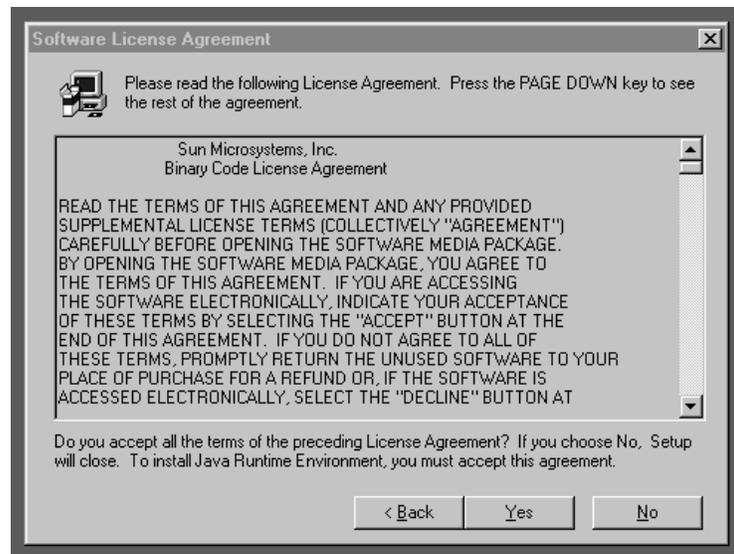
☐ **6.** Click the **Yes** button to accept the Sun Microsystems agreement.

☐ **7.** Next, you must specify a destination location for the Java folder, as shown in Figure 2-23.

Figure 2-23. Choosing a Destination Location

☐ **8.** Since the specified default location is the preferred location to use, simply click the **Next** button to accept the Destination Folder. The process begins to load the program and shows the progress in a screen like Figure 2-24.

Figure 2-24. Storing the Java Program
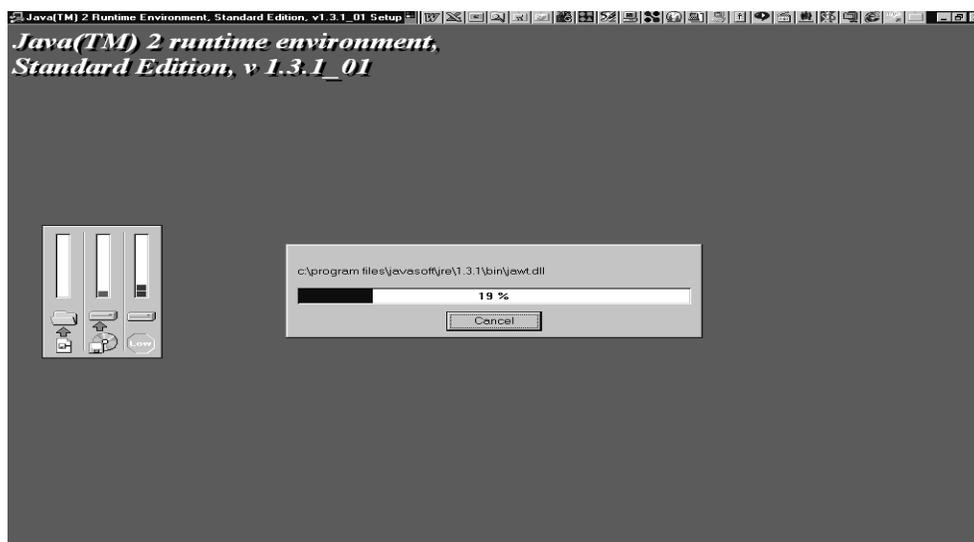
☐ **9.** As this loading process continues, several screens appear in succession marking the progress of the installation and the creation of Java JAR files. Finally, another momentary message indicates the successful completion, shown in Figure 2-25.

Figure 2-25. Successfully Completing the Installation
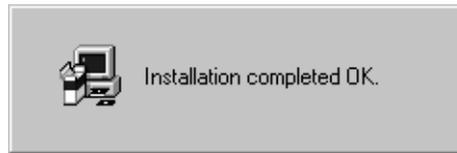
☐ **10.** When screen in Figure 2-25 appears and then disappears, the installation of the Java plug-in is finished. You return to the browser screen containing the login screen in Figure 2-19 on page 2-36.

Installing the Java Policy File

The banner applet makes a network connection to each MPS side. A Java policy file must be modified or created 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; for more information, see Chapter 3, "ELAP Graphical User Interface," in the *ELAP Administration Manual*.

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.

Adding 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:

- Select **Settings > Control Panel** from the Windows **Start Menu**. If you are running Windows XP, select **Control Panel** from the Windows **Start Menu**. If the **Control Panel** window displays in the **Category View**, click on **Switch to Classic View** in the **Control Panel** section on the left side of the **Control Panel** window.

- Double click on the Java Plug-in icon

- Under the "Advanced" tab, the path to a policy file is specified as follows:

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

Open the specified file, and insert the following text:

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

Creating a New Java Policy File

To create a Java policy file, insert the following text into a file accessible by the workstation:

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

To install the new Java policy file, perform the following actions:

- Select **Settings > Control Panel** from the Windows **Start Menu**. If you are running Windows XP, select **Control Panel** from the Windows **Start Menu**. If the **Control Panel** window displays in the **Category View**, click on **Switch to Classic View** in the **Control Panel** section on the left side of the **Control Panel** window.

- Double click on the Java Plug-in icon

- Under the "Advanced" tab, type in the path to the policy file you created above:

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

You have now completed the Java installation procedure.

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:

1. 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.

Required Network Address Information

The following information is needed to configure the MPSs at EAGLE 5 ISS A (Table 2-4) and EAGLE 5 ISS B (Table 2-5 on page 2-43). Fill in the following tables for reference during the installation procedure.

Table 2-4. Information for MPS at EAGLE 5 ISS A

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.	·	·	·
MPS B Provisioning Static NAT Addr.	·	·	·

* Do not change the default values for these ports

Table 2-5. 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.	·	·	·
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 format in Figure 2-26 on page 2-44.

Figure 2-26. 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 1.0.1-5.0.0_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 the **<Return>** key.

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 the **<Return>** key.

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 section; 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 the **<Return>** key.

You can press the **<Esc>** 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 the **<Return>** key.

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 Chapter 3, "ELAP Graphical User Interface," 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 section.

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:

```
EXXXX: 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.

ELAP Configuration Menu

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 the ELAP" on page 2-59.) 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 the **Configuration Menu**.

Initial `elapconfig` User Login

The first time the `elapconfig` user logs in to the system, the text screen is displayed as shown in Figure 2-27.

Figure 2-27. 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 the **<Return>** key and the process resumes. Figure 2-28 shows the continuation of the screen information. Enter **y** to continue the installation.

Figure 2-28. Initial Configuration Continues

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

Review the information required for the following section in Table 2-4 on page
2-42 and Table 2-5 on page 2-43. Make certain all required information is obtained
and recorded in the tables provided.

Next, you are prompted for the **elapdev** user password on the mate MPS server.
Figure 2-29 shows sample output that is generated after the correct password is
entered.

Figure 2-29. 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 2-29, the **ELAP Configuration Menu** is displayed as shown in Figure 2-30. The `elapconfig` user can now begin configuring the MPS local and remote servers.

Figure 2-30. ELAP Configuration Menu

```
MPS Side A:   hostname: mps-t1100-a   hostid: fd0a4767
              Platform Version: 2.0.2-4.0.0_50.26.0
              Software Version: ELAP 1.0.1-5.0.0_50.37.0
              Mon Sep 26 10:57:57 EDT 2005


   /-----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            |
  |----|---------------------------------|
  | e  | Exit                            |
  \--------------------------------------/

  Enter Choice:
```

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 the **<Return>** key.

Next the use of each of the menu options is explained.

Display Configuration

Option 1 in the **ELAP Configuration Menu**, **Display Configuration**, displays network address information and the time zone. See an example in Figure 2-31.

Figure 2-31. Example of Display Configuration Output

```
ELAP A Provisioning Network IP Address = 192.168.61.90
ELAP B Provisioning Network IP Address = 192.168.61.91
Provisioning Network Netmask         = 255.255.255.0
Provisioning Network Default Router  = 192.168.61.250
ELAP A Backup Prov Network IP Address  = Not configured
ELAP B Backup Prov Network IP Address  = Not configured
Backup Prov Network Netmask          = Not configured
Backup Prov Network Default Router   = Not configured
ELAP A Sync Network Address          = 192.168.2.100
ELAP B Sync Network Address          = 192.168.2.200
ELAP A Main DSM Network Address      = 192.168.128.100
ELAP B Main DSM Network Address      = 192.168.128.200
ELAP A Backup DSM Network Address    = 192.168.129.100
ELAP B Backup DSM Network Address    = 192.168.129.200
ELAP A HTTP Port                     = 8888
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            = 10.25.50.10
ELAP B Static NAT Address            = 10.25.50.11
ELAP A LSMS Connection Port          = 7402
ELAP B LSMS Connection Port          = 7403
ELAP A EBDA Connection Port          = 1030
ELAP B EBDA Connection Port          = 1030
Time Zone                            = US/Eastern

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 2-6 on page 2-48 shows an example of IP addresses used in the configuration process.

Table 2-6. 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

Configure Network Interfaces and Options

Option 2 in the **ELAP Configuration Menu**, **Configure Network Interfaces Menu**, displays the submenu shown in Figure 2-32. It supports the configuration of all the network interfaces for the ELAP.

NOTE: The Configure Backup Provisioning Network option **4** of the Configure Network Interfaces Menu is not operational in this release.

Figure 2-32. Configure Network Interfaces Menu

```
    /-----Configure Network Interfaces Menu----\
   /-------------------------------------------\
   |  1 | Configure Provisioning Network        |
   |----|---------------------------------------|
   |  2 | Configure Sync Network                |
   |----|---------------------------------------|
   |  3 | Configure DSM Network                 |
   |----|---------------------------------------|
   |  4 | Configure Backup Provisioning Network |
   |----|---------------------------------------|
   |  5 | Configure Forwarded Ports             |
   |----|---------------------------------------|
   |  6 | Configure Static NAT Addresses        |
   |----|---------------------------------------|
   |  e | Exit                                  |
   \-------------------------------------------/

   Enter Choice:
```

Configure Provisioning Network

Option 1 in the **Configure Network Interfaces Menu**, **Configure Provisioning Network**, prompts you for the provisioning network's IP address, netmask, and default router IP address. This information allows the ELAP to communicate with an existing customer network.

NOTE: You must configure these IP addresses. Obtain the values for the IP address, netmask, and default router from your Information Services department.

In response to each prompt, you can enter a dotted decimal IP address or press the **<Return>** key to leave the current value unchanged (the current value is shown in brackets after the prompt text). See Figure 2-33.

Figure 2-33. Configure Provisioning Network Output

```
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

Press return to continue…
```

NOTE: Take care in configuring the IP information. Incorrect information can prevent the ELAP from accepting provisioning data and establishing remote ELAP user interface connections over the customer network.

Configure Sync Network

Option 2 in the **Configure Network Interfaces Menu**, **Configure Sync Network**, allows you to specify the Sync network IP address of the selected ELAP. Sync network IP addresses are configured to default values during ELAP initialization. The third octet of the address can be changed after ELAP initialization is complete.

NOTE: **Unless there is a known network address conflict, you may bypass option 2. If these IP addresses are changed in this procedure, obtain the values for the IP address, netmask, and default router from the customer's Information Services department. Record the values in Table 2-4 on page 2-42 and Table 2-5 on page 2-43.**

See Figure 2-34 for an example output.

Figure 2-34. Configure Sync Network Output

```
Verifying connectivity with mate…
Enter the first 3 octets for the ELAP MPS sync Network [192.168.4]
Press return to continue…
```

CAUTION: **Take care in entering the prompt responses. Entering incorrect information or rebooting at the wrong time can result in improper operation of the ELAP. If you reboot at the wrong time, you need to contact the Customer Care Center (refer to "Customer Care Center" on page 1-9 for the contact information) for assistance in resolving this situation.**

Configure DSM Network

Option 3 in the **Configure Network Interfaces Menu**, **Configure DSM Network**, prompts you for DSM main and backup network IP addresses. This information allows the ELAP to communicate with the main and backup DSM networks.

NOTE: **Unless there is a known network address conflict, you can bypass option 2. It these IP addresses are changed in this procedure, obtain the values for the IP address, netmask, and default router from the customer's Information Services department. Record the values in Table 2-4 on page 2-42 and Table 2-5 on page 2-43.**

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

See Figure 2-35 for an example output.

Figure 2-35. Configure DSM Networks Menu Item Output

```
Verifying connectivity with mate…
Enter the first 3 octets for the ELAP main DSM network [192.168.128]:
Enter the first 3 octets for the ELAP backup DSM network [192.168.129]:
Press return to continue…
```

NOTE: **Take care in configuring the IP information. Incorrect information will prevent the ELAP from communicating with the EAGLE 5 ISS.**

Configure Forwarded Ports

Option 5 in the **Configure Network Interfaces Menu**, **Configure Forwarded Ports**, allows you to configure the ELAP ports for the Web UI.

CAUTION: Do not change the default values, the LSMS is not capable of changing the LSMS/EBDA ports it can connect to on the MPS.

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 2-4 on page 2-42 and Table 2-5 on page 2-43.

Configure Static NAT Addresses

The Configure Static NAT Addresses option 6 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 2-36 on page 2-51 shows an example of a resulting prompt.

Figure 2-36.   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 the Customer Care Center for assistance. Refer to "Customer Care Center" on page 1-9 for the contact information.

Option 3 in the **ELAP Configuration Menu**, **Set Time Zone**, 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 meets the needs of the system.

NOTE: The value for the time zone should be obtained from your Information Services department. The default value for the time zone is "US/Eastern".

After option 3 is selected in the **ELAP Configuration Menu**, you are asked to decide whether or not you wish to change the time zone for MPSs A and B. See Figure 2-37.

Figure 2-37. Set Time Zone Menu Item Output

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

If you answer the prompt **n** (no), or press the **<Return>** key, the time zone for the MPSs is not changed.

If you answer the prompt **y** (yes), you are prompted with the following.

```
Enter a time zone:
```

You must enter a valid UNIX time zone file name. To display a complete list of the valid time zones, simply press the **<Return>** key in response to the prompt, and all valid time zone names are displayed. Appendix A in the *ELAP Administration Manual* contains a list of valid time zones.

The time zone change does not take effect until the next time the MPS is rebooted. The **Reboot MPS** menu item is described in "Reboot MPS" on page 2-53.

Exchange Secure Shell Keys

Option 4 in the **ELAP Configuration Menu**, **Exchange Secure Shell Keys**, enables connections between local and remote ELAPs without entering a password. The ELAPs exchange encryption keys, which are required to run the secure shell.

The exchange is normally done automatically during ELAP initialization. This menu item can be used if the exchange ever needs to be done manually. See Figure 2-38 on page 2-52.

Figure 2-38. Exchange Secure Shell Keys Output

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

Change Password

Option 5 in the **ELAP Configuration Menu**, **Change Password**, changes the text user interface password for an **elapconfig** login name for both ELAP A and B. See Figure 2-39.

> **NOTE:**   It is recommended that you contact the Customer Care Center; refer to "Customer Care Center" on page 1-9 for the contact information, before changing the password.

Figure 2-39. Change Password Output

```
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

Option 6 in the **ELAP Configuration Menu**, **ELAP Platform Menu**, accesses the Platform menu so that the `elapconfig` user can access and manage platform functions shown next. See Figure 2-40.

Figure 2-40. 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 1.0.1-5.0.0_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

Option 1 in the **ELAP Platform Menu**, **Initiate Upgrade**, initiates an upgrade on the selected ELAP. For upgrade procedures, contact the Customer Care Center; refer to "Customer Care Center" on page 1-9 for the contact information.

Eject CD

Option 2 in the **ELAP Platform Menu**, **Eject CD**, initiates an ejection of the CD media on the selected ELAP. The default is BOTH.

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

Reboot MPS

Option 3 in the **ELAP Platform Menu**, **Reboot MPS**, initiates a reboot of either MPS or both. The default is BOTH.

NOTE: The `elapconfig` user can abort rebooting the MPS by pressing the **<Esc> key at the displayed prompt.**

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

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

Halt MPS

Option 4 in the **ELAP Platform Menu**, **Halt MPS**, initiates a halt of one MPS or both. The default is BOTH.

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

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

NOTES:

1. **The `elapconfig` user can abort halting the MPS by pressing the <Esc> key at the displayed prompt.**

2. **It is recommended that you contact the Customer Care Center; refer to "Customer Care Center" on page 1-9 for the contact information, before halting the MPS.**

MySQL Backup

Option 5 in the **ELAP Platform Menu**, **MySQL Backup**, 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 on MPS A? [N]: y
Connecting to local MySQL server...
Getting read lock...
Tarring the NPDB...
Disconnecting from local MySQL server...
```

RTDB Backup

Option 6 in the **ELAP Platform Menu**, **RTDB Backup**, 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-t1100a_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

Option 7 in the **ELAP Configuration Menu**, **Configure NTP Server**, allows for the display, addition, and removal of an external NTP server. See Figure 2-41.

Figure 2-41. 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

Option 1 in the **ELAP Configure NTP Server Menu**, **Display External NTP Server**, 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

Option 2 in the **ELAP Configure NTP Server Menu**, **Add External NTP Server**, 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]: 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.
```

Remove External NTP Server

Option 3 in the **ELAP Configure NTP Server Menu**, **Remove External NTP Server**, 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 described in this section. The user accesses the text-based configuration procedure by means of the product user interface.

The first time the user identification `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 "Network Connections" in Chapter 2 of the *ELAP Administration Manual* and defined in the *Installation Manual - EAGLE 5 ISS*. Various internal configuration parameters are also set to their default values. You must perform initial configuration on MPS A on EAGLE 5 ISS A and MPS B 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 path 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 examples 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 backup.

- 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 you are running the configuration software on the physical MPS (that is, the MPS that you are physically on-site and has his terminal connected to), the configuration software refers to that MPS as 'local'. However if you connect 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 you are 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 you are physically located.

  The MPS of EAGLE 5 ISS A is the first MPS to which you are physically connected 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 you are physically connected. This section refers to the MPS to which you are not physical connected as MPS A on EAGLE 5 ISS B.

Configuration Symbols

During the configuration procedure, you 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. This section uses these symbols to indicate individual instructions to be performed for those specific MPSs.

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

You 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. It is required 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, connect 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 Chapter 2 of the *ELAP Administration Manual*.

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, you must first complete the connection to and configuration of the MPS on EAGLE 5 ISS A. You are then able to use a secure shell session to MPS at EAGLE 5 ISS B to configure it.

1. You 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 2-5 on page 2-43.

```
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 the ELAP

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 2-58), you can perform this procedure to configure the ELAPs in your network.

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

⚠ **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 will try to download more LNP telephone number records than the EAGLE 5 ISS can handle. It is recommended that the LNP telephone number quantity on the EAGLE 5 ISS should be equal to or greater than the quantity of the ELAP database.

Using the set up and connection described previously, you connect to an MPS to perform configuration. In a typical installation, you connect 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.

Procedure

☐ **1.** After connecting to the MPS on EAGLE 5 ISS A, you are prompted to login. You must login as **elapconfig**. A note of caution appears, and you must evaluate them. When all the conditions of the caution notice are satisfied, press the **<Return>** key to continue.

```
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…
```

2. Upon pressing the **<Return>** key to continue, you can abort or proceed with the initial configuration. (Note that pressing the **<Return>** key would accept the default value **n**.) To continue with the configuration, enter **y**.

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

B   **MPS on EAGLE 5 ISS B:**
The configuration software is now being executed 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 the "Configuration Terms and Assumptions" section on page 2-57).

3. Next, you are prompted for the **elapdev** user password on the mate MPS server in order 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.
```

4. A successful configuration file setup results in the display (for the first time) 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: fd0a4767
             Platform Version: 2.0.2-4.0.0_50.26.0
             Software Version: ELAP 1.0.1-5.0.0_50.37.0
             Mon Sep 26 10:57:57 EDT 2005
```

```
 /-------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 Menu        |
|----|----------------------------------|
|  e | Exit                             |
\---------------------------------------/

Enter Choice:
```

5. Choose option **1** for **Display Configuration**, which provides a means of verifying ELAP A and ELAP B Provisioning Network IP addresses, the Time Zone, and other provisioning values for the MPS on EAGLE 5 ISS A.

```
MPS Side A:  hostname: mps-t1100-a  hostid: fd0a4767
             Platform Version: 2.0.2-4.0.0_50.26.0
             Software Version: ELAP 1.0.1-5.0.0_50.37.0
             Mon Sep 26 10:57:57 EDT 2005

ELAP A Provisioning Network IP Address = 192.168.61.90
ELAP B Provisioning Network IP Address = 192.168.61.91
Provisioning Network Netmask           = 255.255.255.0
Provisioning Network Default Router     = 192.168.61.250
ELAP A Backup Prov Network IP Address  = Not configured
ELAP B Backup Prov Network IP Address  = Not configured
Backup Prov Network Netmask            = Not configured
Backup Prov Network Default Router     = Not configured
ELAP A Sync Network Address            = 192.168.2.100
ELAP B Sync Network Address            = 192.168.2.200
ELAP A Main DSM Network Address        = 192.168.128.100
ELAP B Main DSM Network Address        = 192.168.128.200
ELAP A Backup DSM Network Address      = 192.168.129.100
ELAP B Backup DSM Network Address      = 192.168.129.200
ELAP A HTTP Port                       = 8888
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              = 10.25.50.10
ELAP B Static NAT Address              = 10.25.50.11
ELAP A LSMS Connection Port            = 7402
ELAP B LSMS Connection Port            = 7403
ELAP A EBDA Connection Port            = 1030
ELAP B EBDA Connection Port            = 1030
Time Zone                              = US/Eastern

Press return to continue…
```

☐ **6.** Press the **<Return>** key to return to the **ELAP Configuration Menu**.

☐ **7.** 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 Menu       |
|----|----------------------------------|
|  e | Exit                            |
\--------------------------------------/

Enter Choice: 2
```

☐ **8.** Choose option **1**, **Configure Provisioning Network** form the **Configure Network Interfaces Menu**.

```
/-----Configure Network Interfaces Menu----\
/------------------------------------------\
|  1 | Configure Provisioning Network      |
|----|--------------------------------------|
|  2 | Configure Sync Network              |
|----|--------------------------------------|
|  3 | Configure DSM Network               |
|----|--------------------------------------|
|  4 | Configure Backup Provisioning Network |
|----|--------------------------------------|
|  5 | Configure Forwarded Ports           |
|----|--------------------------------------|
|  6 | Configure Static NAT Addresses      |
|----|--------------------------------------|
|  e | Exit                                |
\------------------------------------------/

Enter choice: 1
```

☐ **9.** The **Configure Provisioning Network** option 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. Refer to the information recorded in Table 2-4 on page 2-42 and Table 2-5 on page 2-43 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.

The display for the submenu for configuring communications networks and other information shown next.

```
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

Press return to continue…
```

☐ **10.** Press the **<Return>** key, to return to the **Configure Network Interfaces Menu**.

☐   **NOTE: Unless there is a known network address conflict, you should skip all steps related to option 2 (step 11 through step 14), Configure Sync Network and continue with step 15.**

11. Enter option **2**, **Configure Sync Network** from the **Configure Network Interfaces Menu**.

```
/-----Configure Network Interfaces Menu----\
/------------------------------------------\
| 1 | Configure Provisioning Network        |
|----|--------------------------------------|
| 2 | Configure Sync Network                |
|----|--------------------------------------|
| 3 | Configure DSM Network                 |
|----|--------------------------------------|
| 4 | Configure Backup Provisioning Network |
|----|--------------------------------------|
| 5 | Configure Forwarded Ports             |
|----|--------------------------------------|
| 6 | Configure Static NAT Addresses        |
|----|--------------------------------------|
| e | Exit                                  |
\------------------------------------------/

Enter choice: 2
```

☐ **12.** A sample output follows:

```
Verifying connectivity with mate...
Enter the first 3 octets for the ELAP MPS sync Network [192.168.4]
Press return to continue...
```

☐ **13.** You are now able to accept or change the default values default Sync Network IP address octet values presented by the configuration software. Press the **<Return>** key or, if there is a known conflict, can enter the customer-specified IP address octet values.

☐ **14.** After accepting the default value or entering a specific ELAP Sync IP address octet value, you are returned to the **Configure Network Interfaces Menu**.

☐ **NOTE:** Unless there is a known network address conflict, you should skip all steps (step 15 through step 17) related to option 3, Configure DSM Network and continue with step 18.

15. Choose option **3**, **Configure DSM Network** from the **Configure Network Interfaces Menu**.

```
/-----Configure Network Interfaces Menu----\
/------------------------------------------\
|  1 | Configure Provisioning Network       |
|----|--------------------------------------|
|  2 | Configure Sync Network               |
|----|--------------------------------------|
|  3 | Configure DSM Network                |
|----|--------------------------------------|
|  4 | Configure Backup Provisioning Network |
|----|--------------------------------------|
|  5 | Configure Forwarded Ports            |
|----|--------------------------------------|
|  6 | Configure Static NAT Addresses       |
|----|--------------------------------------|
|  e | Exit                                 |
\------------------------------------------/

Enter choice: 3
```

☐ **16.** The **Configure DSM Network** choice automatically adds the DSM network IP address to the list of known hosts. You should then 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.

```
Verifying connectivity with mate...
Enter the first 3 octets for the ELAP main DSM network [192.168.136]:
Enter the first 3 octets for the ELAP backup DSM network [192.168.137]:
```

☐ **17.** After 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**.

☐ **NOTE:** Unless the MPS is separated from GUI workstations and provisioning systems by a port forwarding firewall, you should skip all steps related to option 5 (step 18 through step 22). Proceed to step 23.

18. Choose option **5**, **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: 5
```

☐ **19.** Enter the correct option number for the port information to be entered. Refer to the information recorded in Table 2-4 on page 2-42 and Table 2-5 on page 2-43 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]:
```

☐ **20.** Enter the appropriate information. Press the **<Return>** key once to return to the **Configure Forwarded Ports Menu**.

☐ **21.** Enter the option number or enter **e** to return to the **Configure Network Interfaces Menu**.

☐ **22.** You are returned to the **Configure Network Interfaces Menu**.

23. Choose option **6**, **Configure Static NAT Addresses** from the **Configure Network Interfaces Menu** .

```
/-----Configure Network Interfaces Menu----\
/--------------------------------------------\
|  1 | Configure Provisioning Network        |
|----|---------------------------------------|
|  2 | Configure Sync Network                |
|----|---------------------------------------|
|  3 | Configure DSM Network                 |
|----|---------------------------------------|
|  4 | Configure Backup Provisioning Network |
|----|---------------------------------------|
|  5 | Configure Forwarded Ports             |
|----|---------------------------------------|
|  6 | Configure Static NAT Addresses        |
|----|---------------------------------------|
|  e | Exit                                  |
\--------------------------------------------/

Enter choice: 6
```

24. Enter option **1** or **2 Configure Static NAT Addresses Menu**. 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 table shows an example of a resulting prompt.

```
/-----Configure Static NAT Addresses Menu-\
/------------------------------------------\
|  1 | Change ELAP A Static NAT Address    |
|----|-------------------------------------|
|  2 | Change ELAP B Static NAT Address    |
|----|-------------------------------------|
|  e | Exit                                |
\------------------------------------------/
```

25. Enter a valid NAT IP address from Table 2-4 on page 2-42 or Table 2-5 on page 2-43.

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

26. Choose option **e** on the **Configure Static NAT Addresses Menu** to return to the **Configure Network Interfaces Menu**.

27. Choose option **e**, Exit from the **Configure Network Interfaces Menu** to return to 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". If the time zone was correct for this installation, as shown in the output of the Display Configuration (step 5), you can skip all the steps related to option 3 (step 28 through step 30). Proceed to step 31.

28. Choose option **3**, **Set Time Zone** on 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 Menu        |
|----|----------------------------------|
|  e | Exit                             |
\---------------------------------------/

Enter Choice: 3
```

29. You are prompted for confirmation on setting the time zone for MPS A and MPS B at his site. Enter **y** to confirm the change. (Pressing the **<Return>** key accepts the default of **N** (or **no**) and the action is aborted. In this case, you are returned to the **ELAP Configuration 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
```

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, just press the **<Return>** key, and a list of the valid names is displayed.

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

(This list of valid time zones is also in Appendix A of the *ELAP Administration Manual*.)

If an incorrect time zone is entered or if only the **<Return>** key is pressed, a list of all available time zone values is displayed. You can select a value from this table.

The time zone change does not take effect until the next time the MPS is rebooted.

☐ **30.** After setting the time zone successfully, you are returned to the **ELAP Configuration Menu**.

☐ **NOTE: Option 4, Exchange Secure Shell Keys, is successfully performed automatically by the configuration software at the start of configuration. (The configuration software would not have proceeded to this point if the exchange had not been successful.)**
Therefore, you may normally skip this step and continue with the next configuration option; proceed to step 32.

31. 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 Menu        |
|----|---------------------------------|
| e | Exit                             |
\--------------------------------------/

Enter Choice: 4
```

Pressing the **<Return>** key brings up a prompt requiring confirmation to continue with the exchange. Pressing the **<Return>** key at this confirmation prompt defaults to **N** or **no**, and the exchange action is aborted. Entering **y** confirms the exchange.

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

☐ **NOTE:** **If required by the customer to change the text-based UI password for the MPSs at this site, select option 5, Change Password. Otherwise, skip all the steps for option 5 (step 32 through step 34), and proceed to step 35.**

32. 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 Menu        |
|----|----------------------------------|
|  e | Exit                             |
\---------------------------------------/

Enter Choice: 5
```

☐ **33.** You are prompted to confirm the action of changing the password for both the MPS A and MSP B servers at this site. Pressing the **<Return>** key accepts the default of **N** or **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 ...
```

☐ **34.** Successful entry of the new password returns you to the **ELAP Configuration Menu**.

☐ **NOTE:** **If an NTP server does not need to be added at this time, you can skip all steps related to option 7 (step 35 through step 39), Configure NTP Server Menu, and proceed to step 40.**

35. 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 Menu        |
|----|----------------------------------|
|  e | Exit                             |
\---------------------------------------/

Enter Choice: 7
```

☐ **36.** 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
```

☐ **37.** You are prompted to confirm the action of adding a new NTP Server. (Pressing the **<Return>** key would accept the default of **N** or **no**, and would abort the action to add an external NTP server.) Instead, enter **y**, which invokes a prompt where the IP address of the NTP server is added, as on page 2-72.

B MPS on EAGLE 5 ISS B:

You 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. You receive a confirmation of a successful addition of the NTP server. Press the **<Return>** key and returns to the **ELAP Configure NTP Server Menu**.

---

38. 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
```

---

39. The following output is displayed. Verify that the External NTP Server IP address is correct.

```
External NTP Server [server 192.168.61.69 prefer ]

Press return to continue...
```

---

40. Press the **<Return>** key to return to the **ELAP Configure NTP Server Menu**.

☐ **41.** Enter option **e** to exit the **ELAP Configure NTP Server Menu** and return to
the **ELAP Configuration 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
```

☐ **42.** You are returned to the **ELAP Configuration Menu**, as shown below.

NOTE: During configuration fo MPSs on EAGLE 5 ISS B, if the time zone
was not changed (step 28) and if the Backup Provisioning Network (step 18)
was not configured on either MPS, the ELAP initial configuration of MPSs
on EAGLE 5 ISS B is now complete.

Otherwise you must continue with this step because both MPS pairs on
EAGLE 5 ISS A and on EAGLE 5 ISS B must now be rebooted.

☐ **43.** 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 Menu        |
|----|---------------------------------|
|  e | Exit                             |
\-------------------------------------/

Enter Choice: 6
```

☐ **44.** 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
```

☐ **45.** You are prompted on whether MPS A, MPS B or BOTH sides are to be rebooted. The correct response is to select the default value of `BOTH.` Use the **<Return>** key to select both MPS A and MPS B.

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

☐ **46.** 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.

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

NOTE: The console logon will be preceded by many lines of reboot output.

MPS on EAGLE 5 ISS B:
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.

You have now completed this procedure.

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 *EAGLE 5 ISS Maintenance Manual*.

Procedure

☐ **1.** Login to the **User Interface** screen of the ELAP GUI as `elapplatform`. See Figure 2-19 on page 2-36.

☐ **2.** Check the banner information above the menu to verify that you are logged into the ELAP about which you want system health information.

Move the cursor to and select **Select Mate** from the main menu (Figure 2-42) if necessary to switch to the desired ELAP.

Figure 2-42. Main Menu View
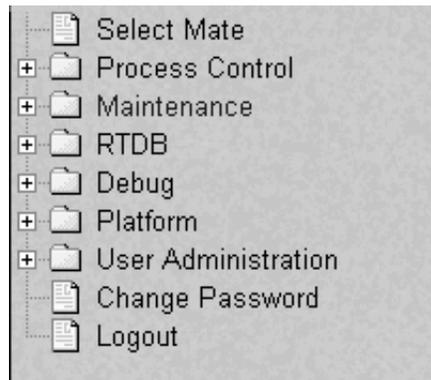
☐ **3.** When the GUI shows you are logged into the desired ELAP, select **Platform > Run Health Check** (Figure 2-43).

Figure 2-43. Platform Folder Open View
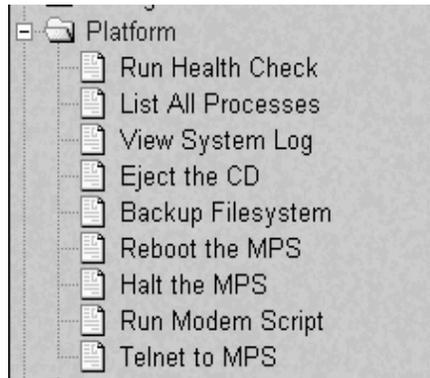
☐ **4.** On the **Run Health Check** screen (Figure 2-44), use the pull-down menu to select **Normal** or **Verbose** output detail level.

Figure 2-44. Run Health Check View
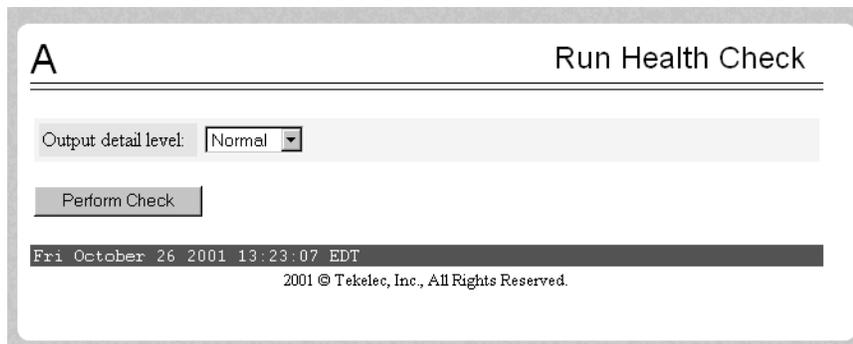
☐ **5.** Click the **Perform Check** button to run the system health check on the selected MPS.

☐ **6.** The system health check output data will display on the screen.

You have now completed this procedure.

EMS Configuration Component

Use the following procedures to manage EMS configuration components:

- "Creating an EMS Configuration Component"
- "Modifying an EMS Configuration Component" on page 2-83
- "Viewing an EMS Configuration Component" on page 2-85
- "Deleting an EMS Configuration Component" on page 2-87

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 topics about bulk loading in these sections:

- **"Bulk Load Procedure" procedure on page 2-93**
- **"Copying One RTDB from Another RTDB" procedure on page 2-105**
- **"Distributing the LNP Database after LSMS-Based Operation or RTDB Copy" procedure on page 2-135.**

Procedure

☐ **1.** Log into the LSMS as a user in the `lsmsadm` or `lsmsall` group.

☐ **2.** From the **Main Menu**, select **Configure > LNP System > EMS > Create**, as shown in the example in Figure 2-45 on page 2-78.

Figure 2-45. LNP System Menu – Create EMS
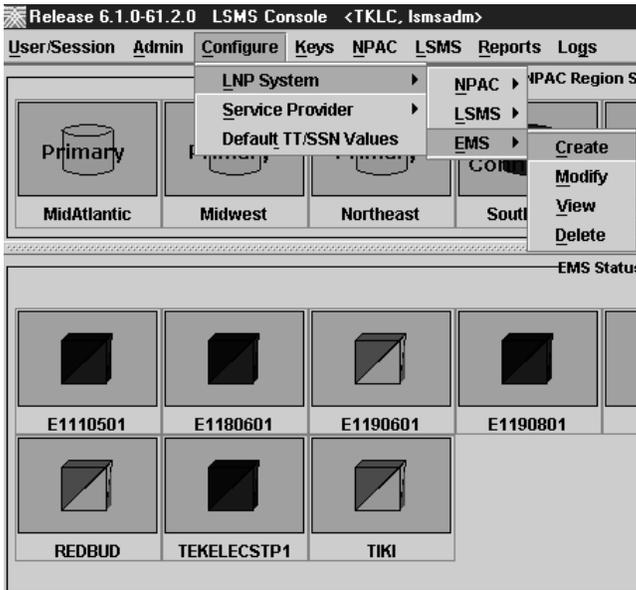
The **Create LNP System EMS** window is displayed as shown in the example in Figure 2-46. The window usually opens with the **Address Info** tab displayed; if the **Address Info** tab is not displayed, click its tab to display it.

Figure 2-46. Create LNP System EMS Address Info Tab
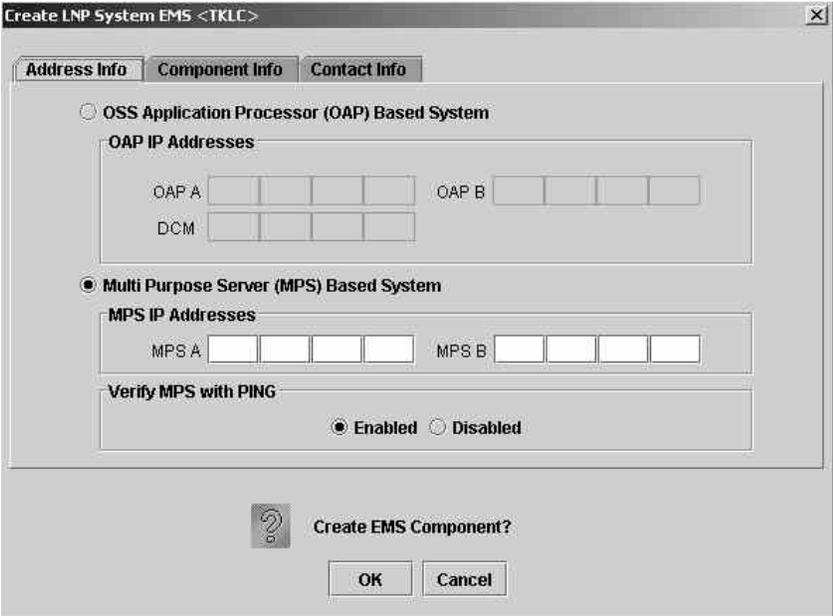
☐ **3.** Ensure that the radio button for MPS is selected (this is the default selection), and enter the IP addresses for MPS A and MPS B (enter a value from 0 to 255 in each of the first three octets and a value from 0 to 254 in the forth octet).

NOTE: The LSMS no longer supports connections to OAPs. If the OAP radio button is selected, the LSMS will not make a connection to the desired EMS. An alarm will be posted and the icon for this EMS will continue to display red.

☐ **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 keepalive 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/ELAP 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; the window displays as shown in the example in Figure 2-47.

Figure 2-47. 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; the window displays as shown in the example in Figure 2-48.

Figure 2-48. 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 following message appears (Figure 2-49), click **OK** in the message window and the GUI will return to the main console window.

Figure 2-49. Create Successful

- If a message similar to the following appears (Figure 2-50), a mandatory field is empty or a field is not properly configured.

Figure 2-50. More Fields Needed

Click **OK** in the message window and correct the appropriate field. Repeat this step until the message in Figure 2-49 on page 2-82 displays.

You have now completed this procedure.

Modifying an EMS Configuration Component

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

NOTE: These changes do not take effect until the *eagleagent* is stopped and restarted (refer to "Manually Verifying and Restarting the Eagle Agents on the LSMS" procedure on page 2-141).

Procedure

☐ **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**; the window shown in the example in Figure 2-51 displays.

Figure 2-51. LNP System Menu – Modify EMS
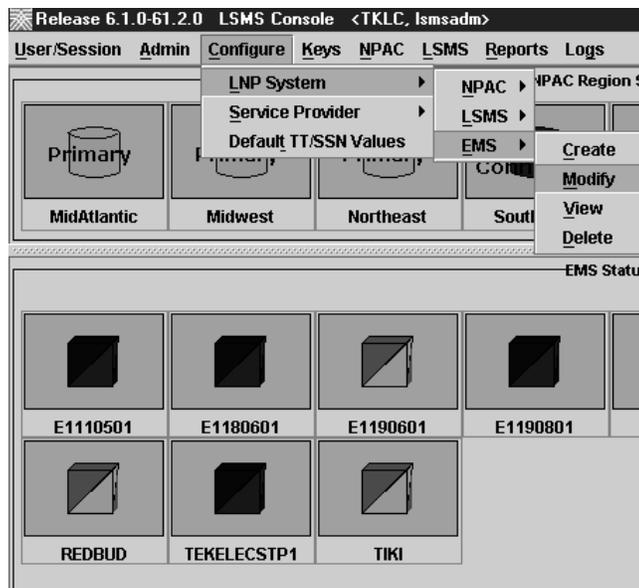
The **Modify LNP System EMS** window is displayed as shown in the example in Figure 2-52. The window usually opens with the **Address Info** tab displayed; if the **Address Info** tab is not displayed, click its tab to display it.

Figure 2-52. Modify LNP System EMS Window
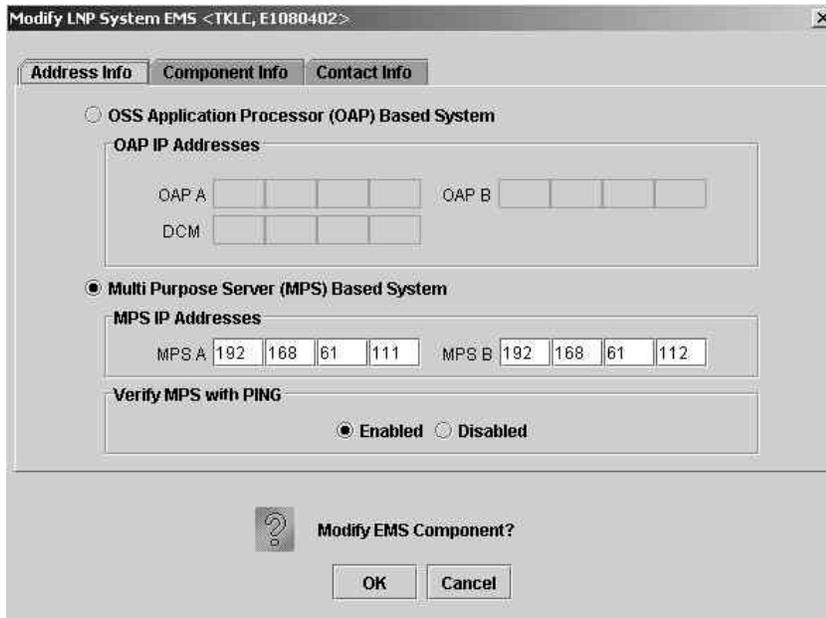
4. Modify the EMS data as required. See "Creating an EMS Configuration Component" on page 2-77 for detailed field information.

5. Click **OK**:

   • If the following message appears (Figure 2-53), click **OK** in the message window:

Figure 2-53. Modify Done

Click **OK**; the window shown in Figure 2-54 on page 2-85 displays.

Figure 2-54. Modify Successful

Click **OK** in the message window, and the GUI will return to the main console window.

- If a message similar to the following appears (Figure 2-55), a mandatory field is empty or a field is not properly configured.

Figure 2-55. More Fields Needed

Click **OK** in the message window and correct the appropriate field. Repeat this step until the message in Figure 2-53 on page 2-84 displays.

You have now completed this procedure.

NOTE: These changes do not take effect until the *eagleagent* is restarted (refer to "Manually Verifying and Restarting the Eagle Agents on the LSMS" procedure on page 2-141).

Viewing an EMS Configuration Component

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

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 so that the icon is highlighted.

☐ **3.** From the **Main Menu**, select **Configure > LNP System > EMS > View**; a window similar to the example shown in Figure 2-56 on page 2-86 displays.

Figure 2-56. View LNP System EMS Window

☐ **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 2-77. 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*).**

Procedure

☐ **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 so that the icon is highlighted.

☐ **3.** From the **Main Menu**, select **Configure > LNP System > EMS > Delete**; a window similar to the example shown in Figure 2-57 displays.

Figure 2-57. Delete LNP System EMS Window

☐ **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 2-77. 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 **Delete Confirmation** window is displayed, as shown in Figure 2-58.

Figure 2-58. Delete Confirmation Window

☐ **6.** Click **OK** to end this procedure.

You have now 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*).

Modify EMS Routing

To modify the TN filters and GTT group assignments for the selected EMS (you can change the EMS being modified by selecting a new value from the EMS combo box), do the following:

NOTE: After you update the TN filter, run an audit for the EMSs utilizing that TN filter. Use the NE Audit with Reconcile procedure (refer to the *LNP Database Synchronization Manual - LSMS with EAGLE 5 ISS*) for each NPA-NXX added or changed and on each affected EMS to update the databases. However, depending on the number of NPA-NXXs, the number of EMSs affected, and the physical distance between the LSMS and the network element, a bulk download to each affected EMS/network element may be more efficient. For more information, refer to the *LNP Database Synchronization Manual - LSMS with EAGLE 5 ISS*.

Procedure

☐ **1.** Log in to LSMS as a member of the permission group that is authorized to perform this operation (see Chapter 2 of the *LSMS Database Administration Manual* for descriptions of these user access groups).

☐ **2.** From the **LSMS Console** window, select **LSMS > EMS Routing > Modify**. The **Modify EMS Routing** window is displayed (see Figure 2-59 on page 90).

Figure 2-59. Modify EMS Routing Window
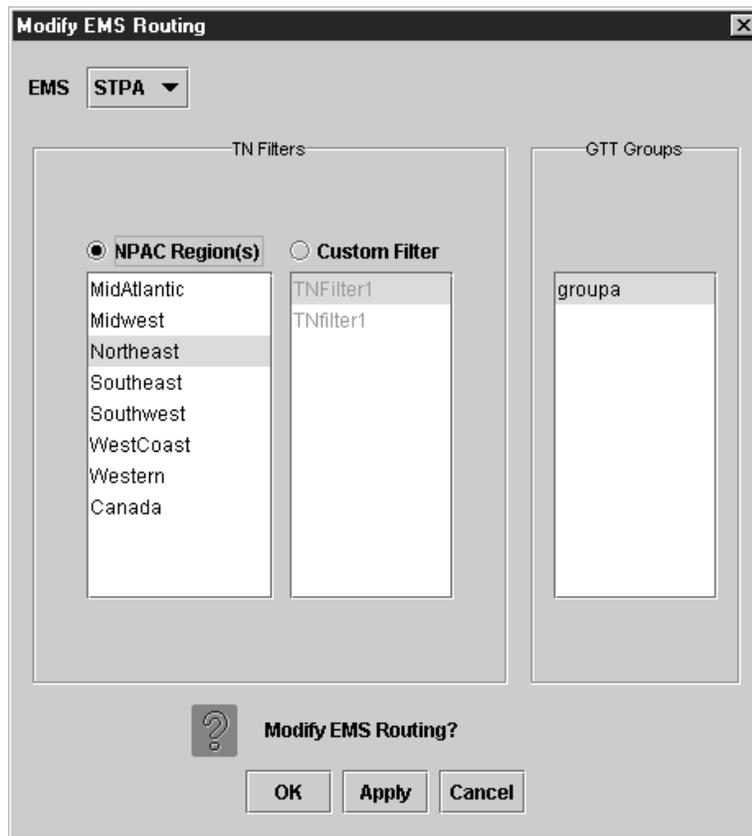
The **NPAC Region(s)** list contains the eight predefined NPAC region filters. The **Custom Filter** list contains all custom TN filters that have been created and named.

☐ **3.** Apply TN Filters - Choose one, but not both, of the following:

- Regional Filters - When you select the **NPAC Region(s)** radio button, the EMS accepts only the TNs from the selected region(s).

- Custom Filter - When you select the **Custom Filter** radio button, EMS accepts only the TNs as defined by the selected custom TN filter.

  NOTE: **To modify, view, or delete a custom filter, select the custom filter and then right-click it. A popup menu displays. You can create a new custom filter by clicking the Create button. Newly created TN filters are immediately added to the Custom Filter list.**

☐ **4.** Apply GTT groups, if desired - Default and override GTT translations are determined by the set of all override and default GTT records belonging to this GTT group (**groupa**, in this example shown in Figure 2-59 on page 90).

NOTE: **All named GTT groups are displayed in the GTT Groups panel. You may assign a single group to the selected EMS by clicking on it to select it. You can view a GTT group by selecting it, and then right-clicking it. A popup menu displays, giving you the option to view the selected group. See Figure 2-60 for an example of the View GTT Group dialog.**

Figure 2-60. View GTT Group Dialog
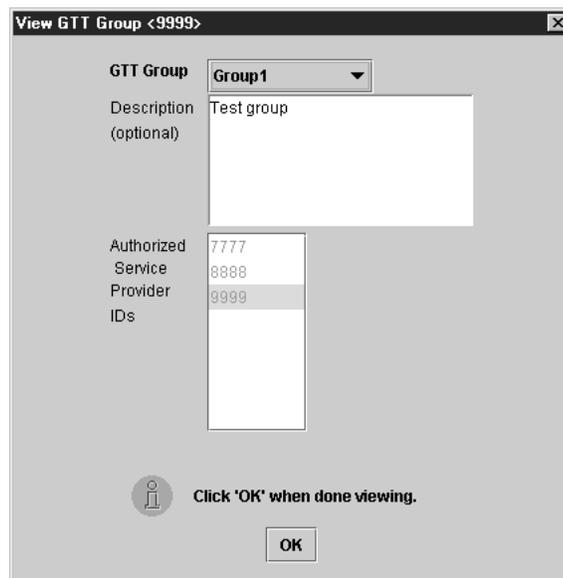
☐ **5.** Click **OK** .

You have now completed this procedure.

View EMS Routing

To view the TN filters and GTT group assignments for the selected EMS (you can change the EMS being viewed by selecting a new value from the EMS combo box), do the following:

Procedure

☐ **1.** Log in to LSMS as a member of the permission group that is authorized to perform this operation (see Chapter 2 of the *LSMS Database Administration Manual* for descriptions of these user access groups).

☐ **2.** From the **LSMS Console** window, select **LSMS > EMS Routing > View**. The **View EMS Routing** window is displayed (see Figure 2-61).

Figure 2-61. View EMS Routing Window
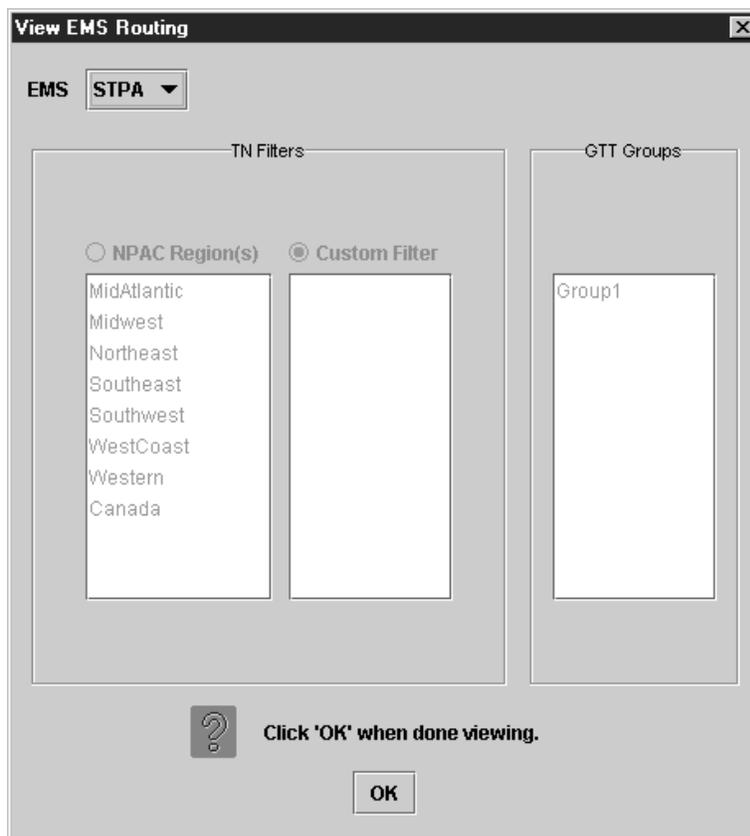
☐ **3.** Click **OK**.

You have now completed this procedure.

Bulk Load Procedure

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

NOTE: Before starting this procedure, contact the Customer Care Center (refer to "Customer Care Center" on page 1-9 for the contact information) to be readily available for assistance if you encounter any problems while performing this procedure.

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.

– 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 2-62.

Figure 2-62. ELAP Main Menu
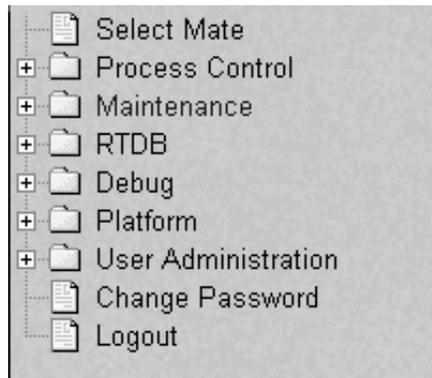
c. Select **Maintenance > LSMS Connection > Change Allowed**. The window shown in Figure 2-63 on page 2-95 displays.

Figure 2-63. Disabling the LSMS Connection
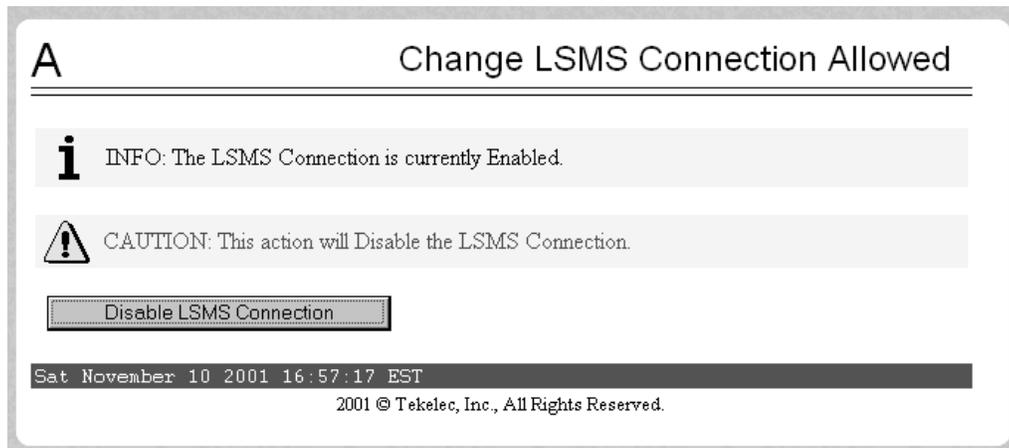
d. Click the **Disable LSMS Connection** button.

e. Next, select **Maintenance > LSMS HS Bulk Download > Change Enabled**. The window shown in Figure 2-64 displays.

Figure 2-64. Enabling Change HS Bulk Download
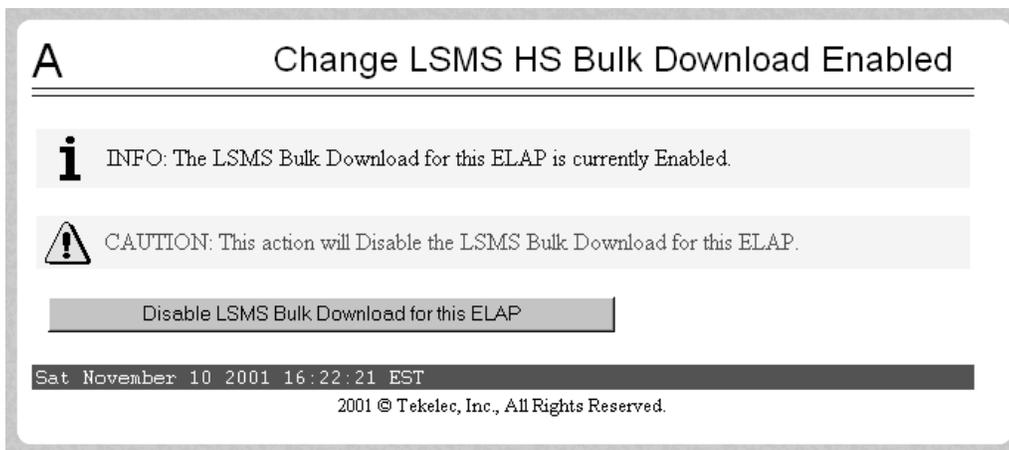
NOTE: Performing this step causes the RTDB to enter a state of requiring database maintenance. Unless you are able to complete the procedure by committing the changes (as described in step 6), the RTDB continues to be in a state of requiring database maintenance.

f. If the Information field indicates that the LSMS Bulk Download for this ELAP is currently Disabled (as shown in Figure 2-64, and which is the default condition for an ELAP), click the **Enable LSMS Bulk Download for this ELAP** button. (If the Information field indicates that the LSMS Bulk Download for this ELAP is Enabled, the ELAP is already prepared for the user-initiated resynchronization.)

    g. Select **Maintenance > Simplex Mode > Change Status**. The window shown in Figure 2-65 is displayed.

Figure 2-65. Change Simplex Mode Screen
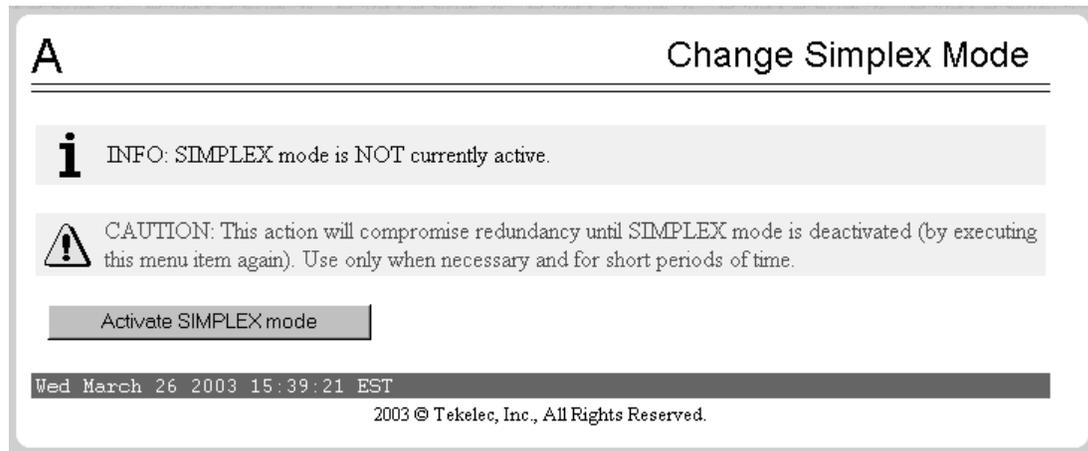
    h. Click the **Activate SIMPLEX mode** button.

---

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:

    • 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.

    • 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 2-66 on page 2-97.

Figure 2-66. Bulk Load Window
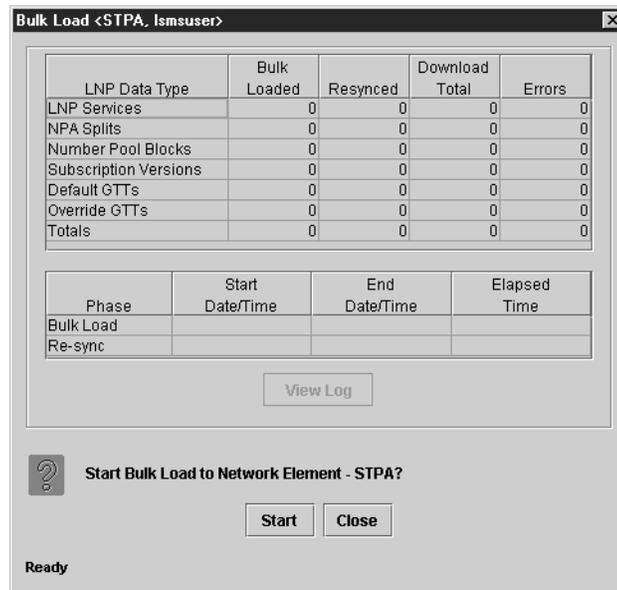
☐ **5.** To initiate the bulk load, click the **Start** button. The **Start** button is replaced by the **Abort** button, and the **View Log** button becomes selectable. Progress is indicated by start time, elapsed time, numbers of successful and failed update commands, and status reported in the status 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 2-7 shows the meaning of each of the fields that appears in this window.

Table 2-7. 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
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 ss indicates second, range 00 — 59		
2 A is appended at the end of the time if the operation is aborted. F is appended at the end of the time if the operation fails.		

Table 2-7. Fields in Bulk Load Window (Continued)

Field	Description	Possible Values
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 load operation was started by the user.	MM/DD hh:mm:ss[1]
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
   ss indicates second, range 00 — 59

2 A is appended at the end of the time if the operation is aborted.
   F is appended at the end of the time if the operation fails.

The time required to download a database from the LSMS to the network element varies depending on the number of records provisioned in the database and the quality of the transmission and connections. For more information about estimated time, see the *LNP Database Synchronization Manual - LSMS with EAGLE 5 ISS*.

To view the bulk load log file, see the "Bulk Load Log File" section on page 2-102.

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 2-67.

Figure 2-67. Abort Bulk Load Operation Dialog
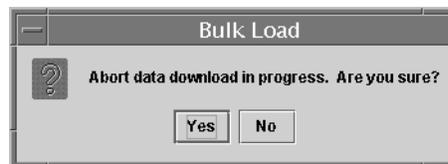
- Click the **Yes** button to immediately terminate the operation in progress. Go to step 7 as if the bulk load had completed.

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

---

  6. When the bulk load operation completes, the information dialog shown in Figure 2-68 displays.

Figure 2-68. Bulk Load Complete Information Dialog
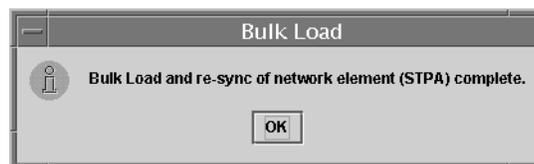
Click **OK**.

☐ **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 2-69.

Figure 2-69. Bulk Load Complete

Before you click the **Commit** or **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" section on page 2-102).

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.)

• 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:

   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.

   1. Copy the newly restored RTDB to its mate ELAP's RTDB, as described in "Copying RTDB from Mated ELAP" on page 2-105.

2. Distribute the data to the DSMs, as described in "Distributing an RTDB LNP Database to DSMs" on page 2-136.

3. Deactivate the SIMPLEX mode as follows:
Select **Maintenance > Simplex Mode > Change Status**. The window shown in Figure 2-70 is displayed.

Figure 2-70. Change Simplex Mode Screen
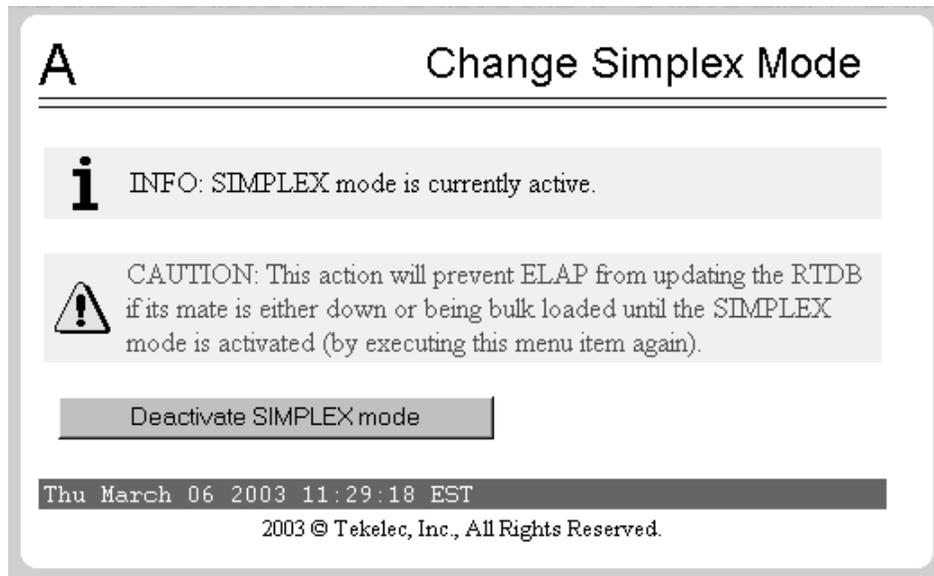
Click the **Deactivate SIMPLEX mode** button.

4. Disable another user-initiated resynchronization or bulk load, as described in "Disabling Bulk Load" on page 2-140.

You have now completed this procedure.

Bulk Load Log File

This section describes the following topics:

- Viewing the Bulk Load Log File

- Bulk Load Log File Contents (see page 2-103).

Viewing the Bulk Load Log File

Any time after the user-initiated resynchronization has begun, you can view the electronic bulk load log file by clicking the **View Log** button. The browser window used for displaying reports and logs (if this window is not already opened, it is opened automatically) displays the log file **LsmsBulkload.log.<MMDD>**, located in the directory **/usr/local/LSMS/logs/<CLLI>**, where **<CLLI>** is the Common Language Location Identifier of the network element receiving the bulk load and **<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 2-71 used to browse for this log:

Figure 2-71. Browsing for a Bulk Load Log Files

- 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**.

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. Log files are maintained for seven days after they are created; then they are automatically removed from the LSMS.

Bulk Load Log File Contents

Whenever 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 2-72 shows an example of a bulk load log file.

Figure 2-72. 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
```

Figure 2. Example Bulk Load Log File (Continued)

```
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. The following types of copy are covered by this section:

- "Copying RTDB from Mated ELAP"

- "Copying RTDB from ELAP on Remote Mated NE" on page 2-106

  NOTE: **For best results, the mated network element should have the same quantities of LNP telephone numbers, LRNs, and NPANXXs provisioned and the same ELAP release level as at the network element the copy is made to. It is possible to copy an RTDB from a mated network element that does not meet these conditions, but doing so should be done under the supervision of Customer Care Center. Refer to "Customer Care Center" on page 1-9 for the contact information.**

For more information about when to perform the procedures in this section, see Chapter 3 of the *LNP Database Synchronization Manual - LSMS with EAGLE 5 ISS*.

Copying RTDB from Mated ELAP

An ELAP RTDB can be copied from the RTDB on the mate ELAP.

In order to perform a copy from the RTDB on the mate ELAP, the mate RTDB must be currently synchronized with the LSMS (the EMS status indicator on the LSMS graphical user interface for this network element must be yellow).

This copy is the fastest way to restore an RTDB. The RTDB can be reloaded from the mate in about 9 minutes. Provisioning will be interrupted while the copy occurs.

No user action is required at the LSMS, other than to verify the status of the network element's EMS status indicator.

For instructions on performing this type of RTDB copy, see the "Procedure to Copy an RTDB from the Mate ELAP" section on page 2-109.

Copying RTDB from ELAP on Remote Mated NE

An ELAP RTDB can be copied from either ELAP RTDB on the remote mated network element (NE). However, copying from either of the remote mated NE's RTDBs interrupts provisioning on the remote mated network element, so this method should be chosen only when other methods for synchronizing the RTDBs on the local network element are not feasible. For more information about alternate methods, see Chapter 3 of the *LNP Database Synchronization Manual - LSMS with EAGLE 5 ISS.*

> **NOTE:** **For best results, the mated network element should have the same quantities of LNP telephone numbers, LRNs, and NPANXXs provisioned and the same ELAP release level as at the network element the copy is made to. It is possible to copy an RTDB from a mated network element that does not meet these conditions, but doing so should be done under the supervision of Customer Care Center. Refer to "Customer Care Center" on page 1-9 for the contact information.**

In order to perform a copy from the RTDB on the mated network element, the EMS status indicator on the LSMS graphical user interface for the remote mated network element must be green or yellow, which indicates that one or both of the RTDBs on the remote mated network element is currently synchronized with the LSMS.

The procedure can be used when both local RTDBs need reloading. If at least one of the remote RTDBs is currently synchronized, you can copy a remote RTDB to one of the local RTDBs. This copy may be faster than performing a user-initiated resynchronization or electronic bulk load from the LSMS to the network element that requires restoration, and, depending on the bandwidth of the customer network, may be faster than performing an audit and reconcile from the LSMS. The mate RTDB on the local network element can then be reloaded from the newly reloaded mate in about nine minutes, and then the DSMs must be rebooted, as described in "Distributing an RTDB LNP Database to DSMs" on page 2-136.

The time required to accomplish this method depends on the bandwidth of the customer network. For an estimate of the time required, see Appendix D of the *LNP Database Synchronization Manual - LSMS with EAGLE 5 ISS*.

No user action is required at the LSMS, other than to verify the status of the network elements' EMS status indicators.

Verifying RTDB Status

Before or after executing the 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 2-107

- "Verifying RTDB Status at the ELAP User Interface" on page 2-107

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.

Procedure

1. 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 for a user who is authorized to access the menu items shown in this procedure.

   The ELAP GUI is displayed. Figure 2-73 shows the main menu.

   For more information about the other areas displayed on ELAP GUI, refer to the *ELAP Administration Manual*.

Figure 2-73. ELAP Main Menu

☐ **2.** Select **RTDB > View RTDB** Status.

The ELAP GUI workspace displays the RTDB status, as shown in Figure 2-74.

Figure 2-74. ELAP RTDB Status

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:

- The status for both RTDBs displays

- Both RTDBs are coherent

- Both RTDBs have the same birthday

- 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 (refer to "Customer Care Center" on page 1-9 for the contact information).

You have now completed this procedure.

Procedure to Copy an RTDB from the Mate ELAP

Use the following procedure to reload a backlevel or corrupted RTDB by copying a currently synchronized RTDB on the mate ELAP. For more information about when to perform this procedure, see the "Copying RTDB from Mated ELAP" section on page 2-105.

Procedure

☐ **1.** 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 for a user who is authorized to access the menu items shown in this procedure.

☐ **2.** Verify the status of both RTDBs at this network element, using the procedure described in "Verifying RTDB Status" on page 2-106. Determine which RTDB is backlevel or corrupted.

☐ **3.** Select **Maintenance > LSMS HS Bulk Download > View Enabled**; a window similar to the example shown in Figure 2-75 displays.

Figure 2-75. View Enabled Window
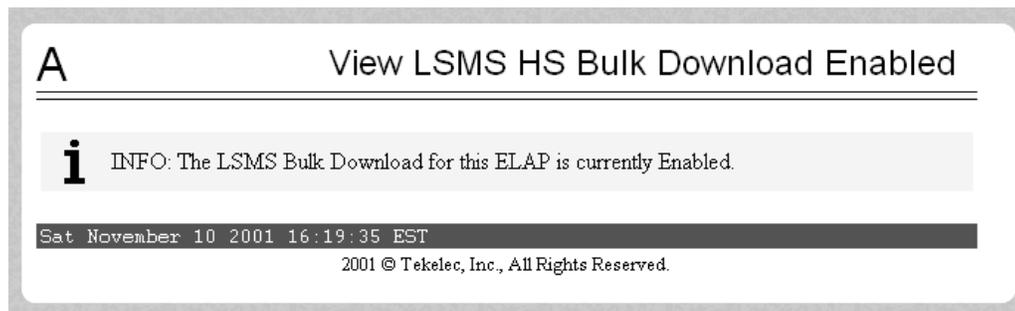
Ensure that the information field shows that the LSMS Bulk Download for this ELAP is currently disabled.

NOTE: Disabled is the normal setting. If the information field shows that the LSMS Bulk Download for this ELAP is currently enabled, another synchronization operation has not yet been concluded.

☐ 4. Select **Maintenance > LSMS Connection > Change Allowed**; a window similar to the example shown in Figure 2-76 displays.

Figure 2-76. Disable LSMS Connection Window
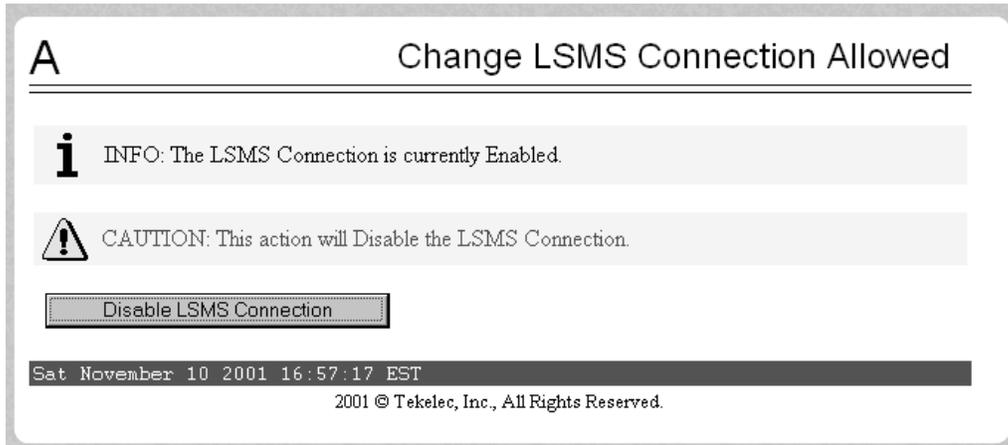
If the LSMS connection is already disabled, go to the next step.

If the LSMS connection is enabled (as shown in Figure 2-76), click the **Disable LSMS Connection** button.

☐ 5. Select **Process Control > Stop Software**; a window similar to the example shown in Figure 2-77 displays.

Figure 2-77. Stopping Software on the ELAP GUI
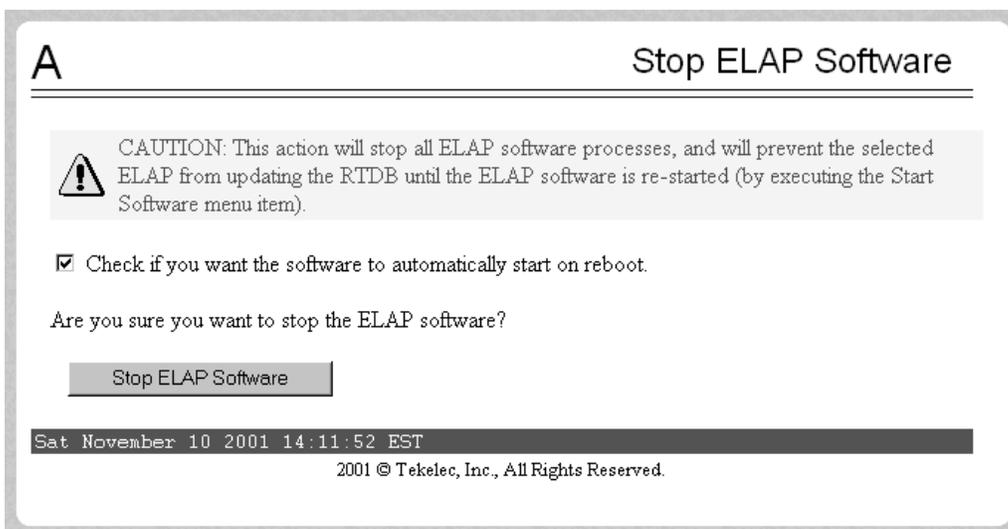
Ensure that the checkbox labeled "Check if you want the software to automatically start on reboot" is filled in (if it is not filled in, click the checkbox to fill it in) and click the **Stop ELAP Software** button to confirm that you wish to stop the software.

□ **6.** Select **Select Mate**, and repeat steps 3, 4, and 5 for the other ELAP.

□ **7.** Ensure that the ELAP whose database needs restoration is displayed in the window. (If not, select **Select Mate**.) Select **RTDB > Maintenance > Reload from Remote**; a window similar to the example shown in Figure 2-78 displays.

Figure 2-78. Reload from Remote ELAP
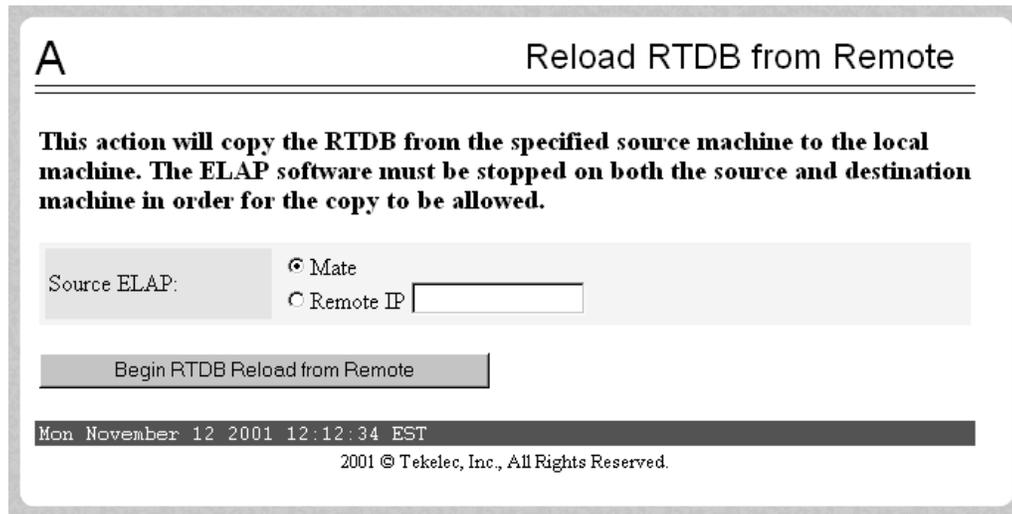
Ensure that the radio button labeled "**Mate**" is filled in (if not, click the button to make it filled in), and click the **Begin RTDB Reload from Remote** button.

☐ 8. The window shown in Figure 2-79 displays.

Figure 2-79. Confirming a Reload

> A   Reload RTDB from Remote
>
> **Are you sure that you want to reload the RTDB from the mate?**
>
> [Confirm RTDB Reload from Remote]
>
> Thu November 01 2001 10:47:42 EST
>   2001 © Tekelec, Inc., All Rights Reserved.
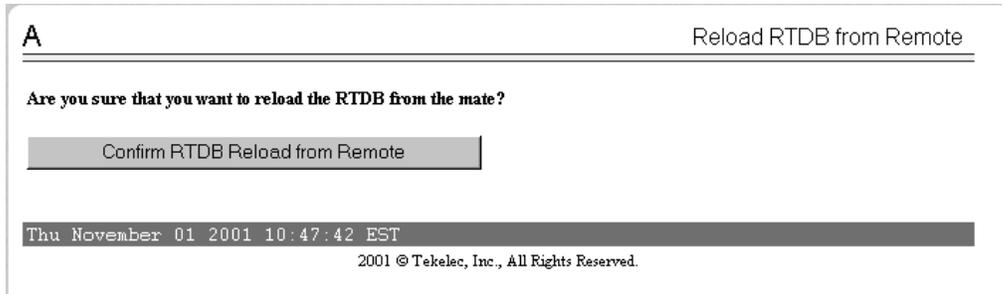
Click the **Confirm RTDB Reload from Remote** button to confirm the reload.

The ELAP software copies the current RTDB to the one that requires restoration. This process requires about 9 minutes.

When the reload begins, the workspace indicates that the reload is in progress, and the banner also displays the status. Messages might appear at the EAGLE 5 ISS terminal indicating that the ELAP software is unavailable for both ELAPs.

When the reload is complete, the workspace displays as shown in Figure 2-80.

Figure 2-80. Reload from Mate Successful

> A   Reload RTDB from Remote
>
> ✔ SUCCESS: Successfully started reload of RTDB from mate. Reload status will be displayed on Banner message window.
>
> Thu November 01 2001 14:35:54 EST
>   2001 © Tekelec, Inc., All Rights Reserved.
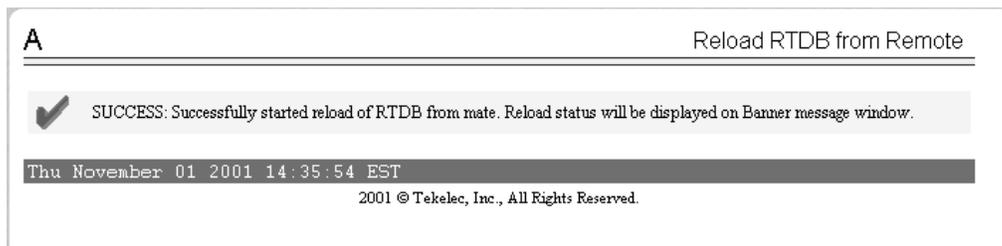
□ **9.** Select **Process Control > Start Software**; a window similar to the example shown in Figure 2-81 displays.

Figure 2-81. Starting Software on the ELAP GUI
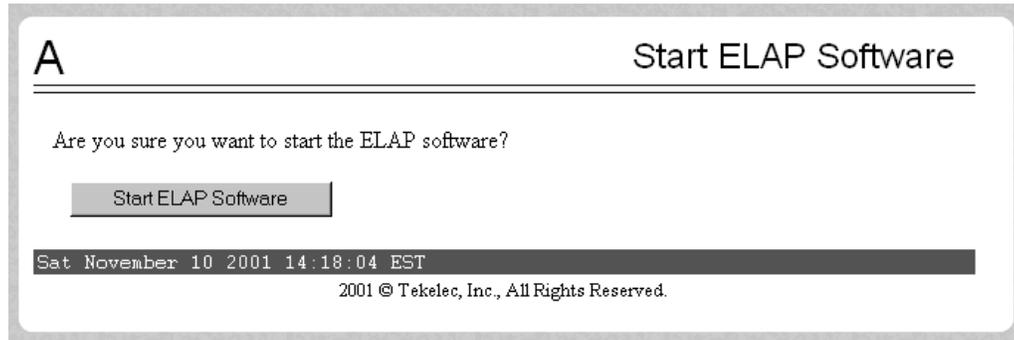
□ **10.** Click the **Start ELAP Software** button to confirm that you wish to start the software. When the software has started, the workspace displays the information shown in Figure 2-82.

Figure 2-82. Software Started on the ELAP GUI

☐ **11.** Select **Maintenance > LSMS Connection > Change Allowed**; a window similar to the example shown in Figure 2-83 displays.

Figure 2-83. Enable LSMS Connection Window
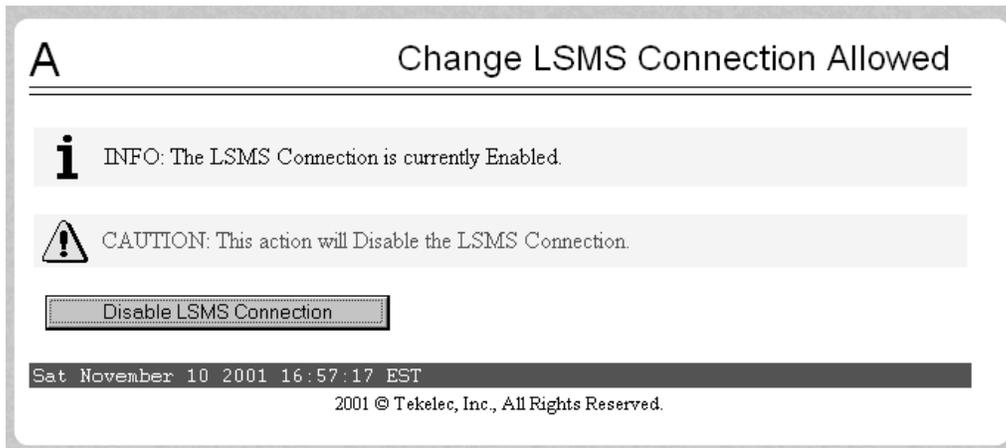
☐ **12.** Click the **Enable LSMS Connection** button. When the connection has been enabled, the workspace displays the information shown in Figure 2-84.

Figure 2-84. LSMS Connection Enabled on the ELAP GUI
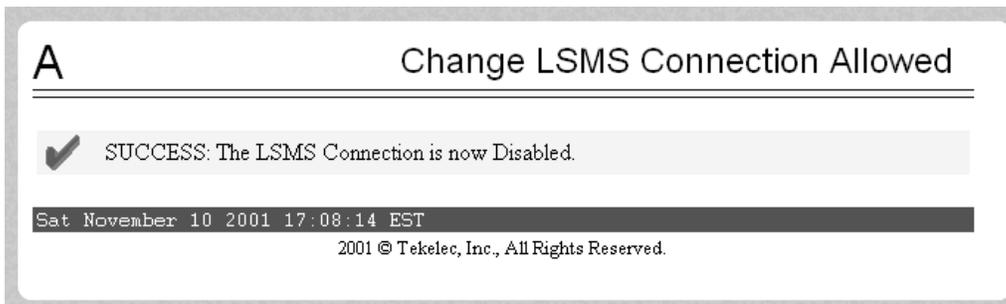
☐ **13.** Select **Select Mate**, and repeat steps 9 through 12 for the other ELAP.

☐ **14.** When the software on both ELAPs has been successfully started, the active ELAP reconnects with the LSMS, which results in an automatic resynchronization. When the automatic resynchronization completes, the EMS status icon for this network element on the LSMS returns to green.

You have completed this procedure. Next, do one of the following:

- If you want to further verify the result of the reload, use the steps in "Verifying RTDB Status" on page 2-106 for determining the database status.

- If you have performed this procedure by itself or after you have copied from an RTDB on a remote mated network element (as described in "Procedure to Copy RTDB from Remote Mated NE" on page 2-116), the restoration is complete and normal updates are resumed.

Procedure to Copy RTDB from Remote Mated NE

Use the following procedure to reload a backlevel or corrupted RTDB by copying a currently synchronized RTDB on the mated network element. For more information about when to perform this procedure, see "Copying RTDB from ELAP on Remote Mated NE" on page 2-106.

In this procedure, the network element requiring restoration of one or both RTDBs is called the local NE, and the ELAP controlling the RTDB requiring restoration is called the local ELAP. The mated network element is called the remote mated NE.

CAUTION: Performing this procedure results in temporary loss of provisioning. Do not perform this procedure unless both RTDBs on the local NE require restoration.

Procedure

☐ **1.** Ensure that the EMS status indicator for the remote mated network element on the LSMS graphical user interface displays green or yellow, which indicates that at least one RTDB is synchronized or in the process of automatically resynchronizing with the LSMS.

☐ **2.** Check the banner on both the local ELAP and the mated NE ELAP.

- If the version levels are the same, proceed to the next step.

- If the version levels are not the same, contact the Customer Care Center. Refer to "Customer Care Center" on page 1-9 for the contact information.

☐ **3.** At both the local NE and at the mated NE, enter the following command:

rtrv-ctrl-feat

Output similar to the following example displays.

```
rlghncxa03w 07-03-28 14:42:38 GMT EAGLE5 35.6.0
The following features have been permanently enabled:

Feature Name            Partnum   Status Quantity
IPGWx Signaling TPS     893012814 on     20000
ISUP Normalization      893000201 on     ----
Command Class Management 893005801 off   ----
Intermed GTT Load Sharing 893006901 off  ----
XGTT Table Expansion    893006101 off    ----
XMAP Table Expansion    893007710 on     3000
Large System # Links    893005910 on     2000
Routesets               893006401 on     6000
LNP ported NPANXXs       893009401 on    300000
LNP ported LRNs          893010505 on    150000
LNP ELAP Configuration  893010901 on     ----
LNP ported TNs           893011010 on    192000000
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.
```

☐ **4.** Verify that, for all the fields highlighted in bold in the example shown in step 3, the values at the mated NE are less than or equal to the values at the local NE.

- If the values for the mated NE are less than or equal to the values for the local NE for all three fields (LNP ported TNs, LNP ported NPANXXs, and LNP ported LRNs), proceed to the next step.

- If the values for the mated NE are greater than the values for the local NE for any one or more of the three fields (LNP ported TNs, LNP ported NPANXXs, and LNP ported LRNs), contact the Customer Care Center. Refer to "Customer Care Center" on page 1-9 for the contact information.

  NOTE: **Even if the mated NE supports a higher value for one or more of these fields, it may be possible to copy the RTDB as long as the actual quantity currently stored in the mated NE's RTDB is less than or equal to the quantity supported by the local NE, but this should be done under the supervision of Customer Care Center. Refer to "Customer Care Center" on page 1-9 for the contact information.**

☐ **5.** Open a browser window and connect to the remote mated network element (NE) using the IP address of the standby ELAP on the remote mated NE's MPS on the customer (provisioning) network. Log in with the user name and password for a user who is authorized to access the menu items shown in this procedure (for more information about connecting to the ELAP GUI and user authorization, refer to the *ELAP Administration Manual*).

☐ **6.** The banner above the menu indicates the whether each ELAP on the remote mated NE has Active or Standby status. Ensure that the ELAP you logged into has Standby status. If you have logged into the active ELAP, select **Select Mate**.

☐ 7. Select **Maintenance > LSMS HS Bulk Download > View Enabled**; a window similar to the example shown in Figure 2-85 displays.

Figure 2-85. View Enabled Window
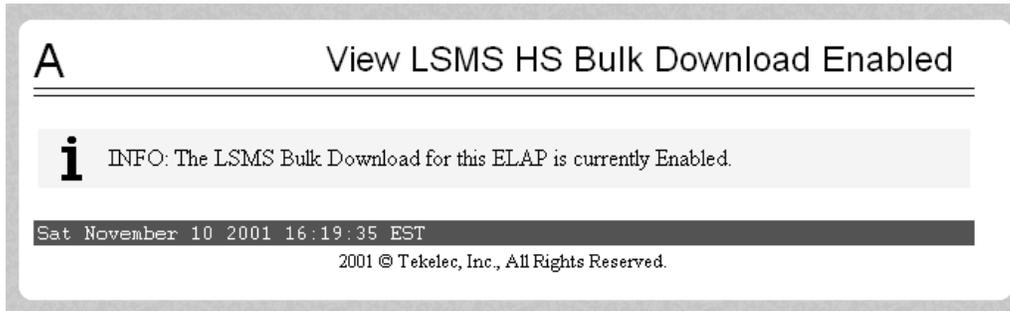
Ensure that the information field shows that the LSMS Bulk Download for this ELAP is currently disabled. (If it is currently enabled, select **Maintenance > LSMS HS Bulk Download > Change Enabled**.

☐ 8. Select **Maintenance > LSMS Connection > Change Allowed**; a window similar to the example shown in Figure 2-86 displays.

Figure 2-86. Disable LSMS Connection Window
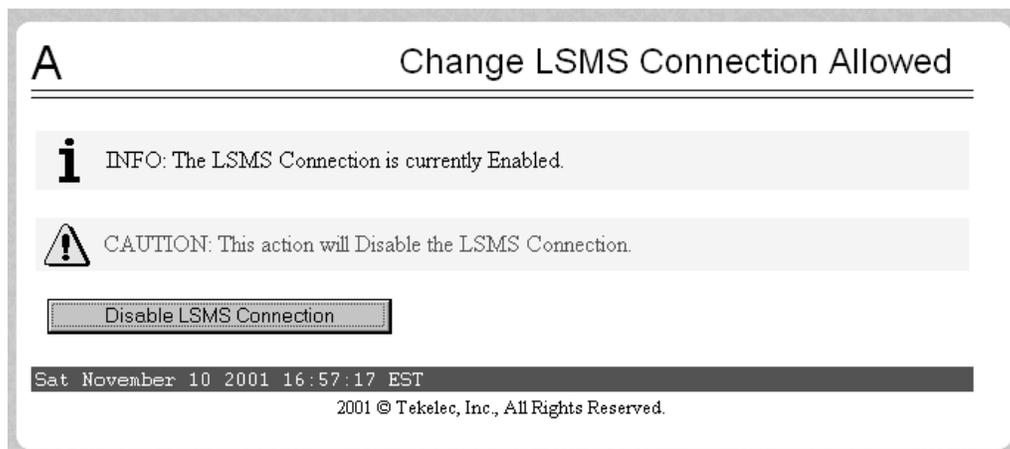
Click the **Disable LSMS Connection** button.

9. Select **Process Control > Stop Software**; a window similar to the example shown in Figure 2-87 displays.

Figure 2-87. Stopping Software on the ELAP GUI
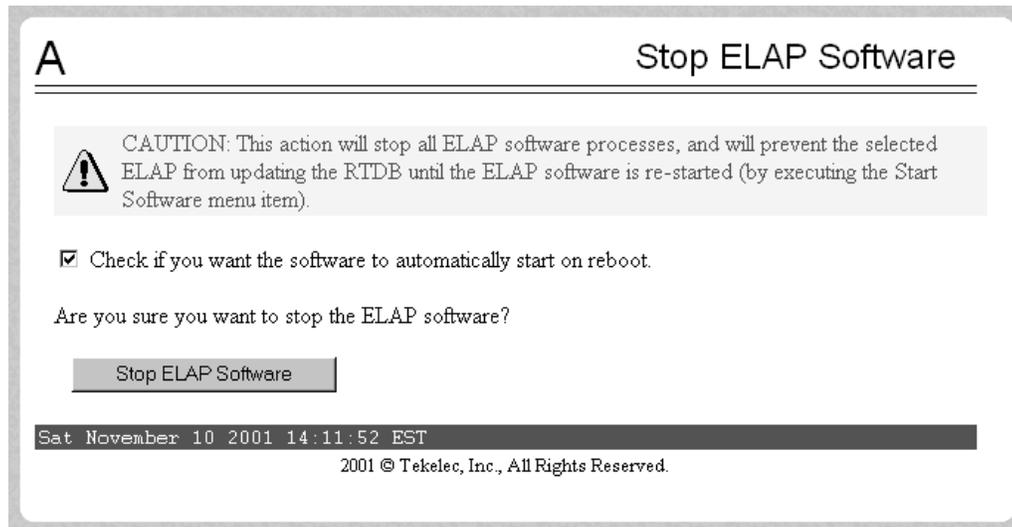
Ensure that the checkbox labeled "Check if you want the software to automatically start on reboot" is filled in (if it is not filled in, click it to fill it in) and click the **Stop ELAP Software** button to confirm that you wish to stop the software.

10. If you are not already connected to the local NE, open another browser window and connect to the local NE using the IP address of either ELAP on the local NE's MPS on the customer (provisioning) network. The RTDB on the other ELAP will be restored in step 21. Log in with the user name and password for a user who is authorized to access the menu items shown in this procedure.

11. Repeat steps 7, 8, and 9 for this ELAP.

12. Select **Select Mate** and repeat steps 7, 8, and 9 for the other ELAP.

13. Select **RTDB > Maintenance > Reload from Remote**; a window similar to the example shown in Figure 2-88 displays.

Figure 2-88. Reload from Remote Mated NE's
ELAP
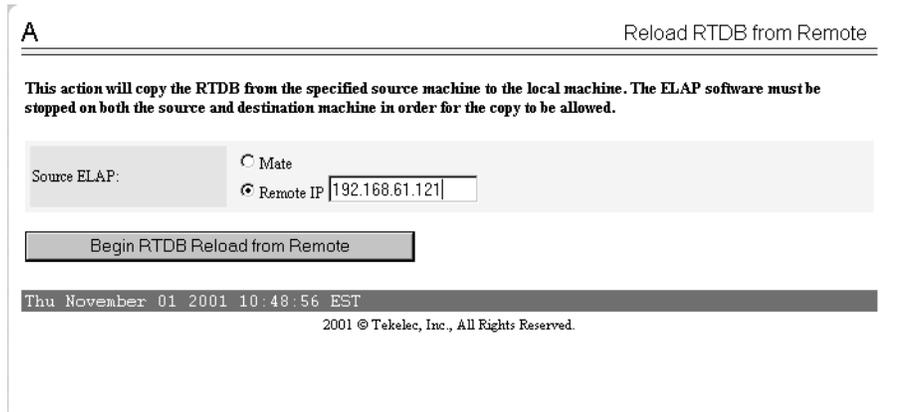
14. Ensure that the radio button labeled **Remote IP** is filled in (if it is not filled in, click the radio button to fill it in) and enter the customer (provisioning) network IP address of the standby ELAP on the remote mated network element, as shown in Figure 2-88. Then, click the **Begin RTDB Reload from Remote** button. A window similar to the example shown in Figure 2-89 displays.

Figure 2-89. Confirm Reload from Remote Mated NE's ELAP
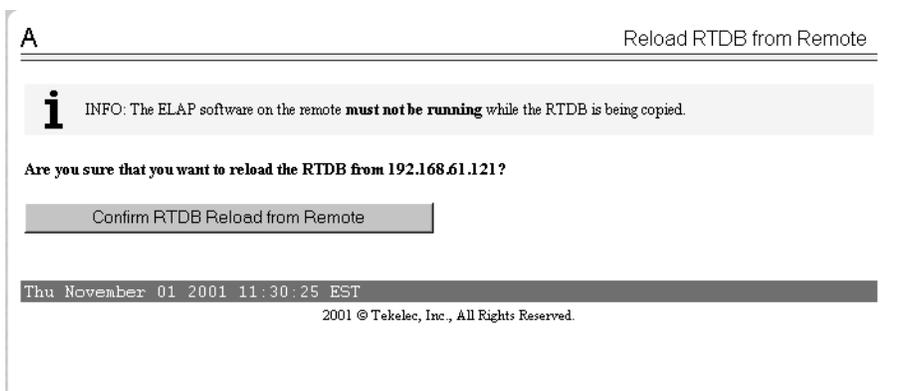
15. Verify that the correct IP address is displayed and click the **Confirm RTDB Reload from Remote** button to confirm that you wish to start the reload.

The ELAP software copies the remote mated NE's standby RTDB to the selected local ELAP's RTDB.

When the reload begins, the workspace indicates that the reload is in progress, and the banner also displays the status. The time required to complete this process depends on the bandwidth of the customer network.

When the reload is complete, the workspace displays as shown in Figure 2-90.

Figure 2-90. Reload from Remote Mated NE Successful
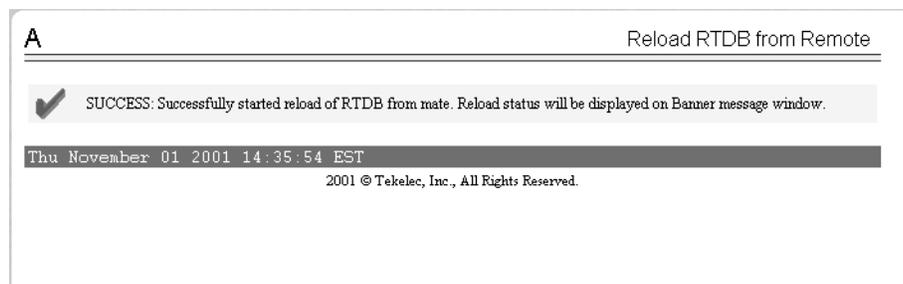
16. When the reload is complete, on the ELAP that the RTDB was copied from (on the remote mated NE), select **Process Control > Start Software**; a window similar to the example shown in Figure 2-91 displays.

Figure 2-91. Starting Software on the ELAP GUI
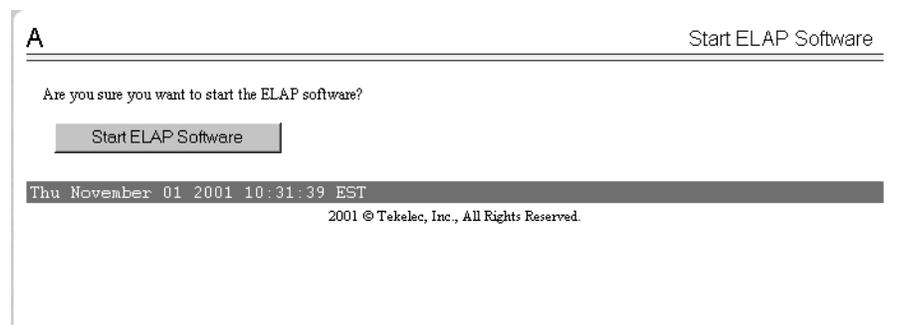
17. Press the **Start ELAP Software** button to confirm that you wish to start the software. When the software has started, the workspace displays the information shown in Figure 2-92.

Figure 2-92. Software Started on the ELAP GUI

18. Select **Maintenance > LSMS Connection > Change Allowed**; a window similar to the example shown in Figure 2-93 displays.

Figure 2-93. Enable LSMS Connection Window
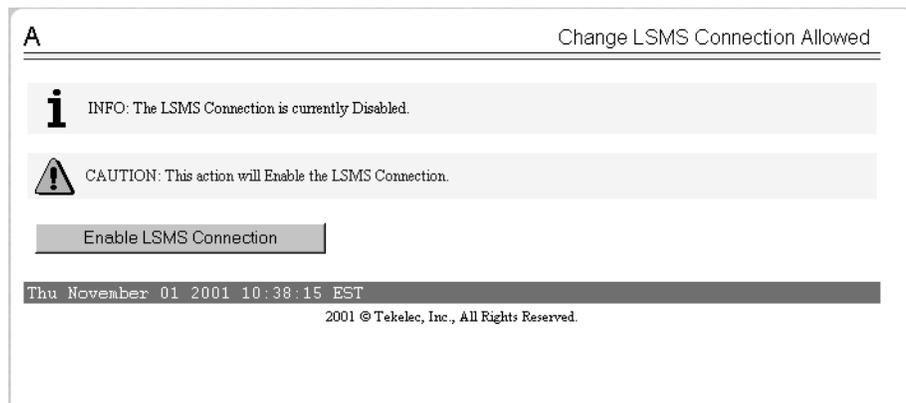
☐ **19.** Click the **Enable LSMS Connection** button. When the connection has been enabled, the workspace displays the information shown in Figure 2-94.

Figure 2-94. LSMS Connection Enabled on the ELAP GUI

A   Change LSMS Connection Allowed

✔   SUCCESS: The LSMS Connection is now Enabled.

Thu November 01 2001 10:39:53 EST

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☐ **20.** Perform the procedure described in "Distributing an RTDB LNP Database to DSMs" on page 2-136.

☐ **21.** If both RTDBs on the local ELAP require restoration, ensure that you are logged into the ELAP whose RTDB has not yet been restored. On the local ELAP, perform "Copying RTDB from Mated ELAP" on page 2-105 (start with step 7 on page 2-111); ensure that the GUI displays the ELAP whose RTDB has not yet been restored. Follow the instructions through the end of the procedure to copy the RTDB from its mate ELAP RTDB (which was restored in step 13 on page 2-120 through step 16 on page 2-121 of this procedure), restart the software, and enable the connections to the LSMS.

This restoration method is complete and normal updates are resumed.

Use the steps in "Verifying RTDB Status" on page 2-106 if you want to verify database levels after the reloading is complete.

Activating the LNP Feature on the EAGLE 5 ISS

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. The current assigned quantity can be verified with the **rtrv-ctrl-feat** command.

> **CAUTION:** Before performing this procedure, verify the number of SCCP cards in the EAGLE 5 ISS by entering the **rept-stat-sccp** command. The number of SCCP cards is shown in the **SCCP Cards Configured** field of the **rept-stat-sccp** output. If the number of SCCP cards is 26 to 32, the LNP feature cannot be enabled. If the LNP feature is enabled, the maximum number of SCCP cards the EAGLE 5 ISS can have is 25. To enable the LNP feature, perform the "Removing an SCCP Card" procedure on page 2-22, to reduce the number of SCCP cards to 25 or less. Total GTT capacity for the EAGLE 5 ISS will be reduced to a maximum of 40,800 transactions per second by removing SCCP cards in order to enable the LNP feature.

Before the LNP feature can be activated, or before the quantity of LNP telephone numbers can be increased, DSMs running the VSCCP application with the correct amount of memory must be configured in the EAGLE 5 ISS. See Table 2-1 on page 2-2 for the DSM requirements. For more information on the DSM, go to the *Hardware Manual - EAGLE 5 ISS*. Table 2-1 on page 2-2 also contains the part numbers of the LNP telephone quantities that are specified with the **enable-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 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 generated by the feature access key generator. The feature access key contains 13 alphanumeric characters and is not case sensitive. The feature access key is provided by Tekelec.

> **:partnum** – The Tekelec-issued part number associated with the LNP telephone number quantity, without the dashes. See Table 2-1 on page 2-2.

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.

25

: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 – used to turn the LNP ELAP Configuration feature on.

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: 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 DSMs on the EAGLE 5 ISS. Some of the DSMs load the ELAP RTDB to provide a restricted level of GTT/LNP service. The remainder of the DSMs 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.

Procedure

☐ **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. The following is an example of the possible output.

```
rlghncxa03w 07-03-01 16:07:48 GMT  EAGLE5 35.6.0
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 will be backed up to the fixed disk and to a removable cartridge before the LNP feature is activated. The removable cartridge that will contain the database must be inserted in the removable cartridge drive.

If the RD BKUP 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 RD BKUP field, insert the removable cartridge that will contain the database into the removable cartridge drive.

If the removable cartridge is not the cartridge that will contain the database, replace the removable cartridge with the one that will contain the database.

☐ 2. Back up the database 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.
```

☐ 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. The following is an example of the possible output.

```
rlghncxa03w 07-03-01 16:07:48 GMT  EAGLE5 35.6.0
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 steps 4 and 5 are performed, stop performing this procedure and contact the Customer Care Center. Refer to "Customer Care Center" on page 1-9 for the contact information.

If the databases are coherent after steps 2 and 3 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. The following is an example of the possible output.

```
rlghncxa03w 07-03-01 16:07:48 GMT  EAGLE5 35.6.0
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. Refer to "Customer Care Center" on page 1-9 for the contact information.

6. Display the status of the cards in the EAGLE 5 ISS by entering the
`rept-stat-card` command. The following is an example of the possible
output.

```
rlghncxa03w 07-03-01 12:57:21 GMT EAGLE5 35.6.0
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.
Refer to "Customer Care Center" on page 1-9 for the contact information.

7. Display the status of the SCCP cards by entering the `rept-stat-sccp`
command. This is an example of the possible output.

```
rlghncxa03w 07-03-01 09:12:36 GMT  EAGLE5 35.6.0

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%
-----------------------------------------------------------------
SCCP Service Average MSU Capacity =  28%  Average CPU Capacity =  40%
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 1a in the "Activating the LNP Feature Overview" section on page 2-4) shows any control features, skip steps 8 through 11, and go to step 12 on page 2-130. 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, steps 8 through 11 must be performed.

8. Display the serial number in the database with the `rtrv-serial-num` command. This is an example of the possible output.

```
rlghncxa03w 07-03-01 21:15:37 GMT EAGLE5 35.6.0
System serial number = ntxxxxxxxxxxxx

System serial number is not locked.

rlghncxa03w 07-03-01 21:15:37 GMT EAGLE5 35.6.0
Command Completed
```

☐ **NOTE:** If the serial number is correct and locked, skip steps 9, 10, and 11, and go to step 12. If the serial number is correct but not locked, skip steps 9 and 10, and go to step 11. 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 to get an incorrect and locked serial number changed. Refer to "Customer Care Center" on page 1-9 for the contact information. 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.

For this example, enter this command.

`ent-serial-num:serial=<EAGLE 5 ISS's correct serial number>`

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

```
rlghncxa03w 07-03-28 21:15:37 GMT EAGLE5 35.6.0
ENT-SERIAL-NUM:  MASP A - COMPLTD
```

☐ 10. Verify that the serial number entered into step 9 was entered correctly using the `rtrv-serial-num` command. This is an example of the possible output.

```
rlghncxa03w 07-03-28 21:15:37 GMT EAGLE5 35.6.0
System serial number = nt00001231

System serial number is not locked.

rlghncxa03w 07-03-28 21:15:37 GMT EAGLE5 35.6.0
Command Completed
```

If the serial number was not entered correctly, repeat steps 9 and 10 and re-enter the correct serial number.

☐ **11.** Lock the serial number in the database by entering the `ent-serial-num` command with the serial number shown in step 8, if the serial number shown in step 8 is correct, or with the serial number shown in step 10, if the serial number was changed in step 9, and with the `lock=yes` parameter.

For this example, enter this command.

`ent-serial-num:serial=<EAGLE 5 ISS's serial number>:lock=yes`

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

```
rlghncxa03w 07-03-28 21:15:37 GMT EAGLE5 35.6.0
ENT-SERIAL-NUM:  MASP A - COMPLTD
```

☐ **NOTE:** If the `rtrv-ctrl-feat` output (step 1a in the "Activating the LNP Feature Overview" section on page 2-4) shows the LNP ELAP Configuration feature is enabled and on, skip steps 12, 13 and 14, and go to step 15.

NOTE: If the LNP ELAP Configuration feature is enabled and but not on, skip this step and go to step 13.

12. Enable the LNP ELAP Configuration feature by entering this command.

`enable-ctrl-feat:partnum=893010901:fak=<LNP ELAP Configuration feature access key>`

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, this message should appear.

```
rlghncxa03w 07-03-01 21:15:37 GMT EAGLE5 35.6.0
ENABLE-CTRL-FEAT: MASP B - COMPLTD
```

☐ **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, the following message should appear.

```
rlghncxa03w 07-03-01 21:15:37 GMT EAGLE5 35.6.0
CHG-CTRL-FEAT: MASP B - COMPLTD
```

☐ **14.** Verify the changes by entering this command.

`rtrv-ctrl-feat:partnum=893010901`

The following is an example of the possible output.

```
rlghncxa03w 07-03-01 21:16:37 GMT EAGLE5 35.6.0
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 2-1 on page 2-2 and the feature access key for that quantity. For this example, enter this command.

```
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 that the ELAP telephone number quantity. The ELAP telephone number quantity can be verified by performing the "Verifying RTDB Status at the ELAP User Interface" procedure on page 2-107. If the telephone number quantity on the ELAP is greater that the LNP telephone number quantity configured in this step, the ELAP RTDB is not loaded onto the entire set of DSMs on the EAGLE 5 ISS. Some of the DSMs load the ELAP RTDB to provide a restricted level of GTT/LNP service. The remainder of the DSMs 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.

When the **enable-ctrl-feat** command has successfully completed, this message should appear.

```
rlghncxa03w 07-03-01 21:15:37 GMT EAGLE5 35.6.0
ENABLE-CTRL-FEAT: MASP B - COMPLTD
```

☐ **16.** Verify the changes by entering the **rtrv-ctrl-feat** command with the part number specified in step 15.

```
rtrv-ctrl-feat:partnum=893011012
```

The following is an example of the possible output.

```
rlghncxa03w 07-03-01 21:16:37 GMT EAGLE5 35.6.0
The following features have been permanently enabled:
Feature Name          Partnum    Status  Quantity
LNP TNs               893011012  on      96000000
```

23. Verify the changes to the SCCP card by entering the `rept-stat-sccp` command. The primary state (`PST`) of the card should be `IS-NR`, and dashes should be shown in the `AST` column of the `rept-stat-sccp` output. This is an example of the possible output.

```
rlghncxa03w 07-03-01 09:12:36 GMT  EAGLE5 35.6.0

CARD   VERSION      PST           SST        AST        MSU   CPU
                                                        USAGE USAGE
------------------------------------------------------------------
1301   123-002-001  IS-NR         Active     DB_DIFF    33%   46%
1303   123-002-001  IS-NR         Active     DB_DIFF    34%   50%
1305   123-002-001  IS-NR         Active     DB_DIFF    21%   29%
1307   123-002-001  IS-NR         Active     DB_DIFF    35%   52%
1311   123-002-001  IS-NR         Active     -----      15%   20%
------------------------------------------------------------------
SCCP Service Average MSU Capacity =  28%  Average CPU Capacity =   40%
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.*

24. Display a summary report of all of the device trouble notifications in the EAGLE 5 ISS by entering the `rept-stat-trbl` command. The following is an example of the possible output.

```
rlghncxa03w 07-03-01 16:07:48 GMT  EAGLE5 35.6.0
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. Refer to "Customer Care Center" on page 1-9 for the contact information.

☐ **25.** Display the overall status of the ELAP subsystem running on the MPS (multi-purpose server) by entering the **rept-stat-mps** command. The following is an example of the possible output.

```
rlghncxa03w 07-03-01 10:23:93 GMT  EAGLE5 35.6.0
                    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. Refer to "Customer Care Center" on page 1-9 for the contact information.

26. 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.
```

27. Display the status of the databases with the `rept-stat-db` command. The following is an example of the possible output.

```
rlghncxa03w 07-03-01 16:07:48 GMT  EAGLE5 35.6.0
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. Refer to "Customer Care Center" on page 1-9 for the contact information.

If the databases are coherent, and if ELAP A and B have the same birthdate, this procedure is finished.

You have now 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 NE's remaining LNP databases must be synchronized with the NE's newly synchronized 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 user-initiated resynchronization or bulk load from the LSMS), it is not necessary to distribute the data to the DSMs because they are already synchronized with the RTDB that was used to restore from. Therefore, after the copy, the DSMs are now synchronized with both RTDBs.

- Other Network Element Database Distribution

  However, after other LNP database synchronization operations, the network element's main LNP database must be distributed by operator intervention to other LNP databases within the network element (both the mate RTDB and the DSMs). See "Distributing an RTDB LNP Database to DSMs" on page 2-136.

Distributing an RTDB LNP Database to DSMs

This section describes how to distribute the LNP database to the DSMs 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" procedure on page 2-105)

- Updated by one of the following operations sent from the LSMS:

    - Resynchronized by user-initiated resynchronization (see Chapter 4, "Managing Resynchronization from the LSMS," in the *LNP Database Synchronization Manual - LSMS with EAGLE 5 ISS*)

    - Bulk loaded from the LSMS (see "Bulk Load Procedure" procedure on page 2-93)

Distributing an RTDB LNP Database to DSMs

Perform the following procedure to distribute the data from the ELAP's LNP database to the DSMs.

Procedure

☐ **1.** Distribute the imported LNP database onto each DSM, which will also silence the LNP database alarms. Use one of the following methods:

- Method A loads the imported LNP database onto one DSM at a time by reloading each DSM.

    This method allows the global title translation and LNP functions to continue running while the new LNP database is being loaded. When the DSM is reinitializing, its database goes temporarily out of service for the period of time that it takes to reload the database on the DSM. 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.

- Method B loads the imported LNP database onto all DSMs in the EAGLE 5 ISS by reinitializing all the DSMs at once.

    CAUTION: This method not only loads the imported LNP database onto the DSMs at the same time, but takes all the DSMs 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 DSM, one DSM at a time.

a. Take the DSM out of service with the `rmv-card` command specifying the card location of the DSM. If there is only one DSM 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 07-03-01  11:11:28 GMT  EAGLE5 35.6.0
Card has been inhibited.
```

b. Return the DSM to service with the `rst-card` command with the card location of the DSM and the option `data=persist` to allow a warm restart if possible. This command validates that the LNP database on the specified DSM 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 07-03-01  11:11:28 GMT  EAGLE5 35.6.0
Card has been allowed.
```

c. When the DSM 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 07-03-01  11:11:28 GMT  EAGLE5 35.6.0
0012.0431    CARD 1301 SCCP        LNP database has been corrected
```

d. Repeat steps a and b for the other DSMs in the EAGLE 5 ISS.

If any of the DSMs continue to boot, contact the Customer Care Center (refer to "Customer Care Center" on page 1-9 for the contact information).

Method B: Enter the `init-card:appl=vsccp` command.

⚠️ **CAUTION:** This command initializes all the DSMs at once and not only loads the imported LNP database onto the DSMs at the same time, but takes all the DSMs 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 DSMs 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 DSMs are reinitialized with the `init-card:appl=vsccp` command. After the `init-card:appl=vsccp` command has finished executing and all the DSMs have reinitialized, return the mated application subsystem to service with the `alw-map-ss` command.

When the imported database has been loaded onto each DSM, UAM 0431 is displayed for each DSM showing that the UAM 0429 has been cleared and the database on the DSM matches the database on the MASPs. This is an example of UAM 0431.

```
rlghncxa03w 07-03-01  11:11:28 GMT  EAGLE5 35.6.0
0012.0431    CARD 1301 SCCP       LNP database has been corrected
```

If any of the DSMs continue to boot, contact the Customer Care Center (refer to "Customer Care Center" on page 1-9 for the contact information).

 ☐ **2.** Verify that the DSMs are in-service by entering the `rept-stat-sccp` command. The state of the DSMs, shown in the `PST` field of the `rept-stat-sccp` command output, should be `IS-NR` (in-service normal). This is an example of the possible output:

```
rlghncxa03w 07-03-01 09:12:36 GMT  EAGLE5 35.6.0

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%
-----------------------------------------------------------------
SCCP Service Average MSU Capacity =  28%  Average CPU Capacity =   40%
Command Completed.
```

If the state of any DSMs is not IS-NR, contact the Customer Care Center department. Refer to "Customer Care Center" on page 1-9 for the contact information.

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*.

You have now completed this procedure.

Disabling Bulk Load

If you have distributed a restored RTDB's LNP data to the DSMs (as described in "Distributing an RTDB LNP Database to DSMs" on page 2-136) after an LSMS-initiated procedure, perform the following procedure.

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 > LSMS HS Bulk Download > Change Enabled**; a window similar to the example shown in Figure 2-95 displays.

Figure 2-95. Change Enabled Window
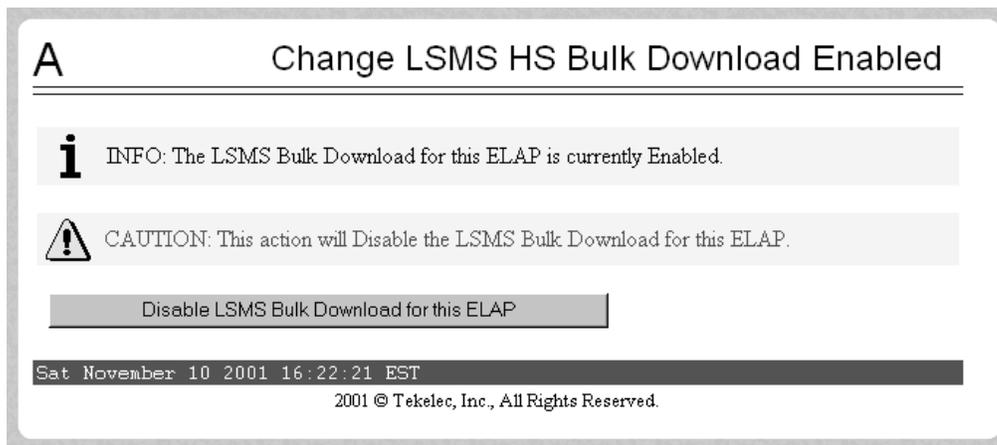
The information field should show that the LSMS Bulk Download for this ELAP is currently enabled.

☐ **3.** Click the **Disable LSMS HS Bulk Download for this ELAP** button.

You have now completed this procedure and the user-initiated resynchronization or bulk load.

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 "Modify EMS Routing" procedure on page 2-89.

- 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.

Procedure

☐ **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.

If the Eagle agent fails to start, contact the Customer Care Center (refer to "Customer Care Center" on page 1-9 for the contact information).

You have now completed this procedure.

3

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.

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 3-1 shows the result of the 10-digit message relay processing, and the processing required to route a message.

Table 3-1. LNP Message Relay

Ported MR NPANXX	Ported TN	LNP Message Relay Processing	NPAC GTT Data for any Service
No	No	Nonported subscriber. See Table 3-3.	N/A
No (See Note).	Yes	Ported subscriber.	Yes - See Table 3-2.
			No - See Table 3-3.
Yes	No	Nonported subscriber. See Table 3-3.	N/A
Yes	Yes	Ported subscriber.	Yes - See Table 3-2.
			No - See Table 3-3.
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 3-2 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 3-2. 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 3-3.
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.
No	N/A	Yes See Note 2.	Yes	The message is routed using NPANXX or normal global title translation data. See Table 3-3.
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.

Table 3-2. LNP Message Relay - Ported Subscribers (Continued)

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
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.				
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 3-3 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 3-3. LNP Message Relay - Nonported Subscribers

Traditional (Non-LNP) GTT DATA defined for Service (TT)	LNP6-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.

Table 3-3. LNP Message Relay - Nonported Subscribers (Continued)

Traditional (Non-LNP) GTT DATA defined for Service (TT)	LNP6-digit Default GTT DATA defined for Service (TT)	LNP Message Relay Action
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 3-1 shows how normal global title and message relay are performed on EAGLE 5 ISS.

Figure 3-1. Message Flow For Global Title and Message Relay (Sheet 1 of 6)

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.
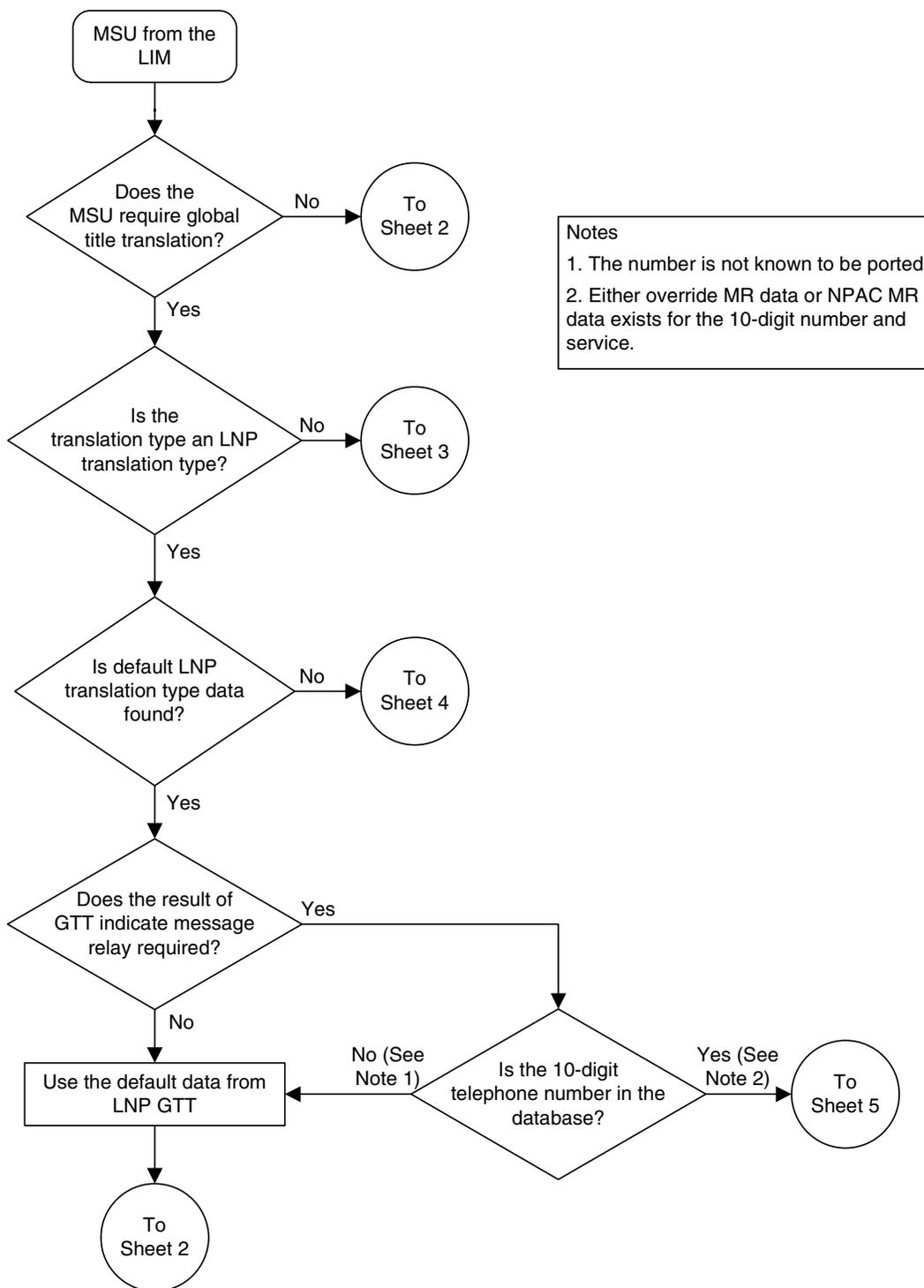
Figure 3-1. Message Flow For Global Title and Message Relay (Sheet 2 of 6)
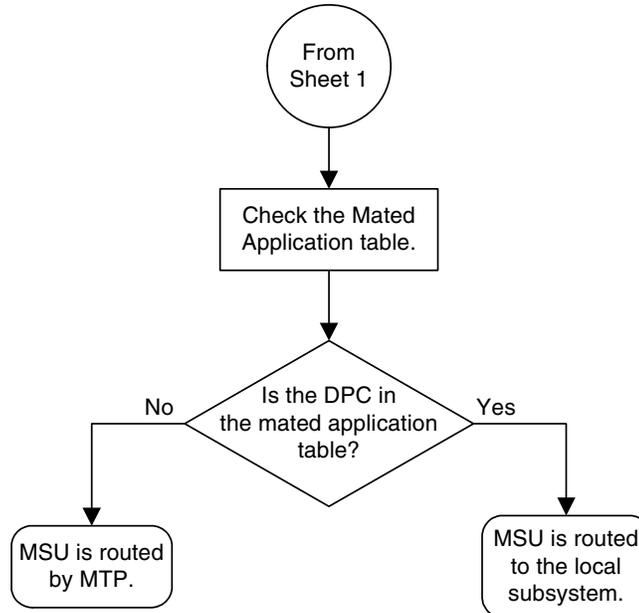
Figure 3-1. Message Flow For Global Title and Message Relay (Sheet 3 of 6)

Figure 3-1. Message Flow For Global Title and Message Relay (Sheet 4 of 6)

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.

Figure 3-1.   Message Flow For Global Title and Message
                  Relay (Sheet 5 of 6)

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

Figure 3-1. Message Flow For Global Title and Message Relay (Sheet 6 of 6)

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 3-2.

Figure 3-2. Inter-Network Support for LNP Queries
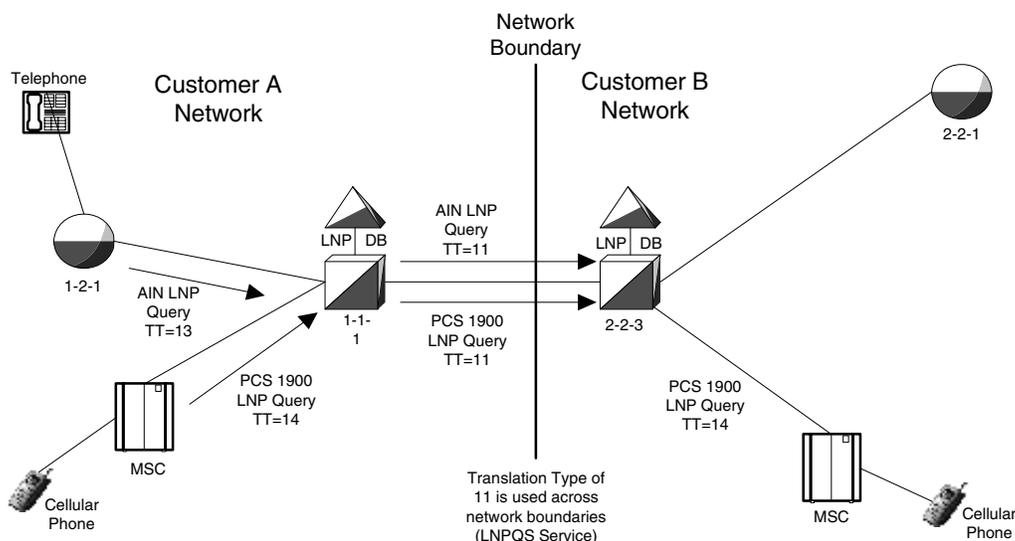
In this example, Network B would not be able to differentiate between the two types of LNP queries received from Network A.

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.

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 3-3 on page 3-15

Figure 3-3.   LNP Query Processing
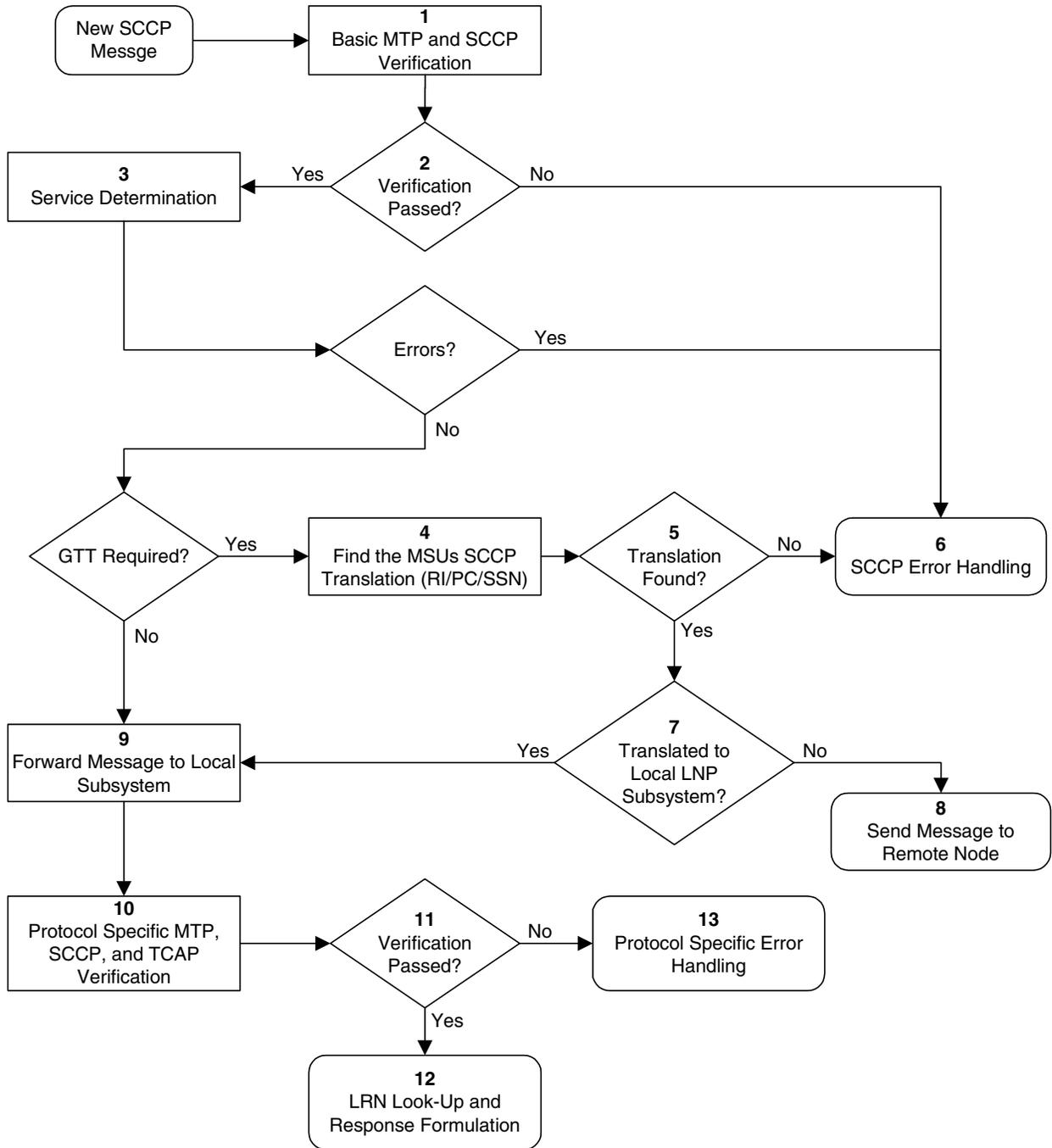
In previous releases, the LNP service (step 3 in Figure 3-3) was determined by the translation type contained in the query.

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 3-4 shows the OPCODE values for the query types.

Table 3-4. 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 3-4 on page 3-17 shows the LNP service determination process for queries containing the LNPQS translation type.

Figure 3-4. LNP Service Determination Process (Sheet 1 of 3)

Figure 3-4.   LNP Service Determination Process (Sheet 2 of 3)
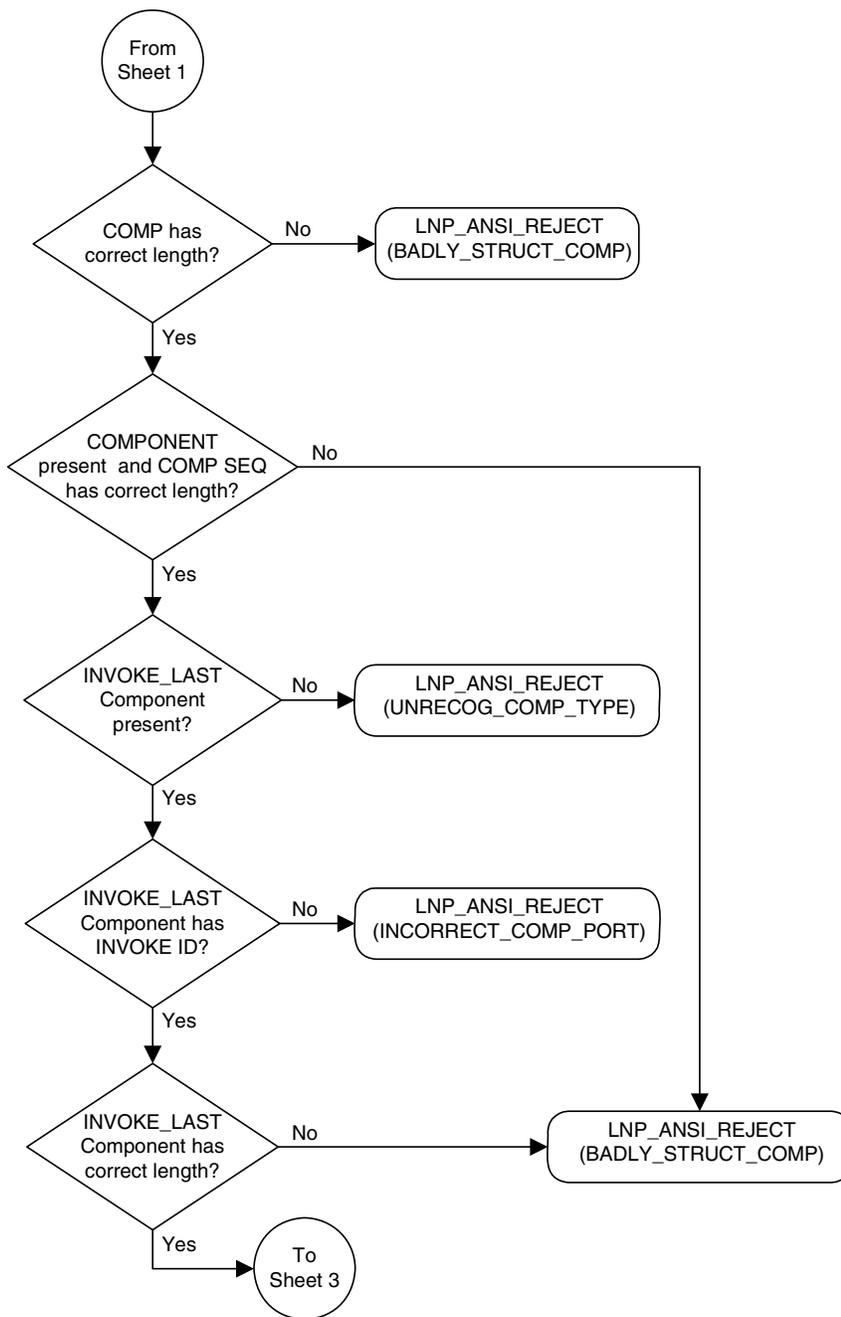
Figure 3-4. LNP Service Determination Process (Sheet 3 of 3)

```
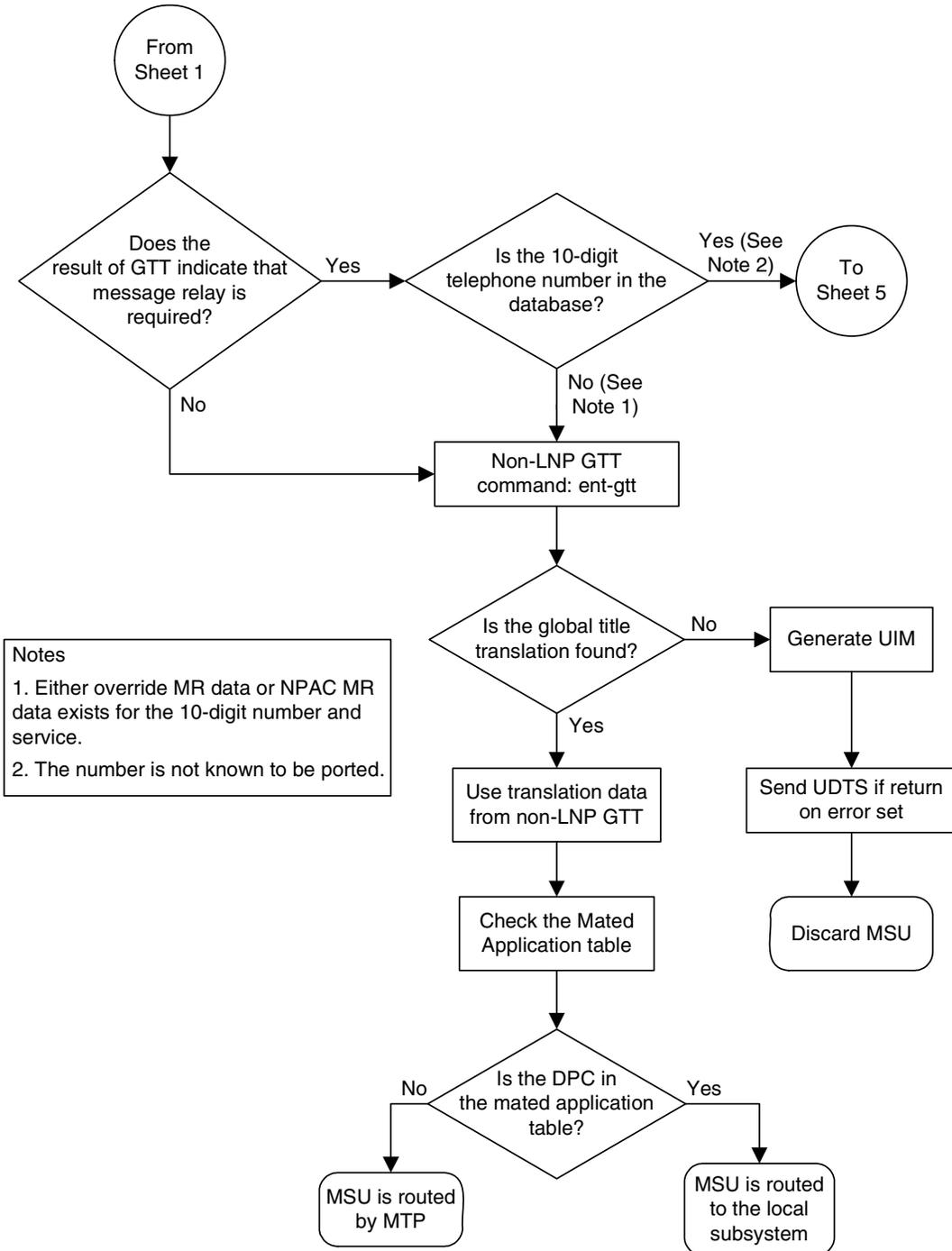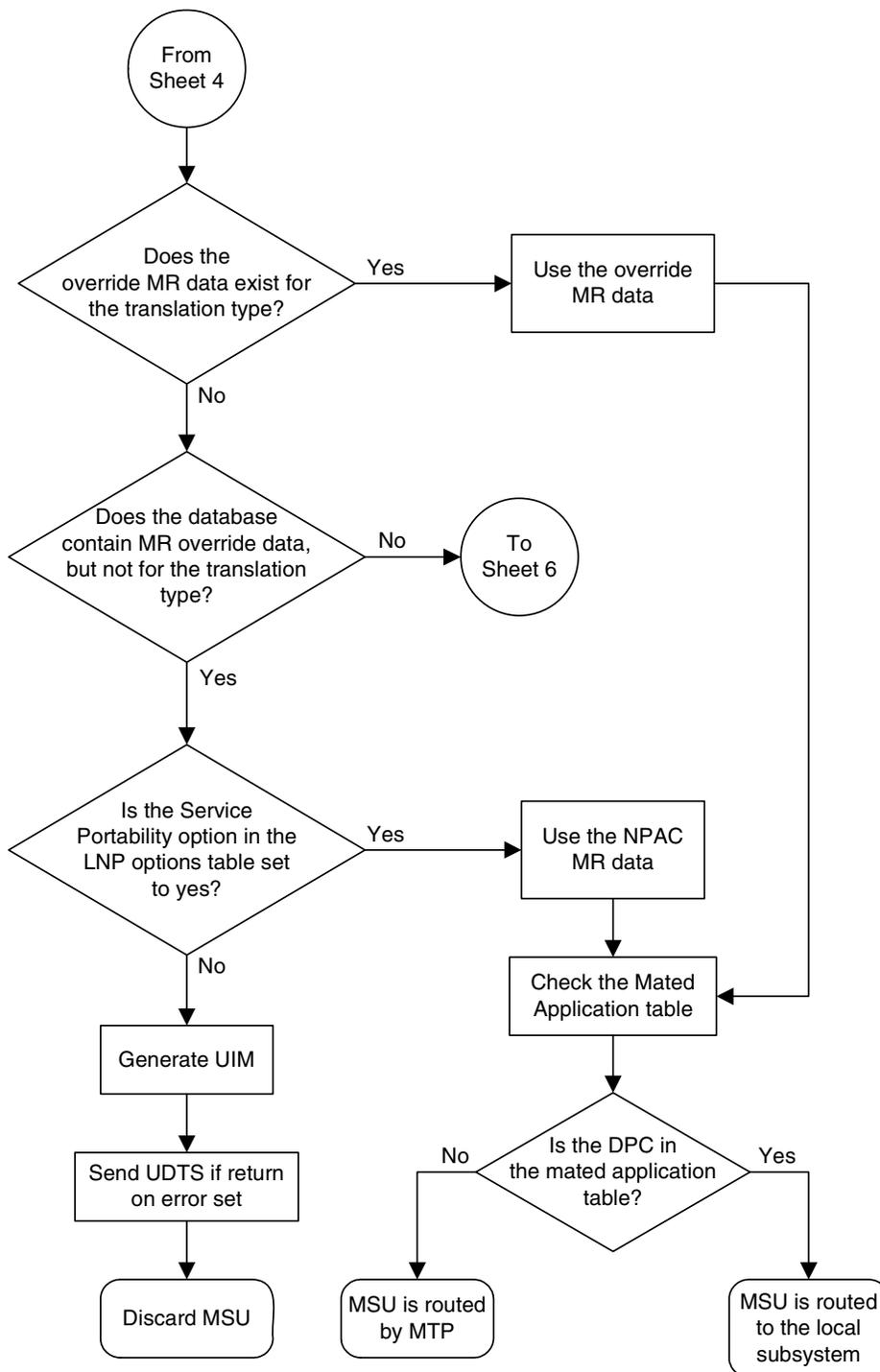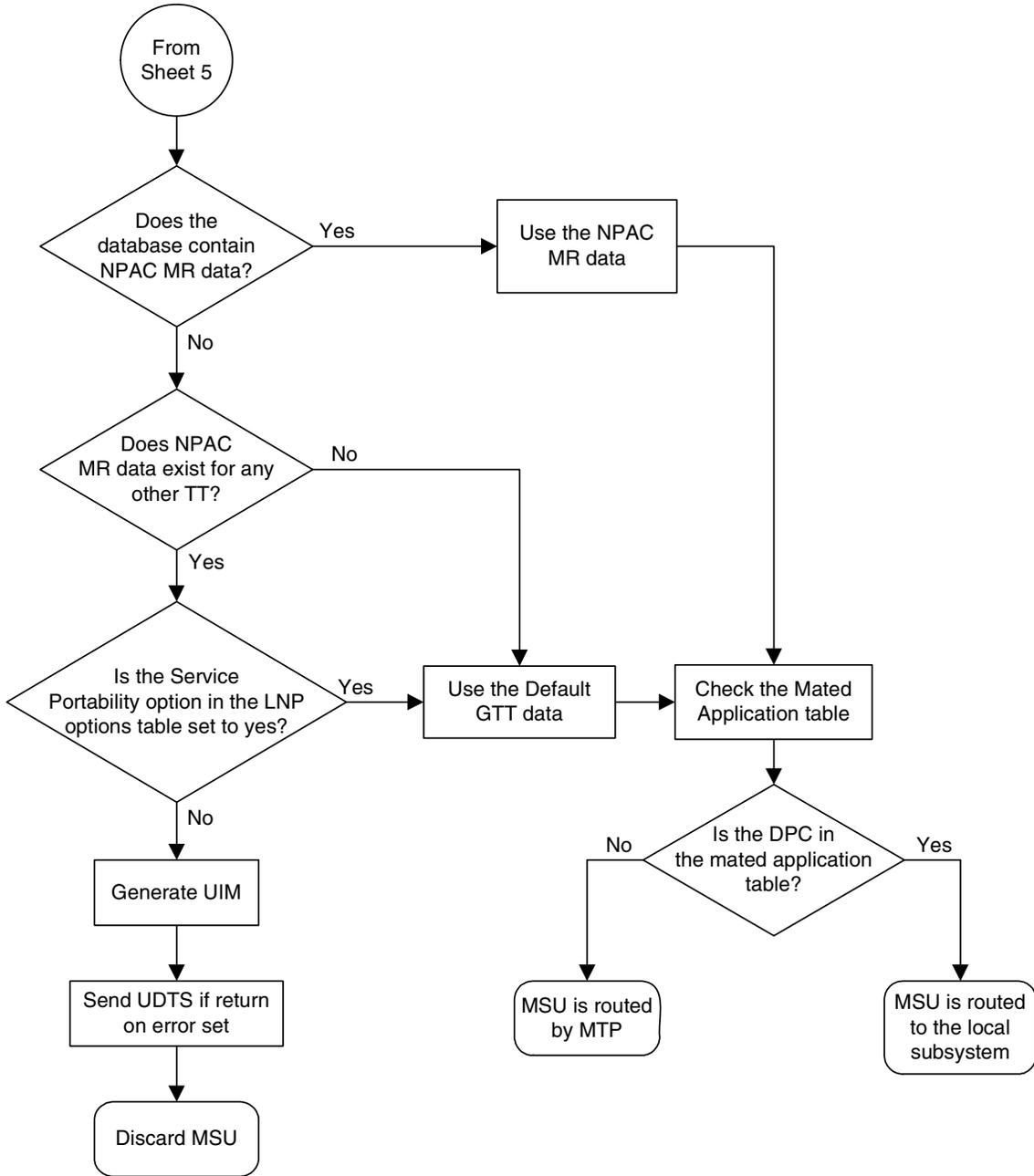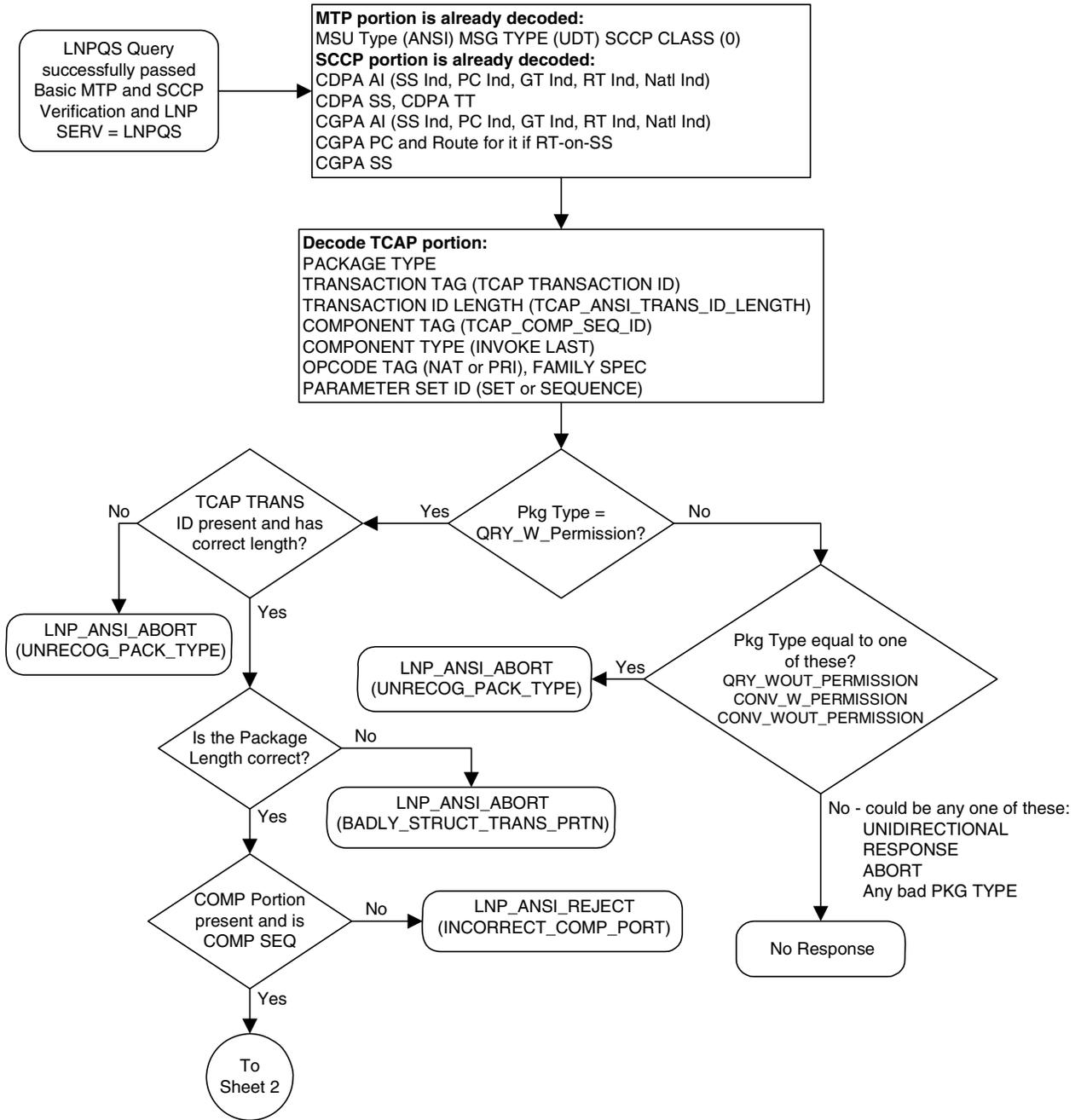                    ┌──────────┐
                   (   From     )
                   (  Sheet 2   )
                    └────┬─────┘
                         │
                         ▼
              ╱────────────────────╲
             ╱  OPCODE TAG = PRI     ╲        ┌──────────────────┐
            ╱ OPCODE FAMILY = REQUEST ╲ Yes   │ LNP Service is AIN │
            ╲    INSTRUCT             ╱───────▶└──────────────────┘
             ╲ 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 ╲ Yes   │ LNP Service is WNP │
            ╲    FAMILY               ╱───────▶└──────────────────┘
             ╲ OPCODE SPEC = IS41 NUM╱
              ╲  PORT REQ           ╱
               ╲──────────────────╱
                         │ No
                         ▼
              ┌──────────────┐      ┌───────────────────────────┐
              │ LNP Service is │─────▶│ Continue to LNP Query SCCP │
              │  Undefined     │      │ Global Title Translation   │
              └──────────────┘      │ (see the LNP Query         │
                                    │ Processing figure, block 4)│
                                    └───────────────────────────┘
```
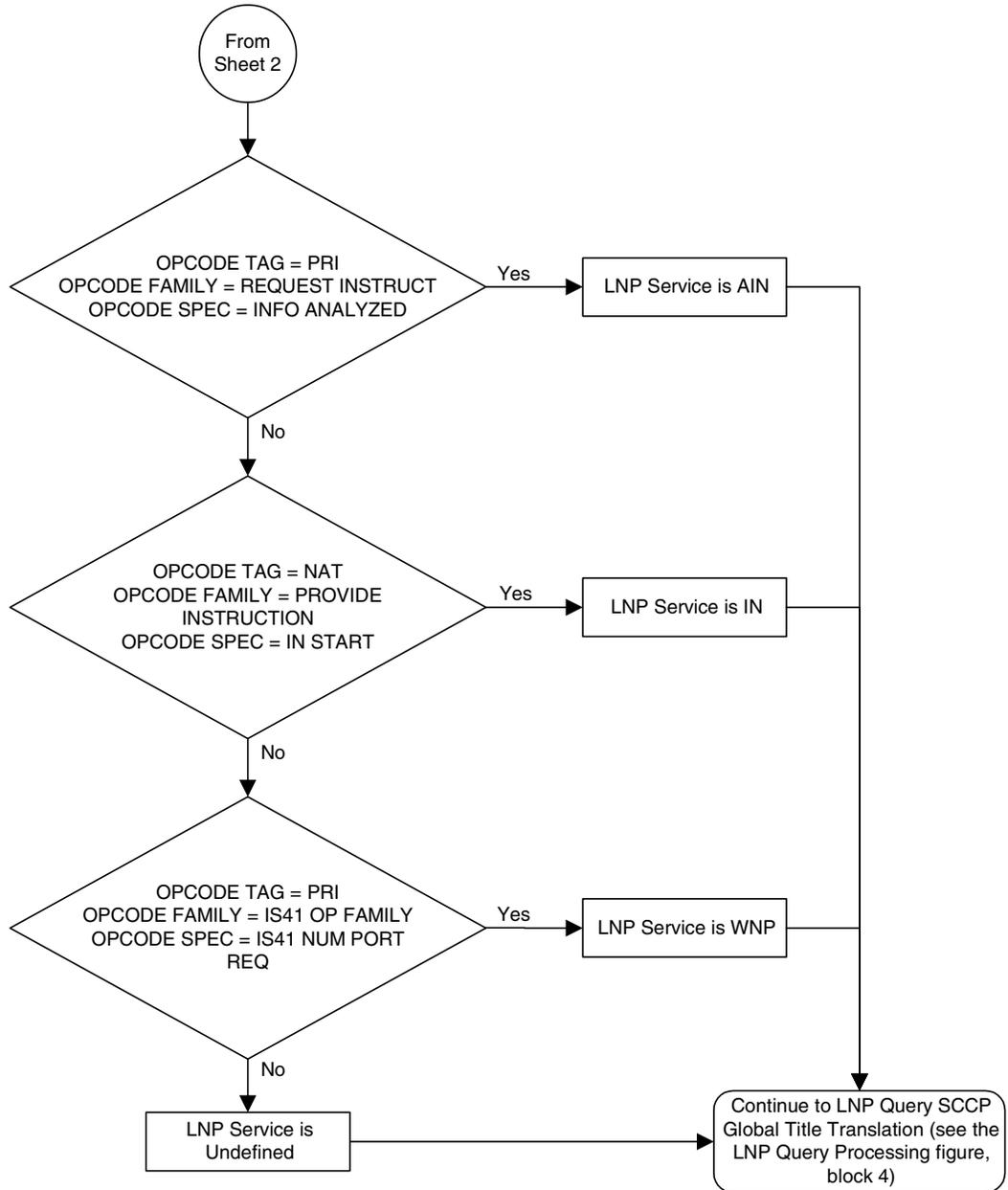
Limitations

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 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 `ttn` 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.

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 the "Activating the LNP Short Message Service (SMS) Feature" procedure on page 3-80 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 the "Changing an LNP Service" procedure on page 3-32 to change the translation type of the existing service. See the "LNP Query Service (LNPQS) Details" section on page 3-14 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 3-5.

Table 3-5. Example LNP Service Configuration

SERV	TT	TTN	DV	ALIAS
IN	30	INGTE	TCAP	---
IN	---	---	----	150
IN	---	---	----	175
UDF3	100	UDF3	SCCP	---
UDF3	---	---	----	40
UDF3	---	---	----	45
AIN	---	---	----	240
LIDB	---	---	----	80
WNP	50	WNP50	TCAP	---
PCS	19	PCS19	TCAP	---
WSMSC	139	WSMSC1	TCAP	---
LNPQS	11	LNPQS	TCAP	---

Procedure

☐ **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.

```
rlghncxa03w 07-03-30 21:15:37 GMT EAGLE5 35.6.0
The following features have been permanently enabled:

Feature Name             Partnum    Status   Quantity
IPGWx Signaling TPS      893012814  on       20000
ISUP Normalization       893000201  on       ----
Command Class Management  893005801  off      ----
Intermed GTT Load Sharing 893006901 off      ----
XGTT Table Expansion     893006101  off      ----
XMAP Table Expansion     893007710  on       3000
Large System # Links     893005910  on       2000
Routesets                893006401  on       6000
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 LNP feature is not enabled, perform the procedures in Chapter 2, "LNP Feature Activation," to enable the LNP feature. Go to step 2.

If the LNP feature is enabled, go to step 2.

☐ **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 07-03-28 14:42:38 GMT EAGLE5 35.6.0
SERV      TT    TTN        DV      ALIAS
AIN       15    AINGTE     TCAP    235
                                   236
LIDB      20    LIDB       SCCP    ---
CLASS     25    CLASSGTE   SCCP    ---
UDF1      201   UDF1       SCCP    ---

TT-SERV TABLE IS (4 of 256) 2% FULL
```

☐   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.

NOTE: If the `serv=wnp` or `serv=pcs` parameters will not be specified with the `ent-lnp-serv` command, skip steps 3, 4, and 5, and go to step 6.

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 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 07-03-10 11:43:04 GMT EAGLE5 35.6.0
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 07-03-10 11:43:04 GMT EAGLE5 35.6.0
CHG-FEAT: MASP A - COMPLTD
```

☐ **NOTE:** If you are not assigning a translation type to the WSMSC service, skip step 6 and go to step 7.

6. If the `rtrv-ctrl-feat` output in step 1 shows that the LNP SMS feature is enabled, and **on**, go to step 7.

If the `rtrv-ctrl-feat` output in step 1 shows that the LNP SMS feature is not enabled or on, perform the "Activating the LNP Short Message Service (SMS) Feature" procedure on page 3-80 to enable and turn the LNP SMS feature on. Skip step 7 and go to step 8.

☐ **NOTE:** If you are not assigning a translation type to the LNPQS service, skip step 7 and go to step 8.

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 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" procedure on page 3-32 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 07-03-28 14:42:38 GMT EAGLE5 35.6.0
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 07-03-28 14:42:38 GMT EAGLE5 35.6.0
SERV       TT     TTN        DV     ALIAS
AIN        15     AINGTE     TCAP   235
                                    236
                                    240
IN         30     INGTE      TCAP   150
                                    175
LIDB       20     LIDB       SCCP   80
WNP        50     WNP50      TCAP   ---
LNPQS      11     LNPQS      TCAP   ---
PCS        19     PCS19      TCAP   ---
CLASS      25     CLASSGTE   SCCP   ---
UDF1       201    UDF1       SCCP   ---
UDF3       100    UDF3       SCCP   40
                                    45
WSMSC      139    WSMSC1     SCCP   ---

TT-SERV TABLE IS (10 of 256) 4% FULL
```

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.

Procedure

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 07-03-28 14:42:38 GMT EAGLE5 35.6.0
SERV        TT    TTN         DV        ALIAS
AIN         15    AINGTE      TCAP      235
                                        236
                                        240
IN          30    INGTE       TCAP      150
                                        175
LIDB        20    LIDB        SCCP      80
WNP         50    WNP50       TCAP      ---
LNPQS       11    LNPQS       TCAP      ---
PCS         19    PCS19       TCAP      ---
CLASS       25    CLASSGTE    SCCP      ---
UDF1        201   UDF1        SCCP      ---
UDF3        100   UDF3        SCCP      40
                                        45
WSMSC       139   WSMSC1      SCCP      ---

TT-SERV TABLE IS (10 of 256) 4% FULL
```

☐ **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 07-03-28 14:42:38 GMT EAGLE5 35.6.0
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 07-03-28 14:42:38 GMT EAGLE5 35.6.0
SERV       TT     TTN          DV      ALIAS
AIN        15     AINGTE       TCAP    235
                                       236
                                       240
IN         30     INGTE        TCAP    150
                                       175
LIDB       20     LIDB         SCCP    80
WNP        50     WNP50        TCAP    ---
LNPQS      11     LNPQS        TCAP    ---
PCS        19     PCS19        TCAP    ---
CLASS      25     CLASSGTE     SCCP    ---
UDF1       201    UDF1         SCCP    ---
WSMSC      139    WSMSC1       SCCP    ---

TT-SERV TABLE IS (9 of 256) 4% FULL
```

☐ **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 3-6.

Table 3-6. 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

Procedure

  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 07-03-28 14:42:38 GMT EAGLE5 35.6.0
SERV        TT     TTN          DV      ALIAS
AIN         15     AINGTE       TCAP    235
                                        236
                                        240
IN          30     INGTE        TCAP    150
                                        175
LIDB        20     LIDB         SCCP    80
WNP         50     WNP50        TCAP    ---
LNPQS       11     LNPQS        TCAP    ---
PCS         19     PCS19        TCAP    ---
CLASS       25     CLASSGTE     SCCP    ---
UDF1        201    UDF1         SCCP    ---
UDF3        100    UDF3         SCCP    40
                                        45
WSMSC       139    WSMSC1       SCCP    ---

TT-SERV TABLE IS (10 of 256) 4% FULL
```

☐ **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, 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.

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 this command has successfully completed, this message should appear.

```
rlghncxa03w 07-03-28 14:42:38 GMT EAGLE5 35.6.0
DLT-LNP-SERV: MASP A - COMPLTD
```

☐ **NOTE:** If the LNP service name (**serv** parameter value) is not being changed, skip steps 3, 4, 5, and 6, and go to step 7. If the LNP service name (**serv** parameter value) is being changed to a service name other than WNP or PCS, skip step 3, 4, and 5, and go to step 6.

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 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 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 07-03-10 11:43:04 GMT EAGLE5 35.6.0
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 07-03-10 11:43:04 GMT EAGLE5 35.6.0
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 and go to step 7.**

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.

If the `rtrv-ctrl-feat` output shows that the LNP SMS feature is not enabled or on, perform the "Activating the LNP Short Message Service (SMS) Feature" procedure on page 3-80 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, and go to step 9 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 07-03-28 14:42:38 GMT EAGLE5 35.6.0
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 07-03-28 14:42:38 GMT EAGLE5 35.6.0
SERV      TT    TTN       DV       ALIAS
AIN       55    AINGTE    TCAP     ---
IN        30    INGTE     TCAP     150
                                   175
LIDB      20    LIDB      SCCP     80
WNP       75    WNP75     TCAP     ---
LNPQS     11    LNPQS     TCAP     ---
PCS       19    PCS19     TCAP     ---
CLASS     140   CLASS     SCCP     ---
UDF1      201   UDF1      SCCP     ---
UDF3      100   UDF3      SCCP     40
                                   45
WSMSC     139   WSMSC1    SCCP     ---

TT-SERV TABLE IS (10 of 256) 4% FULL
```

☐ **9.** If you wish to continue using the alias translation types removed in step 2 with the changed LNP service, or add new alias translation types to the LNP service, add them with the **ent-lnp-serv** command. Otherwise, go to step 9. For this example, the alias translation types removed in step 2 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 07-03-28 14:42:38 GMT EAGLE5 35.6.0
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 07-03-28 14:42:38 GMT EAGLE5 35.6.0
SERV      TT     TTN       DV      ALIAS
AIN       55     AINGTE    TCAP    235
                                   236
                                   240
IN        30     INGTE     TCAP    150
                                   175
LIDB      20     LIDB      SCCP    80
WNP       75     WNP75     TCAP    ---
LNPQS     11     LNPQS     TCAP    ---
PCS       19     PCS19     TCAP    ---
CLASS     140    CLASS     SCCP    ---
UDF1      201    UDF1      SCCP    ---
UDF3      100    UDF3      SCCP    40
                                   45
WSMSC     139    WSMSC1    SCCP    ---

TT-SERV TABLE IS (10 of 256) 4% FULL
```

☐ **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 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 Chapter 2, "LNP Feature Activation," 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 message relay 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 the "Provisioning a 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.

Procedure

☐ 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 07-03-30 21:15:37 GMT EAGLE5 35.6.0
The following features have been permanently enabled:

Feature Name              Partnum    Status  Quantity
IPGWx Signaling TPS       893012814  on      20000
ISUP Normalization        893000201  on      ----
Command Class Management  893005801  off     ----
Intermed GTT Load Sharing 893006901  off     ----
XGTT Table Expansion      893006101  off     ----
XMAP Table Expansion      893007710  on      3000
Large System # Links      893005910  on      2000
Routesets                 893006401  on      6000
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 LNP feature is not enabled, perform the procedures in Chapter 2, "LNP Feature Activation," to enable the LNP feature. Go to step 2.

If the LNP feature is enabled, go to step 2.

☐ 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 07-03-28 14:42:38 GMT EAGLE5 35.6.0
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 07-03-10 11:43:04 GMT  EAGLE5 35.6.0
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) 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 07-03-07 00:34:31 GMT EAGLE5 35.6.0
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 the "Provisioning a 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 these commands.

`ent-ss-appl:appl=lnp:ssn=254:stat=online`

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

```
rlghncxa03w 07-03-28 14:42:38 GMT EAGLE5 35.6.0
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 07-03-28 14:42:38 GMT EAGLE5 35.6.0
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.

Procedure

☐ **1.** Display the status of the LNP subsystem with the **rept-stat-lnp** command. This is an example of the possible output.

```
rlghncxa03w 07-03-28 14:42:38 GMT EAGLE5 35.6.0
LNP SUBSYSTEM REPORT  IS-NR        Active      -----
LNP Cards Configured=  5
CARD    PST           SST          GTT STATUS   LNP STATUS   CPU USAGE
1106    IS-NR         Active       ACT          ACT             13%
1201    IS-NR         Active       ACT          ACT             10%
1205    IS-NR         Active       ACT          ACT             11%
1302    IS-NR         Active       ACT          ACT             14%
1310    IS-NR         Active       ACT          ACT             12%

LNPQS:
  SSN STATUS = Allowed     MATE SSN STATUS  = Allowed
  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
  LPNQS:     1 out of     500
  WNPQS:     0 out of       0
  PLNPQS:    0 out of       0
  TLNP:      0 out of       0

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 07-03-28 14:42:38 GMT EAGLE5 35.6.0
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, skip steps 3 and 4, and go to step 5.

3. Place the LNP subsystem application out of service with the `inh-map-ss` command specifying the LNP subsystem number displayed in step 2. For this example, enter this command.

`inh-map-ss:ssn=254`

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

```
rlghncxa03w 07-03-28 14:42:38 GMT EAGLE5 35.6.0
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 07-03-28 14:42:38 GMT EAGLE5 35.6.0
LNP SUBSYSTEM REPORT  OOS-MT-DSBLD   Active      -----
LNP Cards Configured=  5
CARD   PST         SST          GTT STATUS   LNP STATUS   CPU USAGE
1106   IS-NR       Active       ACT          ACT             13%
1201   IS-NR       Active       ACT          ACT             10%
1205   IS-NR       Active       ACT          ACT             11%
1302   IS-NR       Active       ACT          ACT             14%
1310   IS-NR       Active       ACT          ACT             12%

LNPQS:
  SSN STATUS = Allowed     MATE SSN STATUS  = Allowed
  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
  LPNQS:       1 out of     500
  WNPQS:       0 out of       0
  PLNPQS:      0 out of       0
  TLNP:        0 out of       0

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.

□ **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=lnp

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

```
rlghncxa03w 07-03-28 14:42:38 GMT EAGLE5 35.6.0
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 07-03-28 14:42:38 GMT EAGLE5 35.6.0
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.

ProcedureTaking the LNP Subsystem Application Offline

☐ **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 07-03-28 14:42:38 GMT EAGLE5 35.6.0
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.

```
rlghncxa03w 07-03-28 14:42:38 GMT EAGLE5 35.6.0
LNP SUBSYSTEM REPORT  IS-NR         Active      -----
LNP Cards Configured=  5
CARD   PST           SST          GTT STATUS   LNP STATUS   CPU USAGE
1106   IS-NR         Active       ACT          ACT            13%
1201   IS-NR         Active       ACT          ACT            10%
1205   IS-NR         Active       ACT          ACT            11%
1302   IS-NR         Active       ACT          ACT            14%
1310   IS-NR         Active       ACT          ACT            12%

LNPQS:
  SSN STATUS = Allowed     MATE SSN STATUS  = Allowed
  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
  LPNQS:      1 out of     500
  WNPQS:      0 out of       0
  PLNPQS:     0 out of       0
  TLNP:       0 out of       0

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. For this example, enter this command.

`inh-map-ss:ssn=254`

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

```
rlghncxa03w 07-03-28 14:42:38 GMT EAGLE5 35.6.0
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 07-03-28 14:42:38 GMT EAGLE5 35.6.0
LNP SUBSYSTEM REPORT  OOS-MT-DSBLD    Active       -----
LNP Cards Configured=  5
CARD    PST            SST           GTT STATUS   LNP STATUS   CPU USAGE
1106    IS-NR          Active        ACT          ACT             13%
1201    IS-NR          Active        ACT          ACT             10%
1205    IS-NR          Active        ACT          ACT             11%
1302    IS-NR          Active        ACT          ACT             14%
1310    IS-NR          Active        ACT          ACT             12%


LNPQS:
  SSN STATUS = Allowed     MATE SSN STATUS  = Allowed
  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
  LPNQS:      1 out of     500
  WNPQS:      0 out of       0
  PLNPQS:     0 out of       0
  TLNP:       0 out of       0


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.

☐ **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 07-03-28 14:42:38 GMT EAGLE5 35.6.0
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 07-03-28 14:42:38 GMT EAGLE5 35.6.0
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.
```

ProcedurePlacing 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 07-03-28 14:42:38 GMT EAGLE5 35.6.0
APPL        SSN       STAT
LNP         254       OFFLINE

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

If the LNP subsystem is online, 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.

```
rlghncxa03w 07-03-28 14:42:38 GMT EAGLE5 35.6.0
LNP SUBSYSTEM REPORT  OOS-MT-DSBLD  Active      -----
LNP Cards Configured=  5
CARD   PST           SST          GTT STATUS   LNP STATUS   CPU USAGE
1106   IS-NR         Active       ACT          OFFLINE         13%
1201   IS-NR         Active       ACT          OFFLINE         10%
1205   IS-NR         Active       ACT          OFFLINE         11%
1302   IS-NR         Active       ACT          OFFLINE         14%
1310   IS-NR         Active       ACT          OFFLINE         12%

LNPQS:
  SSN STATUS = Allowed     MATE SSN STATUS  = Allowed
  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
  LPNQS:       1 out of     500
  WNPQS:       0 out of       0
  PLNPQS:      0 out of       0
  TLNP:        0 out of       0

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 application online using the **chg-ss-appl** command with the **nstat=online** parameter. For this example, enter this command.

chg-ss-appl:appl=lnp:nstat=online

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

```
rlghncxa03w 07-03-28 14:42:38 GMT EAGLE5 35.6.0
CHG-SS-APPL: MASP A - COMPLTD
```

☐ **4.** Verify the changes with the **rtrv-ss-appl** command. This is an example of the possible output.

```
rlghncxa03w 07-03-28 14:42:38 GMT EAGLE5 35.6.0
APPL       SSN       STAT
LNP        254       ONLINE

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

☐ **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.
```

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 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 Chapter 2, "LNP Feature Activation," 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" procedure on page 3-80.

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

Procedure

☐ **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 07-03-30 21:15:37 GMT EAGLE5 35.6.0
The following features have been permanently enabled:

Feature Name            Partnum    Status  Quantity
IPGWx Signaling TPS     893012814  on      20000
ISUP Normalization      893000201  on      ----
Command Class Management 893005801 off     ----
Intermed GTT Load Sharing 893006901 off    ----
```

```
XGTT Table Expansion     893006101  off    ----
XMAP Table Expansion     893007710  on     3000
Large System # Links     893005910  on     2000
Routesets                893006401  on     6000
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 LNP feature is not enabled, perform the procedures in the Chapter 2, "LNP Feature Activation," to enable the LNP feature. Go to step 2.

If the LNP feature is enabled, go to step 2.

☐ **2.** Display the LNP options in the database with the **rtrv-lnpopts** command. This is an example of the possible output.

```
rlghncxa03w 07-03-28 14:42:38 GMT EAGLE5 35.6.0
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).

☐ **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.

NOTE: If the `wqredrct`, `jipprv`, or `jipdigits` parameters are not being specified in this procedure, skip steps 3, 4, and 5, and go to step 6.

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 are on, skip this step and go to step 5.

4. If either the `WNP`, `PLNP`, or `TLNP` fields in step 3 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 ot 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 07-03-10 11:43:04 GMT EAGLE5 35.6.0
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" procedure on page 3-80 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 07-03-28 14:42:38 GMT EAGLE5 35.6.0
CHG-LNPOPTS: MASP A - COMPLTD
```

☐ 7. Verify the changes with the `rtrv-lnpopts` command. This is an example of the possible output.

```
rlghncxa03w 07-03-28 14:42:38 GMT EAGLE5 35.6.0
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 Chapter 2, "LNP Feature Activation," 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 the NGT and RGTA 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 ISS ELAP 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*.

Procedure

☐ **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 07-03-28 14:42:38 GMT EAGLE5 35.6.0
The following features have been permanently enabled:

Feature Name            Partnum    Status   Quantity
IPGWx Signaling TPS     893012814  on       20000
ISUP Normalization      893000201  on       ----
Command Class Management 893005801 off      ----
Intermed GTT Load Sharing 893006901 off     ----
XGTT Table Expansion    893006101  off      ----
XMAP Table Expansion    893007710  on       3000
Large System # Links    893005910  on       2000
Routesets               893006401  on       6000
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 LNP feature is not enabled, perform the procedures in Chapter 2, "LNP Feature Activation," and enable the LNP feature. Go to step 2.

If the LNP feature is enabled, go to step 2.

☐ **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 07-03-28 14:42:38 GMT EAGLE5 35.6.0
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, and go to step 4.

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 was performed, skip step 4, and go to step 5.

4. Display the LNP translation types in the database with the `rtrv-lnp-serv` command. This is an example of the possible output.

```
rlghncxa03w 07-03-28 14:42:38 GMT EAGLE5 35.6.0
SERV       TT    TTN        DV      ALIAS
AIN        15    AINGTE     TCAP    235
                                    236
                                    240
CNAM       60    CNAM       SCCP    ---
IN         30    INGTE      TCAP    150
                                    175
ISVM       50    ISVM       SCCP    ---
LIDB       20    LIDB       SCCP    80
LNPQS      11    LNPQS      TCAP    ---
PCS        19    PCS19      TCAP    ---
CLASS      25    CLASSGTE   SCCP    ---
UDF1       201   UDF1       SCCP    ---
UDF2       16    UDF2       SCCP    ---
UDF3       100   UDF3       SCCP    40
                                    45
UDF4       18    UDF4       SCCP    ---
WSMSC      139   WSMSC1     SCCP    ---

TT-SERV TABLE IS (17 of 256) 7% FULL
```

5. Display the routes in the database using the `rtrv-rte` command. The following is an example of the possible output.

```
rlghncxa03w 07-03-28 14:42:38 GMT EAGLE5 35.6.0
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 steps 3, 4, and 5 as a guide, enter the mapped LNP translation types into the database using the `chg-lnp-ttmap` command.

If step 3 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 was performed, select a translation type from the `rtrv-lnp-serv` output (step 4) that is not assigned to the AIN or IN LNP services and a point code from the `rtrv-rte` output (step 5).

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 07-03-28 14:42:38 GMT EAGLE5 35.6.0
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 07-03-28 14:42:38 GMT EAGLE5 35.6.0
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 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 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 TNs** field, the LNP feature is enabled. If the LNP feature is not enabled, perform the procedures in Chapter 2, "LNP Feature Activation," 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*.

Procedure

☐ **1.** Verify that the Gateway Screening and the Triggerless LNP features are on by entering the `rtrv-feat` command. If the Gateway Screening feature is on, the `GWS` field should be set to `on`. If the Triggerless LNP feature is on, the `TLNP` field should be set to `on`.

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

If the Triggerless LNP feature is on, go to step 7.

Before the Triggerless LNP feature can be turned on, the Gateway Screening and LNP features must be on.

If the Gateway Screening feature is off, go to step 2 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 07-03-07 00:57:31 GMT EAGLE5 35.6.0
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 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 07-03-30 21:15:37 GMT EAGLE5 35.6.0
The following features have been permanently enabled:

Feature Name              Partnum    Status  Quantity
IPGWx Signaling TPS       893012814  on      20000
ISUP Normalization        893000201  on      ----
Command Class Management  893005801  off     ----
LNP Short Message Service 893006601  on      ----
Intermed GTT Load Sharing 893006901  off     ----
XGTT Table Expansion      893006101  off     ----
XMAP Table Expansion      893007710  on      3000
Large System # Links      893005910  on      2000
Routesets                 893006401  on      6000
LNP ELAP Configuration    893010901  on      ----
LNP TNs                   893011008  on      48000000
LNP LRNs                  893010505  on      100000
LNP NPANXXs               893009401  on      150000
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.
```

☐ **NOTE:** If the `rtrv-ctrl-feat` output in step 3 shows that the LNP feature is enabled, skip this step and go to step 5.

4. Enable the LNP feature by performing the procedures in Chapter 2, "LNP Feature Activation".

☐ **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 07-03-07 00:57:31 GMT EAGLE5 35.6.0
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 07-03-07 00:57:31 GMT EAGLE5 35.6.0
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, otherwise go to step 10.

☐ **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 07-03-07 00:57:31 GMT EAGLE5 35.6.0
CHG-LNPOPTS: MASP A - COMPLTD
```

☐ **9.** Verify the changes using the `rtrv-lnpopts` command. The following is an example of the possible output.

```
rlghncxa03w 07-03-07 00:57:31 GMT EAGLE5 35.6.0
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 07-03-07 00:57:31 GMT EAGLE5 35.6.0
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. Otherwise, go to **step 12**.

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 07-03-07 00:57:31 GMT EAGLE5 35.6.0
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 07-03-07 00:57:31 GMT EAGLE5 35.6.0
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 of this procedure was performed, skip this step and steps 14 and 15, and go to step 16.

13. Display the linksets in the database with the `rtrv-ls` command.   This is an example of the possible output.

```
rlghncxa03w 07-03-07 00:57:31 GMT EAGLE5 35.6.0
                            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 ISUP IAMs 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.

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 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 07-03-07 00:57:31 GMT EAGLE5 35.6.0
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. Otherwise, go to step 16.

15. Display the allowed SIO screen shown in the output of the **rtrv-scrset** command executed in step 14. For this example, enter this command.

rtrv-scr-sio:sr=iec

This is an example of the possible output

```
rlghncxa03w 07-03-07 00:57:31 GMT EAGLE5 35.6.0
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 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 steps 16, 17, and 18, and go to step 19 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.

- 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 "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 must be assigned to a linkset. If the screen set name used in step 16 is shown in the **SCRN** field of the **rtrv-ls** command output displayed in step 13, go to step 18.

If the screen set name used in step 16 is not shown in the **SCRN** field of the **rtrv-ls** command output displayed in step 13, 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 steps 16, 17, and 18 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:

- 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 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 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.**

NOTE: **If new DPC, BLKDPC, or ISUP screens were not added to the screen set in step 19, skip this step and go to step 21.**

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.

- Allowed DPC – see the "Removing an Allowed DPC Screen" procedure

- Blocked DPC – see the "Removing a Blocked DPC Screen" procedure

- 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 did not show any of the following screens: DESTFLD, CGPA, TT, CDPA, or AFTPC, do not perform step 21. 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, by performing these procedures as necessary.

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

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

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

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

- Allowed AFTPC – see the "Removing an Allowed Affected Point Code Screen" procedure

⚠   CAUTION: Do not remove any screens from the database until you have made absolutely sure that these screens are not being used by other screen sets. Failure to do so, can result in breaking the gateway screening process for those screen sets.

Increasing the LRN and NPANXX Quantities on the EAGLE 5 ISS

When the LNP feature is enabled for the first time the LRN (location routing number) and NPANXX quantities are set at 100,000 (for LRNS) and 150,000 (for NPANXXs). These quantities can be increased to 150,000 LRNs and 300,000 NPANXXs, 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 "Activating the LNP Feature Overview" section on page 2-4.

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 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 generated by the feature access key generator. The feature access key contains 13 alphanumeric characters and is not case sensitive. The feature access key is provided by Tekelec.

:`partnum` – The Tekelec-issued part number associated with the LNP telephone number quantity, without the dashes. 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*.

Procedure

1. Display the status of the features by entering the `rtrv-ctrl-feat` command. The following is an example of the possible output.

```
rlghncxa03w 07-03-01 21:15:37 GMT EAGLE5 35.6.0
The following features have been permanently enabled:

Feature Name             Partnum    Status  Quantity
IPGWx Signaling TPS      893012814  on      20000
ISUP Normalization       893000201  on      ----
Command Class Management  893005801  off     ----
LNP Short Message Service 893006601  on      ----
Intermed GTT Load Sharing 893006901  off     ----
XGTT Table Expansion     893006101  off     ----
XMAP Table Expansion     893007710  on      3000
Large System # Links     893005910  on      2000
Routesets                893006401  on      6000
LNP ELAP Configuration   893010901  on      ----
LNP TNs                  893011008  on      48000000
LNP LRNs                 893010505  on      100000
LNP NPANXXs              893009401  on      150000
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 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 the "Activating the LNP Feature Overview" section on page 2-4, 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" procedure on page 2-107.

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 DSMs on the EAGLE 5 ISS. Some of the DSMs load the ELAP RTDB to provide a restricted level of GTT/LNP service. The remainder of the DSMs are put into a restricted state. UIM 1324 is generated at the EAGLE 5 ISS if the NPANXX quantity on the ELAP is greater that 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 that 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, or is less than the quantity that will be configured in this procedure, go to step 3.

☐ **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 07-03-01 16:02:05 GMT  EAGLE5 35.6.0
PLATFORMENABLE   = on
COLLECT15MIN     = off
CLLIBASEDNAME    = off
---------------------
SYSTOTSTP        = off
SYSTOTTT         = off
```

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

If the Measurements Platform is not enabled, perform the "Configuring the Measurements Platform Feature" procedure in the *EAGLE 5 ISS Database Administration Manual - System Management* and enable the Measurements Platform.

☐ **4.** Increase the LRN and NPANXX quantities by entering these commands.

`enable-ctrl-feat:partnum=893010501:fak=<LRN quantity feature access key>`

`enable-ctrl-feat:partnum=893009402:fak=<NPANXX quantity feature access key>`

NOTE: The feature access key is provided by Tekelec. If you do not have the feature access key for these quantities, contact your Tekelec Sales Representative or Account Representative.

When the `enable-ctrl-feat` command has successfully completed, this message should appear.

```
rlghncxa03w 07-03-01 21:15:37 GMT EAGLE5 35.6.0
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 07-03-01 21:16:37 GMT EAGLE5 35.6.0
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 07-03-01 21:16:37 GMT EAGLE5 35.6.0
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" section on page 2-4 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 generated by the feature access key generator. 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" procedure on page 3-22.

The WSMSC10DIG LNP option can be set with the **chg-lnpopts** command. The WSMSC10DIG LNP option can be set in the "Changing LNP Options" procedure on page 3-52.

Procedure

☐ **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 07-03-01 21:15:37 GMT EAGLE5 35.6.0
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 steps 2 and 3, and go to step 4.

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 and go to step 3.

If the LNP Short Message Service feature is to remain temporarily enabled, and its status is **off**, skip step 2 and go to step 3. 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" section on page 2-4 to enable the LNP feature

☐   **NOTE:**   **If the output from step 1 shows that the LNP Short Message Service feature is enabled, either temporarily or permanently, skip step 2 and go to step 3.**

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" procedure on page 3-22 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 07-03-01 21:15:37 GMT EAGLE5 35.6.0
   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 07-03-01 21:15:37 GMT EAGLE5 35.6.0
   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 07-03-01 21:15:37 GMT EAGLE5 35.6.0
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.

Procedure

☐ **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 07-03-01 21:17:37 GMT EAGLE5 35.6.0
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 07-03-01 21:16:37 GMT EAGLE5 35.6.0
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 07-03-01 21:16:37 GMT EAGLE5 35.6.0
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.

Procedure

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 07-03-01 21:17:37 GMT EAGLE5 35.6.0
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 07-03-01 21:16:37 GMT EAGLE5 35.6.0
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 07-03-01 21:16:37 GMT EAGLE5 35.6.0
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:

> `:lnptndbl1` – 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 80. The current value of this parameter is shown in the `LNP TN  DB Alarm Level 1:` field of the `rtrv-th-alm` command output.

> `:lnptndbl2` – 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 90. 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,

Procedure

☐ **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 07-03-28 09:12:36 GMT EAGLE5 35.6.0
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:lnptndbl1=70:lnptndbl2=80`

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

```
rlghncxa03w 07-03-28 09:12:36 GMT EAGLE5 35.6.0
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 07-03-28 09:12:36 GMT EAGLE5 35.6.0
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.
```

4

Automatic Call Gapping (ACG) Configuration

Overview

Automatic call gapping 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 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 sent, the EAGLE 5 ISS sends an ACG for a manually initiated control to control the rate of queries for a particular area code (3 digits), area code and prefix (6 digits), 10 digit telephone number, or part of a 10 digit telephone number (6 to 10 digits) are processed. The database can contain a maximum of 256 manually initiated ACG controls.

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 4-1 shows the values for the duration index and the gap index used in the automatic call gapping commands.

Table 4-1. 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
3	4	6	0.25
4	8	8	0.5
5	16	11	1
6	32	16	2
7	64	22	5
8	128	30	10
9	256	42	15
10	512	58	30
11	1024	81	60
12	2048	112	120
13	infinite	156	300
14	N/A	217	600
15	N/A	300	infinite

Node Overload Control

The EAGLE 5 ISS does not maintain overload levels for individual subsystems, but maintains an overload level for the entire EAGLE 5 ISS, the node. There are 10 overload levels that are defined for the EAGLE 5 ISS. Each overload level contains this information.

- The number of queries in a 30 second period that defines each overload level. When the defined number of queries is reached, the ACG control for the overload level goes into effect.

- The number of digits from AIN queries to control

- The number of digits from IN queries to control

- The duration index of the ACG control

- The gap interval index of the ACG control

Only overload levels 1 through 9 can be added or removed from the database, but can be changed. Overload level 10 is pre-defined with these values.

The number of queries = 2,147,483,647

The number of digits from AIN queries to control = 6

The number of digits from IN queries to control = 6

The gap interval index = 7 - 22 seconds

The duration index = 1 - 1 second

Any overload levels that are not configured are not used. If no overload levels are configured or if any LIMs are denied service, then overload level 10 is used for the ACG node overload control.

Manually Initiated Control

Manually initiated controls are applied to a specific 10 digit telephone number or a part of a specific telephone number in either AIN queries or IN queries. The manually initiated control can contain the first 3, 6, 7, 8, 9 digits, or all 10 digits of the telephone number.

The duration index of a manually initiated control uses the same values as the duration index of a node overload control. A manually initiated control contains a gap interval index for IN queries, using the same values as the gap interval index for the node overload control levels, and a gap interval index for AIN queries using different values.

For IN queries, the digits sent for manually initiated controls is the original 10 digit called party number. For example, if a query for called party number 919-460-2132 triggers a manually initiated control for the digits 919, the digits parameter of the ACG is 919-460-2132 instead of 919.

A manually initiated control can be applied to all queries sent to the EAGLE 5 ISS. This type of manually initiated control specifies the number of digits from the queries' dialed digits. For manually initiated controls that apply to particular query services and called party digits, the number of digits to use in the ACG component is the number of digits in the specified digit string.

The database can contain a manually initiated control that applies to all queries and manually initiated controls that apply to specific combinations of query service and called party digits. When more than one control applies to a specific query, the one selected is the one containing the higher number of digits. If a manually initiated control cannot be selected with this method, then the one with the higher gap interval index value is selected. If the controls contain the same gap interval index value, then the control with the higher duration index value is selected. This an example of how these controls are selected.

1. A control for AIN LNP queries for called party digits of 919-460-2 is entered into the database.
   (`ent-acg-mic:serv=ain:dgts=9194602:drtn=3: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.
   (`ent-acg-mic:serv=ain:dgts=919460:drtn=12: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.
   (`ent-acg-mic:type=all:nd=6:drtn=12:aintvl=7: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 SCCP cards 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 SCCP cards installed in the EAGLE 5 ISS (N). Each SCCP card can handle 850 messages per second. The number of SCCP cards used in this calculation is one less than the total number of SCCP cards in the EAGLE 5 ISS. To determine the total SCCP EAGLE 5 ISS traffic capacity (S), subtract 1 from the total number of SCCP cards 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 $= L$

Example 1

For this example, this is the configuration of the EAGLE 5 ISS.

P = 0.50 - 50% LNP queries as determined by the traffic studies

N = 11 SCCP cards

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
   ```

Example 2

For this example, this is the configuration of the EAGLE 5 ISS.

P = 0.70 - 70% LNP queries as determined by the traffic studies

N = 21 SCCP cards

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
   ```

Example 3

For this example, this is the configuration of the EAGLE 5 ISS.

P = 0.60 - 60% LNP queries as determined by the traffic studies

N = 17 SCCP cards

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 4-1.

: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 4-1.

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 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 Chapter 2, "LNP Feature Activation," 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" procedure on page 4-18.

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

Procedure

☐ **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 07-03-30 21:15:37 GMT EAGLE5 35.6.0
The following features have been permanently enabled:

Feature Name              Partnum   Status  Quantity
IPGWx Signaling TPS       893012814 on      20000
ISUP Normalization        893000201 on      ----
Command Class Management  893005801 off     ----
LNP Short Message Service 893006601 off     ----
Intermed GTT Load Sharing 893006901 off     ----
XGTT Table Expansion      893006101 off     ----
XMAP Table Expansion      893007710 on      3000
Large System # Links      893005910 on      2000
Routesets                 893006401 on      6000
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 LNP feature is enabled, the entry **LNP 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 Chapter 2, "LNP Feature Activation," to enable the LNP feature.

After the LNP feature is enabled, go to step 2.

☐ **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 07-03-28 08:50:12 GMT EAGLE5 35.6.0
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 07-03-28 08:50:12 GMT EAGLE5 35.6.0
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 07-03-28 08:50:12 GMT EAGLE5 35.6.0
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" procedure on page 4-18.

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.

Procedure

☐ **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 07-03-28 08:50:12 GMT EAGLE5 35.6.0
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 07-03-28 08:50:12 GMT EAGLE5 35.6.0
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 07-03-28 08:50:12 GMT EAGLE5 35.6.0
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 4-1.

: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 4-1.

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

Procedure

☐ **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 07-03-28 08:50:12 GMT EAGLE5 35.6.0
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 07-03-28 08:50:12 GMT EAGLE5 35.6.0
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 07-03-28 08:50:12 GMT EAGLE5 35.6.0
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 4-1.

: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 4-1.

: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 4-1.

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 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 Chapter 2, "LNP Feature Activation," 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 07-03-28 08:50:12 GMT EAGLE5 35.6.0
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

Procedure

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 07-03-30 21:15:37 GMT EAGLE5 35.6.0
The following features have been permanently enabled:

Feature Name             Partnum    Status  Quantity
IPGWx Signaling TPS      893012814  on      20000
ISUP Normalization       893000201  on      ----
Command Class Management 893005801  off     ----
LNP Short Message Service 893006601 off     ----
Intermed GTT Load Sharing 893006901 off     ----
XGTT Table Expansion     893006101  off     ----
XMAP Table Expansion     893007710  on      3000
Large System # Links     893005910  on      2000
Routesets                893006401  on      6000
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 LNP feature is enabled, the entry `LNP 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 Chapter 2, "LNP Feature Activation," to enable the LNP feature.

After the LNP feature is enabled, go to step 2.

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 07-03-28 08:50:12 GMT EAGLE5 35.6.0
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 these commands.

ent-acg-mic:type=all:nd=6:intvl=8:aintvl=7:drtn=8

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

```
rlghncxa03w 07-03-28 08:50:12 GMT EAGLE5 35.6.0
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 07-03-28 08:50:12 GMT EAGLE5 35.6.0
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 07-03-28 08:50:12 GMT EAGLE5 35.6.0
ACG MIC table is (7 of 256) 3% full of type SD
ENT-ACG-MIC: MASP A - COMPLTD
```

4. Verify the changes using the **rtrv-acg-mic** command with either the
type=all parameter, or the parameters and values specified with the
type=sd parameter in step 3. For this example, enter these commands.

rtrv-acg-mic:type=all

The following is an example of the possible output.

```
rlghncxa03w 07-03-28 08:50:12 GMT EAGLE5 35.6.0
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 07-03-28 08:50:12 GMT EAGLE5 35.6.0
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 07-03-28 08:50:12 GMT EAGLE5 35.6.0
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 the manual initiated control is applied to

: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.

Procedure

□ **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 07-03-28 08:50:12 GMT EAGLE5 35.6.0
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 07-03-28 08:50:12 GMT EAGLE5 35.6.0
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 07-03-28 08:50:12 GMT EAGLE5 35.6.0
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. If the ACG manual initiated controls were successfully removed in step 2, the `rtrv-acg-mic` output should not show the entry that was removed. For this example, enter these commands.

```
rlghncxa03w 07-03-28 08:50:12 GMT EAGLE5 35.6.0
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 07-03-28 08:50:12 GMT EAGLE5 35.6.0
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 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 4-1.

`: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 4-1.

`: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 4-1.

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).

Procedure

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 07-03-28 08:50:12 GMT EAGLE5 35.6.0
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 07-03-28 08:50:12 GMT EAGLE5 35.6.0
   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 07-03-28 08:50:12 GMT EAGLE5 35.6.0
   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 07-03-28 08:50:12 GMT EAGLE5 35.6.0
   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. If the ACG manual initiated controls were successfully removed in step 2, the **rtrv-acg-mic** output should not show the entry that was removed. For this example, enter these commands.

```
rlghncxa03w 07-03-28 08:50:12 GMT EAGLE5 35.6.0
TYPE=ALL
ND  INTVL  AINTVL  DRTN
10  7      11      5
```

rtrv-acg-mic:type=sd:serv=ain:dgts=910584

```
rlghncxa03w 07-03-28 08:50:12 GMT EAGLE5 35.6.0
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 07-03-28 08:50:12 GMT EAGLE5 35.6.0
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.
```

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