Eagle® STP Release 32.0
Database Administration Manual - LNP

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Release 32.0

Database Administration Manual - LNP

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TEKELEC

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Additional copies of this document can be ordered from Tekelec Network Signaling Group, 5200 Paramount Parkway, Morrisville, NC 27560

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Overview

The *Database Administration Manual – LNP* describes the procedures necessary for database administration personnel or translations personnel to configure the Eagle to implement the local number portability (LNP) feature.

NOTE: If the LNP feature is not enabled, or you have no plans to enable the LNP feature, the procedures in this manual do not apply to the Eagle and cannot be performed. The procedures in this manual apply only if the quantity of LNP telephone numbers being enabled, or currently enabled, is from 2 million to 12 million numbers. If you wish to enable a quantity of LNP telephone numbers greater than 12 million numbers, do not perform the procedures in this manual, but perform the procedures in the *LNP Feature Activation Guide*.

This manual contains only the procedures required to implement these elements of the Eagle.

- LNP Services
- LNP Subsystem Applications
- Automatic Call Gapping (ACG)
- Service Providers
- NPANXXs
- 10 Digit Telephone Number Subscriptions
- Location Routing Numbers (LRNs)
- Split NPAs

NOTE: If the ELAP Configuration feature is enabled, procedures to configure these database entities cannot be performed: Service Providers, NPANXXs, 10-digit telephone number subscriptions, LRNs, Split NPAs.

Other procedures may be required to configure the Eagle. These procedures are located in either the *Database Administration Manual - System Management, Database Administration Manual - SS7, Database Administration Manual - Global Title Translation, Database Administration Manual - Features, Database Administration Manual - Gateway Screening*, or the *LNP Feature Activation Guide*. When procedures in other manuals are required, those procedures and the manual containing these procedures are identified.

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

This document is organized into these sections.

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

Chapter 2, "LNP Configuration," describes the procedures for configuring these database elements required to implement the LNP feature.

- Configuring SCCP cards
- Enabling the LNP Feature for 2 to 12 Million Numbers
- Configuring additional LNP 4Digit tables
- Configuring the Eagle for the Triggerless LNP feature

NOTE: If the ELAP Configuration feature is enabled, or if LNP telephone number quantity will be greater than 12 million numbers, the Enabling the LNP Feature for 2 to 12 Million Numbers and Configuring additional LNP 4Digit tables procedures in this chapter cannot be performed. Go to the *LNP Feature Activation Guide* for procedures for configuring the LNP feature for telephone number quantities greater than 12 million numbers.

In previous releases, Chapter 2 contained procedures for configuring user IDs, terminal ports, the self ID of the Eagle, and the OAP for the LNP feature. The procedures for configuring user IDs, terminal ports, and the OAP procedures have been removed from this chapter, and combined with the same procedures in the *Database Administration Manual - System Management*. The procedure for configuring the self ID of the Eagle has been removed from this chapter and combined with the procedure for configuring the self ID of the Eagle in the *Database Administration Manual - SS7*.

Chapter 2 also contained the procedures for configuring the LNP Short Message Service (SMS) and LNP 48 Million Number features. The LNP SMS procedures have been moved to the *LNP Feature Activation Guide*. The LNP 48 Million Number Activation procedure has been removed from this manual, and is replaced by the procedures in the *LNP Feature Activation Guide*.

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

- LNP Services
- LNP Subsystem Applications
- Service Providers
- NPANXXs
- Split NPAs
- Location Routing Numbers (LRNs)
- 10 Digit Telephone Number Subscriptions

NOTE: The LNP data administration is done by the LSMS (local service management system). The procedures in Chapter 3 are used for diagnostic and testing purposes and to make any minor corrections to the LNP data in the database.
NOTE: If the ELAP Configuration feature is enabled, procedures in Chapter 3 to configure these database entities cannot be performed: Service Providers, NPANXXs, 10-digit telephone number subscriptions, LRNs, Split NPAs.

Chapter 4, "Automatic Call Gapping (ACG) Configuration," describes the procedures used to configure automatic call gapping for LNP.

Related Publications

The *Database Administration Manual – LNP* is part of the Eagle documentation set and may reference related manuals of this set. The documentation set includes the following manuals:

- The *Commands Manual* contains procedures for logging into or out of an Eagle STP or IP^7 Secure Gateway system, a general description of the terminals, printers, the disk drive used on the system, and a description of all the commands used in the system.
- 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 an Eagle STP or IP^7 Secure Gateway system to implement these features:
  - X.25 Gateway
  - STP LAN
  - Database Transport Access
  - GSM MAP Screening
  - Eagle Support for Integrated Sentinel

- The *Database Administration Manual - Gateway Screening* contains a description of the Gateway Screening (GWS) feature and the procedures necessary to configure an Eagle STP or IP^7 Secure Gateway system to support this feature.
- The *Database Administration Manual – Global Title Translation* contains procedural information required to configure an Eagle STP or IP^7 Secure Gateway system to implement these features:
  - Global Title Translation
  - Enhanced Global Title Translation
  - Variable Length Global Title Translation
  - Global Title Modification Feature
  - Intermediate GTT Load Sharing
  - ANSI-ITU-China SCCP Conversion
- The *Database Administration Manual – IP^7 Secure Gateway* contains procedural information required to configure the system to implement the SS7-IP Gateway.
- The *Database Administration Manual – SEAS* contains the procedures that can be performed from the Signaling Engineering and Administration Center (SEAC) or a Signaling Network Control Center (SNCC) to configure the Eagle. These procedures contain a brief description of the procedure, a reference to the procedure in either the *Database Administration Manual – SS7, Database Administration Manual – Global Title Translation,* or *Database Administration Manual – Gateway Screening* that contains more information on that procedure, and a flowchart showing the order that the tasks must be performed.
- The *Database Administration Manual – SS7* contains procedural information required to configure an Eagle STP system or an IP^7 Secure Gateway system to implement the SS7 protocol.
- The *Database Administration Manual – System Management* contains procedural information required to manage the Eagle's database and GPLs, and to configure basic system requirements such as user names and passwords, system-wide security requirements, and terminal configurations.
- The *ELAP Administration Manual* provides a definition of the user interface to the Eagle LNP Application Processor on the MPS/ELAP platform. The manual defines the methods for accessing the 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.
- 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 FTP Retrieve and Replace feature.

- The *Signaling Products Hardware Manual* contains hardware descriptions and specifications of Tekelec's Network Signaling Group (NSG) products. These include the Eagle STP system, the IP^7 Secure Gateway (SG) system, and OEM-based products which include the AS*i* 4000 Service Control Point (SCP), and the Integrated Sentinel with Extended Services Platform (ESP) subassembly.
- The *Installation Manual - Eagle* contains cabling requirements, schematics, and procedures for installing the Eagle systems along with LEDs, Connectors, Cables, and Power Cords to Peripherals. Refer to this manual to install components or the complete systems.
- The *LSMS-Eagle STP LNP Database Synchronization Manual* describes how to synchronize LNP databases at the LSMS and at a network element (an Eagle STP is an example of a network element). The methods include automatic resynchronization performed by the LSMS and the network element as well as user-initiated resynchronization of the network element's LNP database from the LSMS, audits and reconciles of the network element's LNP database from the LSMS, and procedures for performing a bulk load of the network element's LNP database from the LSMS or from another network element.
- The *LNP Feature Activation Guide* contains procedural information required to configure the system for the LNP feature using telephone number quantities from 24 million to 120 million telephone numbers.
- The *Maintenance Manual* contains procedural information required for maintaining the Eagle STP system, the IP^7 Secure Gateway system. The *Maintenance Manual* provides preventive and corrective maintenance procedures used in maintaining the different systems.
- The *Previously Released Features* manual briefly describes the features of previous Eagle 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. Also provides the hardware baseline, describes the customer documentation set, provides information about customer training, and explains how to access the Customer Service website.

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

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

  System Overview - Provides high-level information on SS7, the IP^7 Secure Gateway, system architecture, LNP, and EOAP.

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

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

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 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***.)

Tekelec Technical Services

The Tekelec Technical Services department 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 Tekelec Technical Services department 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 Tekelec Technical Services department to maximize the performance of Tekelec products that meet and exceed customer needs.

To receive technical assistance, call the Tekelec Technical Services department at one of the following locations:

- Tekelec, UK

  Phone: +44 1784 467 804.

- Tekelec, USA

  Phone (within the continental US) 888-367-8552 (888-FOR-TKLC)
  (outside the continental US) +1 919-460-2150.

Or you can request assistance by way of electronic mail at **eaglets@tekelec.com**.

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

If a critical problem exists, Technical Services initiates emergency procedures (see the following topic, "Emergency Response").

Emergency Response

If a critical service situation occurs, Tekelec Technical Services 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 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 system capacity or in system traffic-handling capability
- Inability to restart the system
- 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 Tekelec Technical Services.

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 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.

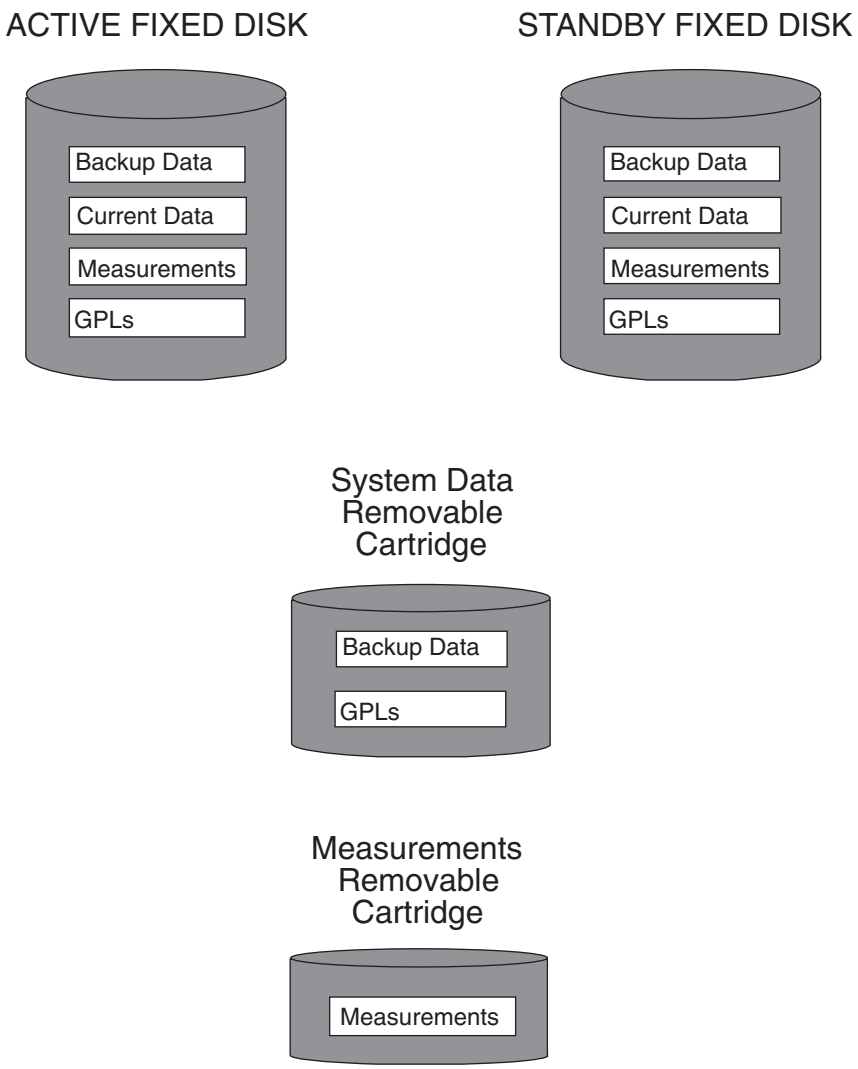
The TDM contains the fixed disk drive, the terminal processor for the 16 serial I/O ports and interfaces to the MDAL (maintenance disk and alarm) card which contains the removable cartridge drive and alarm logic. There is only one MDAL card in the maintenance and administration subsystem and it is shared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

For more information on these cards, go to the *Installation Manual*.

Eagle Database Partitions

The data that the Eagle uses to perform its functions are stored in two separate areas: the fixed disk drives, and the removable 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 Database Partitions



Fixed Disk Drive

There are two fixed disk drives on the Eagle. The fixed disk drives contain the "master" set of data and programs for the Eagle. The two fixed disk drives are located on the terminal disk modules (TDMs). Both disks have the same files. The data stored on the fixed disks is partially replicated on the various cards in the system. 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 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 provides the user the ability to format a removable cartridge for either of these purposes. A removable cartridge can be formatted on the Eagle 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 *Installation Manual*.

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

Removable cartridges that are preformatted for system data are available from Tekelec. If you need additional removable cartridges, contact Tekelec Network Products Group at (919) 460-5500.

List of Acronyms and Abbreviations

ACG .....Automatic Call Gapping

ACM.....Application Communications Module

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

ACTV .....Active

AFTPC.....Affected Point Code

AINTVL.....AIN Interval Index

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
BIP	Board ID PROM
BLKDPC	Blocked Destination Point Code
BLKOPC	Blocked Originating Point Code
BSN	Backward Sequence Number
C	Continue – A point code value used in the blocked OPC or DPC screens that allows the gateway screening process to continue for messages containing point codes that do not match any point codes in the blocked OPC or DPC screens.
CIC	Carrier Identification Code
CDPA	Called Party Address
CGPA	Calling Party Address
CLLI	Common Language Location Identifier
CNCF	Calling Name Conversion Facility
COO	Changeover Order Message
CPC	Capability Point Code
CPCA	ANSI Capability Point Code
CPCI	ITU International Capability Point Code
CPCN	ITU National Capability Point Code
CPCTYPE	Capability Point Code Type
DB	Database
DBG	Debug
DESTFLD	Allowed Affected Destination Field
DGTS	The digits of a global title address
DLK	Data Link
DPC	Destination Point Code
DRTN	Duration Index

DTA.....Database Transport Access

DV .....Digits Valid

EIR.....Equipment Identity Register

EMS.....Element Management System

EO.....End Office

FC .....Flow Control

Gbyte.....Gigabyte

GLS.....Gateway Loading Services — The application software for the gateway screening loading services

GPL .....Generic Program Load

GT.....Global Title Routing Indicator

GTT .....Global Title Translation

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.

I/O .....Input/Output

IAM .....Initial Address Message

ID.....Identity

IMT.....Interprocessor Message Transport

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

INTVL.....Interval Index

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

LAN .....Local Area Network

LFS ..... Link Fault Sectionalization

LIM ..... Link Interface Module

LNP ..... Local Number Portability

LNPBAS ..... LNP Basic

LNPDB ..... LNP Database Administration

LNPQS ..... LNP Query Service

LNPSUB ..... LNP Subscription

LRN ..... Location Routing 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

NC ..... The network cluster of an ANSI point code, expressed as ni-nc-ncm.

NCM ..... The network cluster member of an ANSI point code, expressed as ni-nc-ncm.

NCPC ..... New Capability Point Code

NCPCA ..... New ANSI Capability Point Code

NCPCI ..... New ITU International Capability Point Code

NCPCN ..... New ITU National Capability Point Code

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

NGT ..... New Global Title Translation Type

NI ..... The network identifier of an ANSI point code, expressed as ni-nc-ncm.

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

NMRGT.....New Message Relay Global Title Translation

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

NPANXX.....Area Code and Office Prefix

NPC.....The ITU national point code.

NSFI.....Next Screening Function Identifier

NSR.....Next Screening Reference

OAP.....Operations System Support Applications Processor

OOS.....Out of Service

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

OPC.....Originating Point Code

PAGE.....The age of a user's password

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.

PRTY.....Parity

PU.....Program Update

PVC.....Permanent Virtual Circuit

QR.....Query Rate

REPT-STAT.....Report Status

RI.....Routing Indicator

RMV.....Remove

SA.....Security Administration

SB.....Stop Bits

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

SCCPMT.....The SCCP message type

SCMGFID.....The SCCP management (SCMG) format ID, which defines the function and format of each SCMG message

SCRN .....Screen Set Name

SEAC.....Signaling Engineering and Administration Center

SEAS .....Signaling Engineering and Administration System

SERV .....LNP Service

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

SIE .....Status Indication Emergency Alignment

SIN .....Status Indication Normal Alignment

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

SIOS .....Status Indication Out of Service

SLK.....Signaling Link

SLS .....Signaling Link Selector

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

SLTC.....Signaling Link Test Control

SLTSET .....The signaling link test message record associated with the linkset.

SNCC .....Signaling Network Control Center

SP.....Service Provider

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

SSN.....Subsystem Number

STDBY .....Standby

STP LAN .....A feature in the Eagle that copies MSUs selected through the gateway screening process and sends these MSUs over the ethernet to an external host computer for further processing

SYS .....System Maintenance

TCA.....Transfer Cluster Allowed network management message

TCAP .....Transaction Capability Application Part

TCP .....Transmission Control Protocol

TCR .....Transfer Cluster Restricted network management message

TDM.....Terminal Disk Module

TFC.....Transfer Controlled network management message

TLNP.....Triggerless LNP

TMOUT .....The maximum amount of time that a login session on a terminal port can remain idle before the user is automatically logged off

TN .....Telephone Number

TSM.....Translation Service Module

TT .....Translation Type

TTN .....Translation Type Name

UAL.....SEAS User Application Layer

UAM .....Unsolicited Alarm Message

UID.....User ID

UIM .....Unsolicited Information Message

UIMRD .....UIM Redirect

UOUT .....The number of consecutive days that a user ID can remain active on the Eagle and not be used

WNP.....Wireless Number Portability

WSMSC .....Wireless Short Message Service Center

XLAT.....Translate Indicator

X-LIST.....Exception list of non-provisioned members of provisioned cluster.

2

LNP Configuration

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Overview

This chapter describes the procedures to configure the system for the Local Number Portability (LNP) feature. The LNP feature allows a user served by one switch to move the telephone service to a different switch without changing the telephone number.

The LNP feature as well as features that are related to the LNP feature are optional and can be purchased from Tekelec. If you are not sure whether you have purchased a particular feature, contact your Tekelec Sales or Account Representative.

> **NOTE: The procedures in this manual only apply to the LNP feature and can only be performed if the LNP feature is enabled for telephone number quantities of 2 to 12 million numbers, and if the ELAP Configuration is disabled. To enable the LNP Feature for telephone quantities greater than 12 million numbers, see the *LNP Feature Activation Guide*.**

The following features are related to local number portability (see your Tekelec Sales Representative for more information):

- Global Title Translation (GTT) (prerequisite of all LNP related features)
- Local Number Portability (LNP)
- Wireless Number Portability (WNP)
- PCS 1900 LNP Query (PLNP)
- Gateway Screening (GWS)
- Triggerless Local Number Portability (TLNP)

This chapter contains these procedures for configuring the Eagle.

- Configuring SCCP cards
- Turning the LNP feature on
- Configuring additional LNP 4Digit tables
- Configuring the Eagle for the Triggerless LNP feature

The Eagle also requires that other items be configured in the database. The procedures for configuring user IDs, terminal ports, the self ID of the Eagle, and the OAP are contained in the *Database Administration Manual - System Management*. The procedures for configuring routes, destination point codes, signaling links, and linksets are contained in the *Database Administration Manual – SS7*. The procedures for configuring global title translations are contained in the *Database Administration Manual – Features*. The gateway screening procedures are contained in the *Database Administration Manual – Gateway Screening*.

Adding an SCCP Card

This procedure is used to add an SCCP card to support the local number portability feature using the **ent-card** command. An SCCP card can be one of the following:

- TSM-256
- TSM-512
- TSM-768
- TSM-1024
- DSM 1G
- DSM 2G
- DSM 3G
- DSM 4G

The card that is used as an SCCP card depends on the GTT related features that are being used and the features that will enabled after this procedure is performed. The features or feature combinations shown in Table 2-1 show the type of card that must be installed in the system to meet the minimum system performance requirements. DSMs can be used in place of TSMs, when the feature combination requires TSMs. The features that are currently being used by the system are shown in the **rtrv-feat** and **rtrv-ctrl-feat** command outputs.

Table 2-1. SCCP Card and Feature Combinations

Card	Features
DSM 1G, DSM 2G, DSM 3G, DSM 4G	Any of these features: • GSM MAP Screening • ELAP Configuration is enabled • XGTT Table Expansion for 1,000,000 GTT entries or GTT and EGTT (if the Enhanced Global Title Translation feature is on) in combination with at least 2 of these features: • VGTT • LNP enabled for quantities of 2 to 12 million numbers (which can include WNP, PLNP, or TLNP) and the ELAP Configuration feature is disabled * • MGTT (with or without the ANSI-ITU SCCP Conversion feature) • IGTTLS • XGTT Table Expansion enabled for 400,000 GTT entries • XMAP Table Expansion enabled for either 3000 or 2000 MAP table entries

Table 2-1. SCCP Card and Feature Combinations (Continued)

Card	Features
TSM-256, TSM-512, TSM-768, TSM-1024	GTT and EGTT (if the Enhanced Global Title Translation feature is on) in combination with only one of these features: • VGTT • LNP enabled for quantities of 2 to 12 million numbers (which can include WNP, PLNP, or TLNP) and the ELAP Configuration feature is disabled † • MGTT (with or without the ANSI-ITU SCCP Conversion feature) • IGTTLS • XGTT Table Expansion enabled for 400,000 GTT entries • XMAP Table Expansion enabled for either 3000 or 2000 MAP table entries
* See the LNP Hardware and Part Number Configuration table in the *LNP Feature Activation Guide* for the minimum requirements for DSMs used with the LNP feature. † See the LNP Hardware and Part Number Combinations table in the *LNP Feature Activation Guide* for the minimum requirements for TSMs or DSMs used with the LNP feature.	

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, 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, and 07. 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. The value of this parameter depends on the card being configured in the database. Table 2-3 shows the values for the type parameter.

Table 2-3. Card Type Parameter Value

Card	Card Type Parameter Value
TSM-256, TSM-512, TSM-768, TSM-1024	tsm
DSM 1G, DSM 2G, DSM 3G, DSM 4G	dsm

`:appl` – The application software or GPL that is assigned to the card. The value of this parameter depends on the card being configured in the database. Table 2-4 shows the values for the **`appl`** parameter.

Table 2-4. Application Parameter Values

Card	Application Parameter Value
TSM-256, TSM-512, TSM-768, TSM-1024	sccp
DSM 1G, DSM 2G, DSM 3G, DSM 4G	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 system. This parameter does not apply to configuring SCCP cards and should not be 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 *Database Administration Manual – SS7*.

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

The SCCP card must be configured in the database before the local number portability feature can be turned on. Before the SCCP card can be configured in the database for the local number portability 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 system can contain a maximum of 25 cards TSMs running the SCCP GPL or 25 DSMs running the VSCCP GPL.

Procedure

1. Display the cards in the system using the **rtrv-card** command.

NOTE: Cards should be distributed throughout the system for proper power distribution. Refer to the *Installation Manual* for the shelf power distribution.

This is an example of the possible output.

```
rlghncxa03w 05-03-25 09:58:31 GMT EAGLE5 32.0.0
CARD   TYPE      APPL      LSET NAME     PORT SLC LSET NAME     PORT SLC
1102   TSM       GLS       ------------  --   --  ------------  --   --
1113   GPSM      EOAM
1114   TDM-A
1115   GPSM      EOAM
1116   TDM-B
1117   MDAL
1118   RESERVED
1201   LIMDS0    SS7ANSI   sp2           A    0   sp1           B    0
1203   LIMDS0    SS7ANSI   sp3           A    0   ------------  --   --
1204   LIMDS0    SS7ANSI   sp3           A    1   ------------  --   --
1206   LIMDS0    SS7ANSI   nsp3          A    1   nsp4          B    1
1207   LIMV35    SS7GX25   nsp1          A    0   ------------  --   --
1208   LIMV35    SS7GX25   nsp1          A    1   ------------  --   --
1216   ACMENET   STPLAN    ------------  --   --  ------------  --   --
1308   LIMDS0    SS7ANSI   sp6           A    1   sp7           B    0
1314   LIMDS0    SS7ANSI   sp7           A    1   sp5           B    1
1317   ACMENET   STPLAN    ------------  --   --  ------------  --   --
```

NOTE: If the rtrv-card output in step 1 shows any SCCP cards (entries SCCP or VSCCP shown in the APPL column of the rtrv-card output), skip steps 2 and 3, and go to step 4.

2. 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**. For this example, the **GTT** feature is off.

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*.

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.

3. 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 05-03-25 09:57:41 GMT EAGLE5 32.0.0
CHG-FEAT: MASP A - COMPLTD
```

NOTE: If the GTT feature was turned on in step 3, skip this step and go to step 5.

4. Verify whether or not the LNP feature is enabled, and the quantity of LNP telephone numbers enabled for the LNP feature using the **`rtrv-ctrl-feat`** command. The quantity of LNP telephone numbers is shown in the **`LNP TNs`** field. This is an example of the possible output.

```
rlghncxa03w 05-03-30 21:15:37 GMT EAGLE5 32.0.0
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

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.
```

5. Verify that the SCCP card has been physically installed into the proper location according to the feature requirements shown in Table 2-1 on page 2-3. Table 2-1 contains the GTT-related features that are currently being used (also shown in the **rtrv-feat** output in step 2 as being **on**, and in the **rtrv-ctrl-feat** output in step 4) and any features that will be enabled after this procedure is performed. If DSMs are required, any TSMs must be replaced by DSMs. Contact Tekelec Technical Services before replacing any SCCP cards. See "Tekelec Technical Services" on page 1-8.

CAUTION: If the SCCP card is a DSM and 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 *Maintenance Manual* before proceeding with this procedure.

6. Add the SCCP card to the database using the **ent-card** command. For this example, enter this command.

ent-card:loc=1212:type=tsm:appl=sccp

If a DSM is being configured as an SCCP card, the **ent-card** command would be entered as shown in this example.

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

Tables 2-3 and 2-4 on page 2-5 show the parameter combinations that can be used depending on what type of SCCP card is being added to the database.

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

```
rlghncxa03w 05-03-25 09:57:51 GMT  EAGLE5 32.0.0
ENT-CARD: MASP A - COMPLTD
```

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

rtrv-card:loc=1212

This is an example of the possible output.

```
rlghncxa03w 05-03-25 09:58:31 GMT EAGLE5 32.0.0
CARD   TYPE      APPL      LSET NAME     PORT SLC LSET NAME     PORT SLC
1212   TSM       SCCP      ------------  --   --  ------------  --   --
```

If a DSM card was added to the database in step 6, the output of the **rtrv-card** command would show the DSM card type and the VSCCP application as shown in this example.

rtrv-card:loc=1301

This is an example of the possible output.

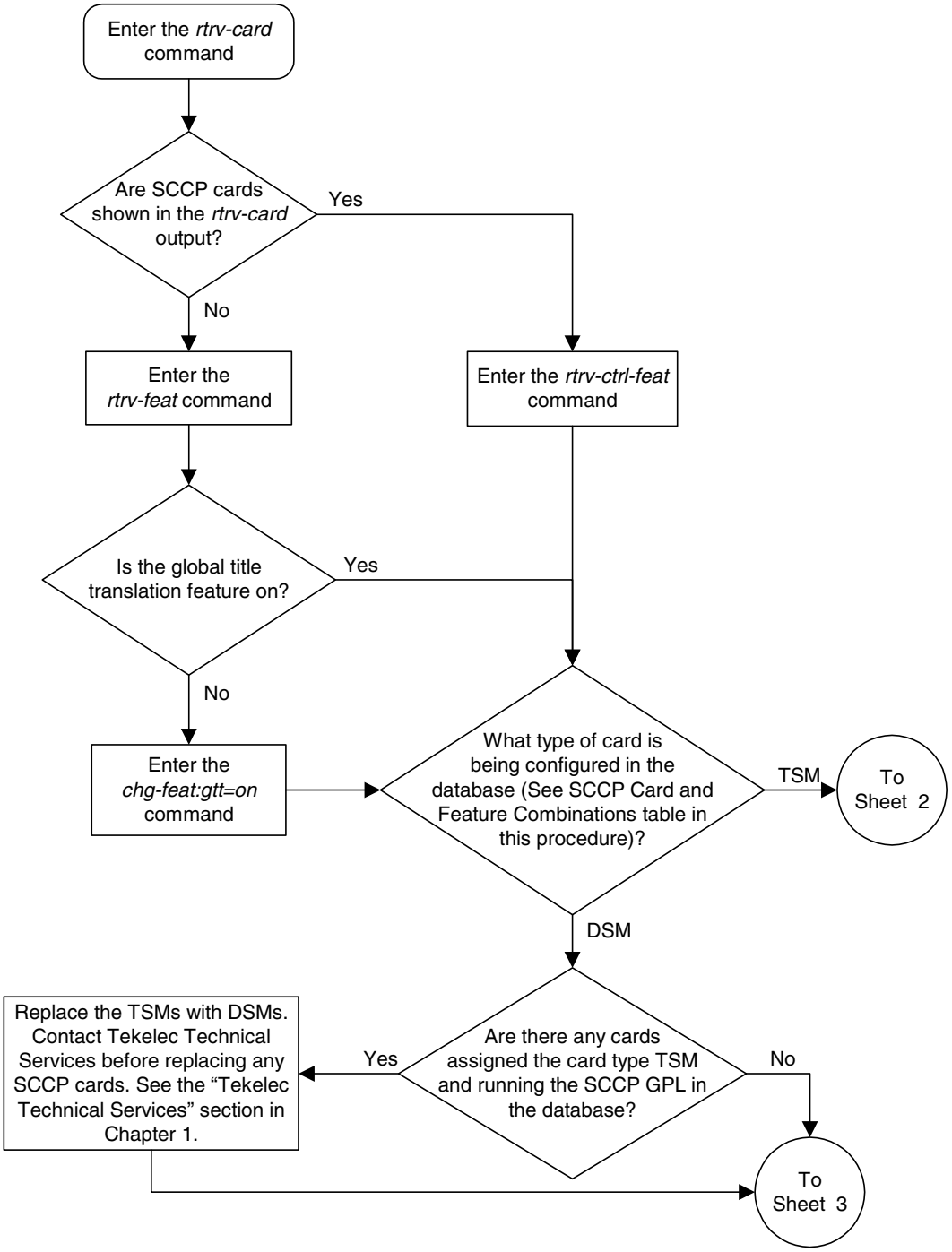
```
rlghncxa03w 05-03-25 09:58:31 GMT EAGLE5 32.0.0
CARD   TYPE      APPL      LSET NAME     PORT SLC LSET NAME     PORT SLC
1301   DSM       VSCCP     ------------  --   --  ------------  --   --
```

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.

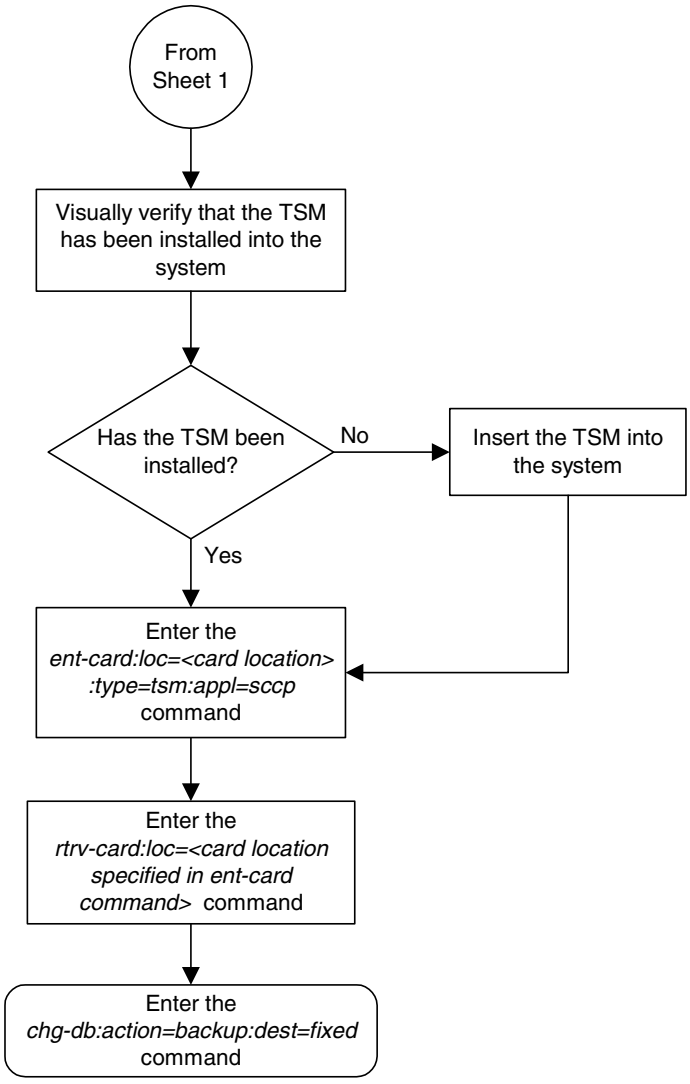
```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk complete.
BACKUP (FIXED) : MASP A - Backup starts on standby MASP.
BACKUP (FIXED) : MASP A - Backup on standby MASP to fixed disk complete.
```

Flowchart 2-1. Adding an SCCP Card (Sheet 1 of 3)

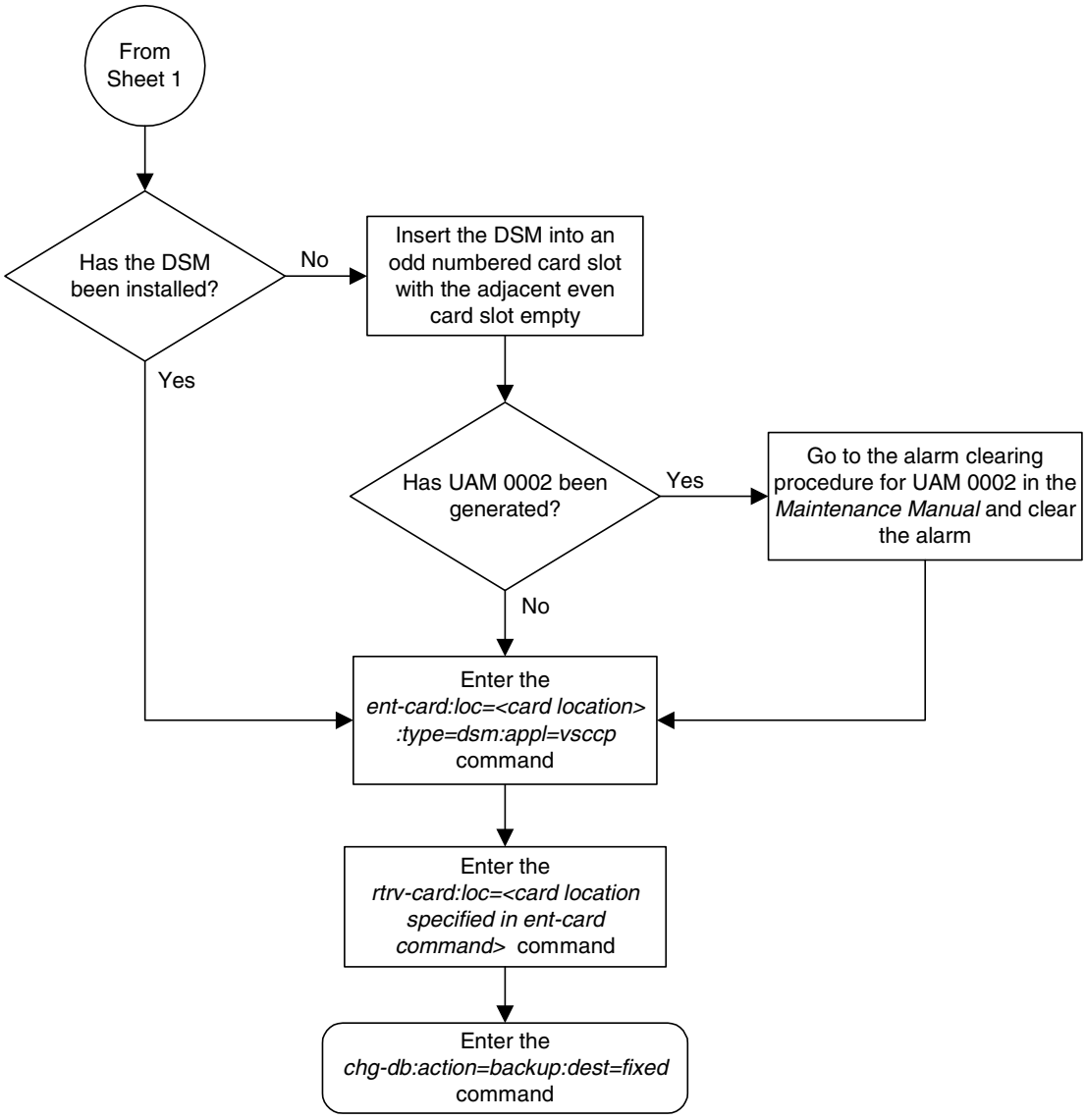
NOTE: Before executing this procedure, make sure you have purchased the Global Title Translation (GTT) feature. If you are not sure whether you have purchased the GTT feature, contact your Tekelec Sales Representative or Account Representative.



Flowchart 2-1. Adding an SCCP Card (Sheet 2 of 3)



Flowchart 2-1. Adding an SCCP Card (Sheet 3 of 3)



Removing an SCCP Card

This procedure is used to remove SCCP cards, used by the local number portability and global title translation features, from the database using the **dlt-card** command. 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 SCCP card is shown in the database with the entries **TSM** or **DSM** in the **TYPE** field and **SCCP** or **VSCCP** in the **APPL** field or the of the **rtrv-card** command output

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 05-03-12 09:12:36 GMT  EAGLE5 32.0.0
SCCP SUBSYSTEM REPORT IS-NR          Active     -----
    SCCP Cards Configured= 5  Cards IS-NR= 5  Capacity Threshold = 100%
    CARD  VERSION      PST       AST          MSU SST       CPU USAGE
    ------------------------------------------------------------------
    1204  113-002-001  IS-NR     ALMINH         Active          81%
    1208  113-002-001  IS-NR     ALMINH         Active          50%
    2101  113-002-001  IS-NR     ALMINH         Active          29%
    2105  113-002-001  IS-NR     ALMINH         Active          52%
    2112  113-002-001  IS-NR     ALMINH         Active          71%
    ------------------------------------------------------------------
SCCP Service Average Capacity = 56%
Command Completed.
```

2. Remove the card from service using the **rmv-card** command and specifying the card location. 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 05-03-12 09:12:36 EST  EAGLE5 32.0.0
Card has been inhibited.
```

3. Remove the card from the database using the **dlt-card** command. The **dlt-card** command has only one parameter, **loc**, which is the location of the card. For this example, enter this command.

   dlt-card:loc=1204

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

```
rlghncxa03w 05-03-12 09:12:36 EST  EAGLE5 32.0.0
DLT-CARD: MASP A - COMPLTD
```

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

   rtrv-card:loc=1204

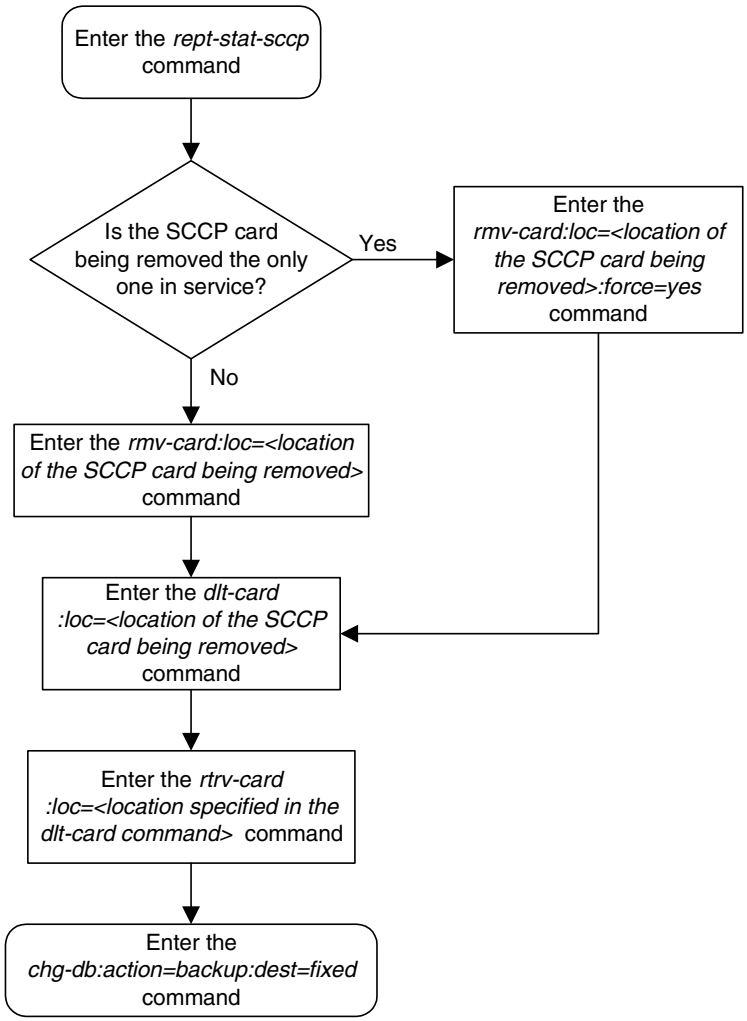
   When this command has successfully completed, this message should appear.

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

5. 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.
```

Flowchart 2-2. Removing an SCCP Card



Enabling the LNP Feature for 2 to 12 Million Numbers

This procedure is used to enable the LNP feature for LNP telephone number quantities from 2 million to 12 million numbers. The Eagle may contain up to 96 million telephone numbers for the LNP feature. To enable LNP telephone number quantities beyond 12 million numbers, perform the procedures in the *LNP Feature Activation Guide*.

NOTE: If the ELAP Configuration feature is enabled, this procedure cannot be performed. If the LNP telephone number quantity is 96 million numbers, this procedure and the procedures in the *LNP Feature Activation Guide* cannot be performed. The maximum number of LNP telephone numbers the Eagle supports is 96 million.

The LNP feature is enabled with a part number and feature access key corresponding to the desired LNP telephone number quantity. Each telehone number quantity requires that a minimum level of SCCP cards are present in the Eagle. An SCCP card is either a TSM or DSM. Table 2-5 shows the feature access keys for the LNP telephone number quantities, and the minimum level of SCCP card required for that quantity.

Table 2-5. LNP Hardware and Part Number Combination

LNP Telephone Number Quantity	Minimum Hardware	Part Number
2 Million	256 MB TSM	893-0110-01
4 Million	512 MB TSM	893-0110-02
6 Million	768 MB TSM	893-0110-03
8 Million	1 GB TSM	893-0110-04
12 Million	1 GB TSM or 1 GB DSM	893-0110-05

If there are no SCCP cards present in the Eagle, they must be added before the LNP telephone number quantity can be enabled. Go to the "Adding an SCCP Card" procedure on page 2-3 to add the required SCCP cards to the Eagle.

If SCCP cards are present in the Eagle, but are not at the level required for the desired LNP telephone number quantity, new SCCP cards that meet the minimum requirements for the desired LNP telephone number quantity must be added, using the "Adding an SCCP Card" procedure on page 2-3, and the SCCP cards that do not meet the level required for the desired LNP telephone number quantity must be removed from the database, using the "Removing an SCCP Card" procedure on page 2-13. The SCCP cards removed from the database must be removed from the Eagle.

CAUTION: Other SCCP related features in combination with the LNP feature being enabled in this procedure determine whether a TSM or DSM can be present in the Eagle when enabling the LNP feature Use Table 2-1 on page 2-3 and Table 2-5 to determine the cards that must be present to enable the LNP feature.

CAUTION: The LNP feature cannot be enabled if either the GPORT, G-FLEX, or INP feature is on. Enter the `rtrv-feat` command to verify whether or not the these features are on. If either the GPORT, G-FLEX, or INP feature is on, shown in the entries `gport = on`, `gflex = on`, or `inp = on` in the `rtrv-feat` output, this procedure cannot be performed.

The feature access key is based on the LNP telephone number quantity's part number and the serial number of the system, making the feature access key site-specific.

The **`enable-ctrl-feat`** command enables the LNP telephone number quantity feature by inputting the LNP telephone number quantity feature's access key and the LNP telephone number quantity'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 telephone number quantity. The part number is a 9-digit number, not including dashes. The first three digits must be 893 (that is, 893xxxxxx, where x is a numeric value).

The **`enable-ctrl-feat`** command requires that the database contain a valid serial number for the Eagle, and that this serial number is locked. This can be verified with the **`rtrv-serial-num`** command. The system 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 system is on-site, with the **`ent-serial-num`** command. The **`ent-serial-num`** command uses these parameters.

`:serial` – The serial number assigned to the system. The serial number is not case sensitive.

`:lock` – Specifies whether or not the serial number is locked. This parameter has only one value, **`yes`**, which locks the serial number. Once the serial number is locked, it cannot be changed.

The status of the controlled features in the system is shown with the **`rtrv-ctrl-feat`** command.

NOTE: Once the LNP feature is enabled for a particular quantity, the LNP feature cannot be disabled, nor can the LNP telephone number quantity be reduced. The quantity can only be increased. When the LNP feature is enabled, it is permantly enabled. The LNP feature cannot be temporarily enabled.

NOTE: The feature access key for the desired LNP telephone number quantity must be purchased before you enable the LNP feature and the LNP telephone number quantity. If you are not sure if you have purchased the appropriate feature access key, contact your Tekelec Sales Representative or Account Representative.

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 05-03-30 21:15:37 GMT EAGLE5 32.0.0
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

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 telephone number quantity is 12 million numbers or greater, this procedure cannot be performed. To increase the LNP telephone number quantity beyond 12 million numbers, perform the procedures in the *LNP Feature Activation Guide*.

If the LNP telephone number quantity is 96 million numbers, this procedure and the procedures in the *LNP Feature Activation Guide* cannot be performed. The maximum number of LNP telephone numbers the Eagle supports is 96 million.

NOTE: If the quantity of LNP telephone numbers is greater than zero (0), skip this step and go to step 3.

2. Verify that the GPORT, G-FLEX, or INP features are off, by entering the **rtrv-feat** command. The LNP cannot be enabled is the GPORT, G-FLEX, or INP features are on. If the GPORT feature is off, the **GPORT** field should be set to **off**. If the G-FLEX feature is off, the **GFLEX** field should be set to **off**. If the INP feature is off, the **INP** field should be set to **off**.

   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 either GPORT, G-FLEX, or INP feature is on, this procedure cannot be performed.

3. The LNP feature requires that SCCP cards must be configured in the database. Display the cards in the database with the **rtrv-card** command. SCCP cards can be either TSMs or DSMs. The TSMs are shown with the entries **TSM** in the **TYPE** field and **SCCP** in the **APPL** field. The DSMs are shown with the entries **DSM** in the **TYPE** field and **VSCCP** in the **APPL** field. This is an example of the possible output.

```
rlghncxa03w 05-03-07 00:57:31 GMT EAGLE5 32.0.0
CARD   TYPE          APPL      PORT A LSET (SLC)   PORT B LSET (SLC)
1113   GPSM          EOAM
1114   TDM-A
1115   GPSM          EOAM
1116   TDM-B
1117   MDAL
1118   RESERVED
1201   LIMDS0        SS7ANSI   sp2         (00)    sp1         (00)
1214   TSM           GLS       --------    (--)    --------    (--)
1216   ACMENET       STPLAN    --------    (--)    --------    (--)
1305   LIMDS0        SS7ANSI   sp5         (00)    sp6         (00)
```

   If the necessary SCCP cards are not shown in the output of the **rtrv-card** command, go to the "Adding an SCCP Card" procedure on page 2-3 and add the necessary SCCP cards according to the requirements shown in Table 2-1 on page 2-3 and Table 2-5 on page 2-16.

NOTE: If SCCP cards were added in step 3, skip step 4 and go to step 5.

4. Choose one of the SCCP cards shown in the rtrv-card output in step 3. Display the card type of the SCCP card and the amount of memory on the SCCP card, using the **rept-stat-card** command specifying the card location of the SCCP card, and the **mode=full** parameter. For this example, enter this command.

```
rept-stat-card:loc=1101:mode=full
```

This is an example of the possible output.

```
tekelecstp 03-01-17 14:12:27 EST Rel 29.0.0-48.2.0
CARD   VERSION      TYPE      APPL       PST            SST        AST
1101   255-255-255  DSM       VSCCP      IS-NR          Active     -----
  ALARM STATUS       = **  0013 Card is isolated from the system
  ????   GPL version = 255-255-255
  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
  SCCP % OCCUP       = 10%
  SNM    TVG RESULT  = 24 hr: ------, 5 min: ------
Command Completed.
```

The card type is shown in the **TYPE** column. The amount of memory on the SCCP card is shown in the **DBD MEMORY SIZE** field. If the card type and the amount of memory do meet the requirements shown in Table 2-1 on page 2-3 and Table 2-5 on page 2-16, perform these steps.

a. Add the required card to the database using the "Adding an SCCP Card" procedure on page 2-3.

b. Remove the card specified in the **rept-stat-card** command from the database using the "Removing an SCCP Card" procedure on page 2-13.

c. Remove the card specified in substep **b** from the Eagle.

Repeat this step for all SCCP cards shown in the **rtrv-card** output in step 3.

NOTE: If the `rtrv-ctrl-feat` output in step 1 shows any controlled features, skip steps 5 and 6, and go to step 7.

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

```
rlghncxa03w 05-03-30 21:15:37 GMT EAGLE5 32.0.0
System serial number = ntxxxxxxxxxxxx

System serial number is not locked.

rlghncxa03w 05-03-30 21:15:37 GMT EAGLE5 32.0.0
Command Completed
```

NOTE: If the serial number is locked, skip step 6 and go to step 7.

6. If the serial number shown in step 5 is not correct and not locked, enter the correct serial number into the database and lock the serial number using the **`ent-serial-num`** command with the serial and lock parameters.

   If the serial number is correct, but is not locked, enter the **`ent-serial-num`** command specifying the serial number shown in step 5 with the **`lock=yes`** parameter.

   For this example, enter this command.

   `ent-serial-num:serial=<system serial number>:lock=yes`

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

```
rlghncxa03w 05-03-30 21:15:37 GMT EAGLE5 32.0.0
ENT-SERIAL-NUM:  MASP A - COMPLTD
```

7. Enable the LNP feature with the desired quantity by entering the **`enable-ctrl-feat`** command. For this example, enter this command.

   `enable-ctrl-feat:partnum=893011005:fak=<feature access key>`

   NOTE: The values for the feature access key (the `fak` parameter) are provided by Tekelec. If you do not have the controlled feature part number or the feature access key for the feature you wish to enable, contact your Tekelec Sales Representative or Account Representative.

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

```
rlghncxa03w 05-03-30 21:15:37 GMT EAGLE5 32.0.0
ENABLE-CTRL-FEAT: MASP B - COMPLTD
```

8. Verify the changes by entering the **rtrv-ctrl-feat** command with the part number specified in step 7.

   rtrv-ctrl-feat:partnum=893011005

   The following is an example of the possible output.

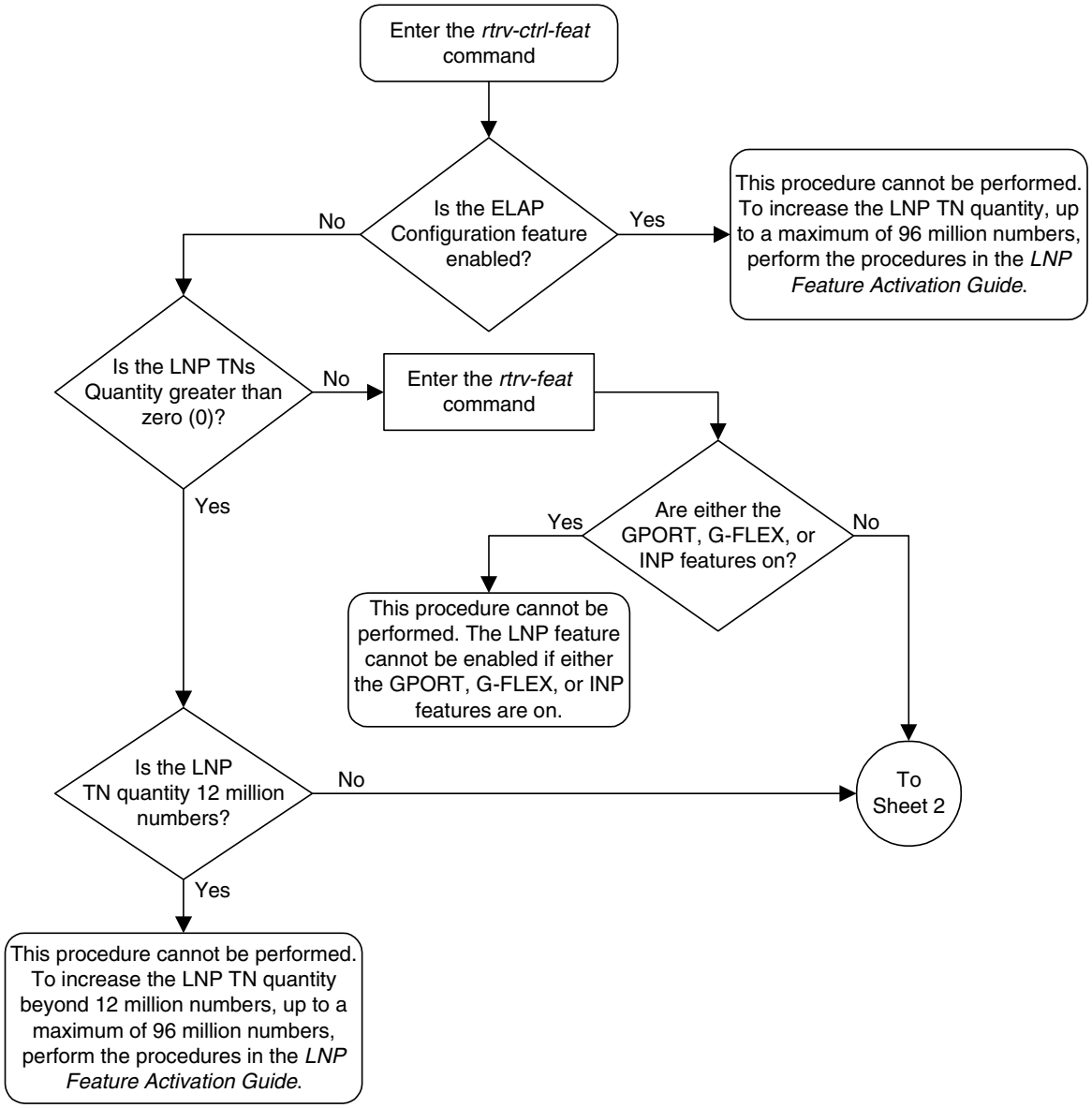
```
rlghncxa03w 05-03-30 21:16:37 GMT EAGLE5 32.0.0
The following features have been permanently enabled:
Feature Name              Partnum    Status  Quantity
LNP TNs                   893011005  on      12000000
```

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

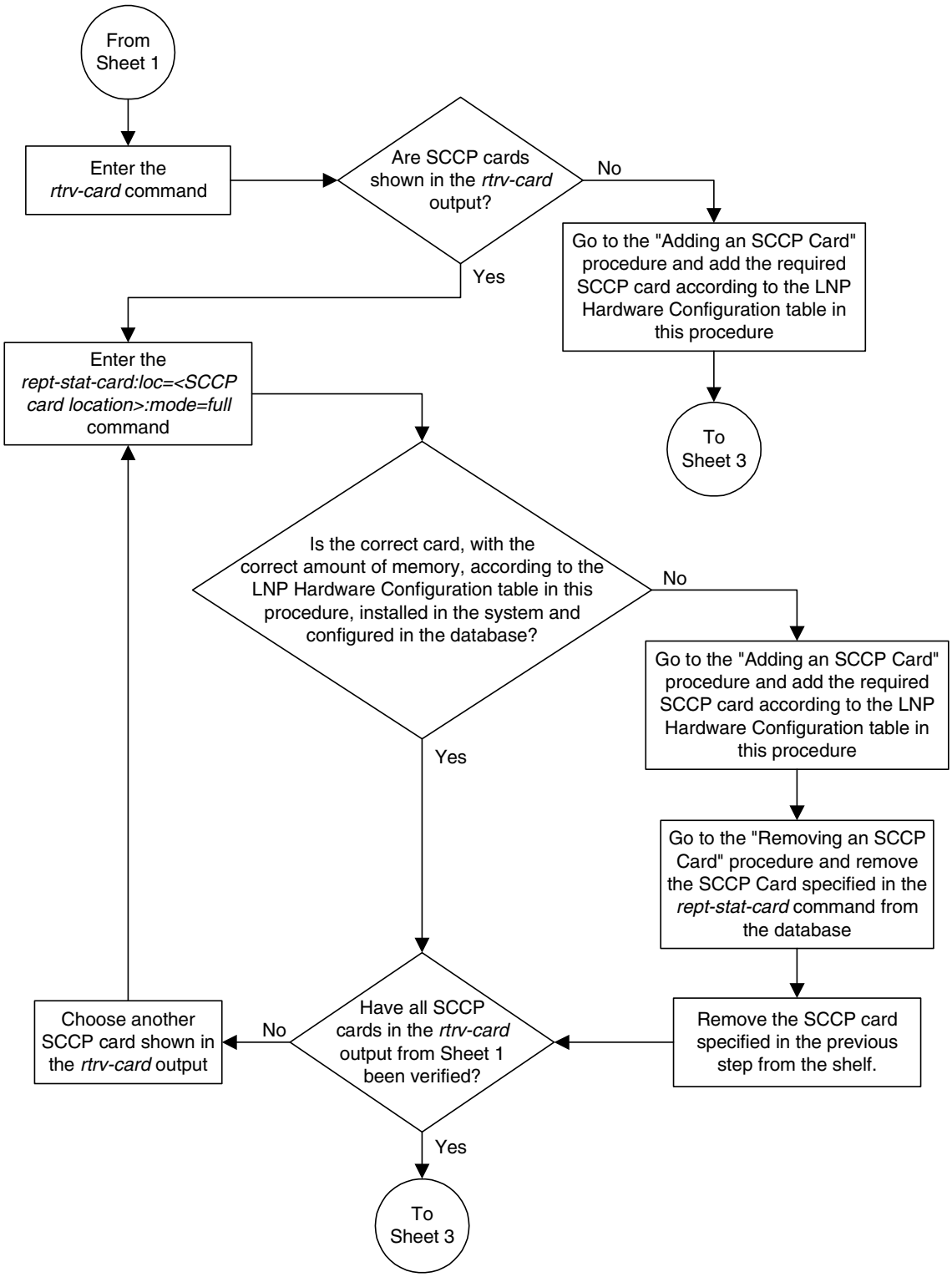
```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk complete.
BACKUP (FIXED) : MASP A - Backup starts on standby MASP.
BACKUP (FIXED) : MASP A - Backup on standby MASP to fixed disk complete.
```

Flowchart 2-3. Activating the LNP Feature for 2 to 12 Million Numbers (Sheet 1 of 3)

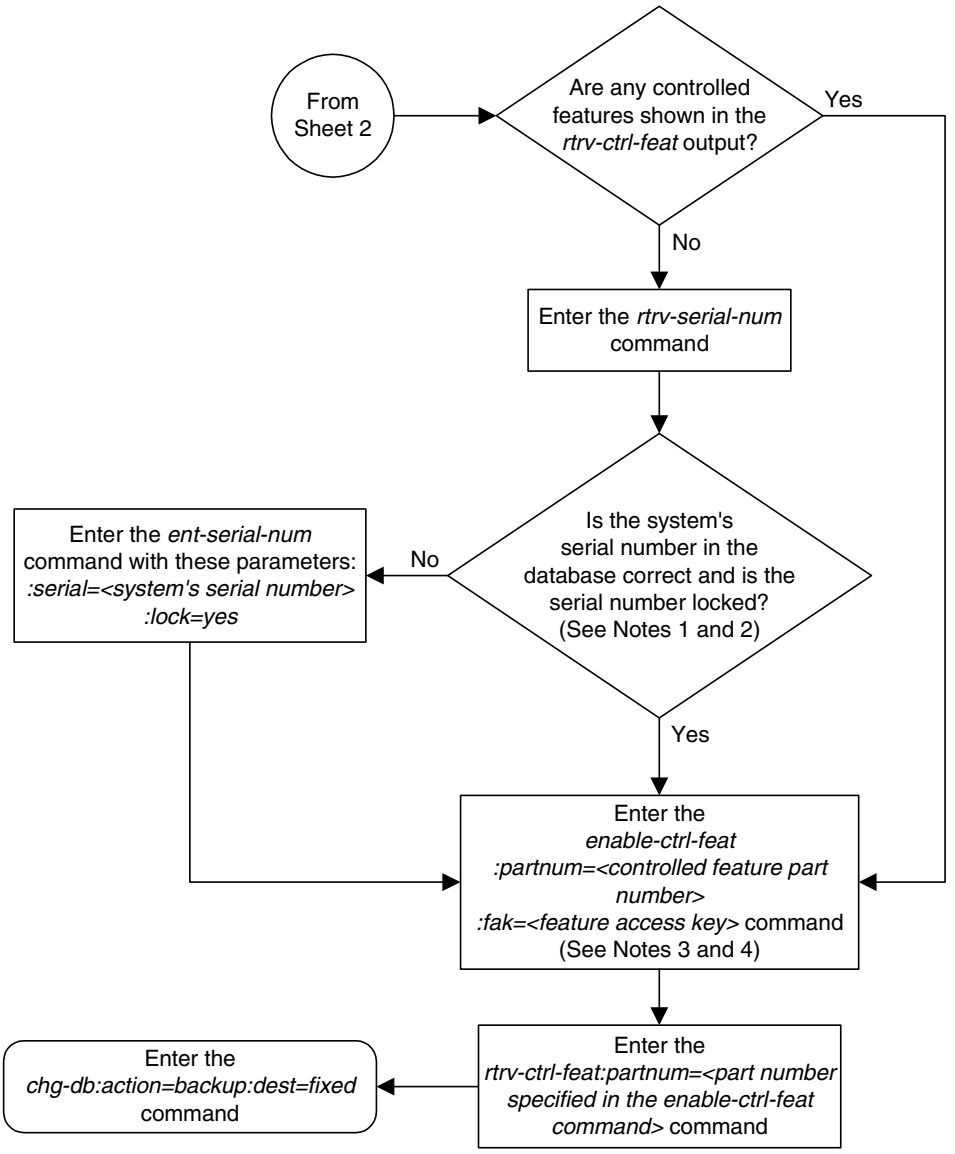
NOTE: Before executing this procedure, make sure you have purchased the feature access key for the LNP telephone number quantity you wish to enable. If you are not sure if you have purchased the appropriate feature access key, contact your Tekelec Sales Representative or Account Representative.



Flowchart 2-3. Activating the LNP Feature for 2 to 12 Million Numbers (Sheet 2 of 3)



Flowchart 2-3. Activating the LNP Feature for 2 to 12 Million Numbers (Sheet 3 of 3)



Configuring the LNP 4Digit Tables

This procedure is used to configure additional **LNP 4Digit** tables in the database using the **alloc-mem** command. The database already contains one **LNP 4Digit** table containing up to 2 million telephone number subscriptions. Up to five additional **LNP 4Digit** tables can be configured increasing the amount of LNP telephone number subscriptions the database can contain to 12 million telephone numbers. Each **LNP 4Digit** table can contain 2 million telephone number subscriptions. The **alloc-mem** command uses these parameters.

:obj – The type of database object to create, the **LNP 4Digit** table (**obj=lnp4digit**)

:num – The number of database objects to create, from 1 to 5.

NOTE: If the ELAP Configuration feature is enabled, this procedure cannot be performed.

To configure the **LNP 4Digit** tables, the LNP feature must be enabled. This is shown by the entry **LNP TNs** in the **rtrv-ctrl-feat** command with a quantity of 2 to 12 million numbers. With the LNP feature enabled, the database can contain up to four **LNP 4Digit** tables, allowing the database to contain up to 8 million telephone number subscriptions. For the database to contain more than 8 million telephone number subscriptions, up to a maximum of 12 million telephone number subscriptions, the database must contain five or six **LNP 4Digit** tables. To support five or six **LNP 4Digit** tables, the LNP feature must be enabled for either 8 or 12 million numbers. To enabled the LNP feature, go to the "Enabling the LNP Feature for 2 to 12 Million Numbers" procedure on page 2-16.

The additional **LNP 4DIGIT** tables can only be configured if the capacity of the fixed disk drives on the terminal disk modules (TDMs) and the amount of memory on the translation services modules (TSMs) memory is sufficient to support the number of ported telephone number subscriptions allowed by the number of **LNP 4DIGIT** tables configured in the database (one plus the value of the **num** parameter). Table 2-6 shows the TSM and TDM requirements.

Table 2-6. TSM and TDM Requirements

Number of LNP 4DIGIT Tables	Number of Ported Numbers Supported	LNP Telephone Number Quantity *	TSM Requirements†	TDM Requirements
1	2 Million	2 Million	TSM-256 TSM-512 TSM-768 TSM-1024	P/N 870-0774-10 or later
2	4 Million	4 Million	TSM-512 TSM-768 TSM-1024	
3	6 Million	6 Million	TSM-1024	
4	8 Million	8 Million	TSM-1024	
5	10 Million	12 Million	TSM-1024	
6	12 Million	12 Million	TSM-1024	

Notes:

* The LNP Telephone Number Quantity column shows the quantity that the LNP feature must be enabled for to support the number of LNP 4Digit tables that are being configured.

† A TSM-256 is a TSM containing 256 megabytes of memory.

A TSM-512 is a TSM containing 512 megabytes of memory

A TSM-768 is a TSM containing 768 megabytes of memory

A TSM-1024 is a TSM containing 1024 megabytes of memory.

Depending on the GTT related features that are being used, DSMs have to be installed and configured in the database in place of TSMs. The features or feature combinations shown in Table 2-1 on page 2-3 show the type of card that must be installed in the system to meet the minimum system performance requirements.

Visually verify that the system contains the hardware shown in Table 2-6.

Table 2-7 shows the estimated amount of time required to create and initialize the **LNP 4DIGIT** database objects using the **alloc-mem** command. Because of the amount of time required to configure the **LNP 4Digit** tables, it is recommended that this procedure is performed during the maintenance window.

Table 2-7. Memory Allocation Performance Estimates

Number of LNP 4DIGIT Database Tables Created	Estimated Time
1	5 minutes
2	10 minutes
3	15 minutes
4	20 minutes
5	25 minutes

The examples in this procedure are used to configure five additional LNP 4Digit tables, increasing the number of LNP telephone number subscriptions the database can contain from 2 million telephone number subscriptions to 12 million telephone number subscriptions.

Procedure

1. Display the **LNP 4Digit** table configuration in the database with the **rtrv-mem** command. The following is an example of the possible output.

```
rlghncxa03w 05-03-07 00:57:31 GMT EAGLE5 32.0.0
LNP 4DIGIT OBJECT  %FULL
-----------------  -----
LNP_4DIG.TBL         75

LNP 4DIGIT database is (1500000 of 2000000) 75% full

rlghncxa03w 05-03-07 00:57:31 GMT EAGLE5 32.0.0
Memory retrieval complete.
```

   If the rtrv-mem output shows six LNP 4Digit tables, this is the maximum number of tables that can be configured. This procedure cannot be performed.

2. Verify that the LNP feature is enabled by entering the **rtrv-ctrl-feat** command. If the LNP feature is enabled, the **LNP TNs** field should show a quantity greater than zero.

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

If the LNP feature is not enabled, or in the LNP feature is enabled for a quantity that is less than 12 million numbers, go to the "Enabling the LNP Feature for 2 to 12 Million Numbers" procedure on page 2-16 to enable the LNP feature for the quantity corresponding to the number of LNP 4Digit tables being configured. Table 2-6 on page 2-27 shows the hardware requirements and LNP telephone quantities needed to support the number of LNP 4Digit tables being configured.

If the ELAP LNP Configuration controlled feature is enabled and activated, the LNP database is on the ELAP, and the **alloc-mem** command cannot be executed.

---

3. Add the **LNP 4Digit** tables to the database with the **alloc-mem** command. For this example, enter this command.

   alloc-mem:obj=lnp4digit:num=5

   When the **alloc-mem** has successfully completed, this message should appear.

```
rlghncxa03w 05-03-07 00:57:31 GMT EAGLE5 32.0.0
Memory allocation complete
```

---

4. Verify the changes using the **rtrv-mem** command. The following is an example of the possible output.

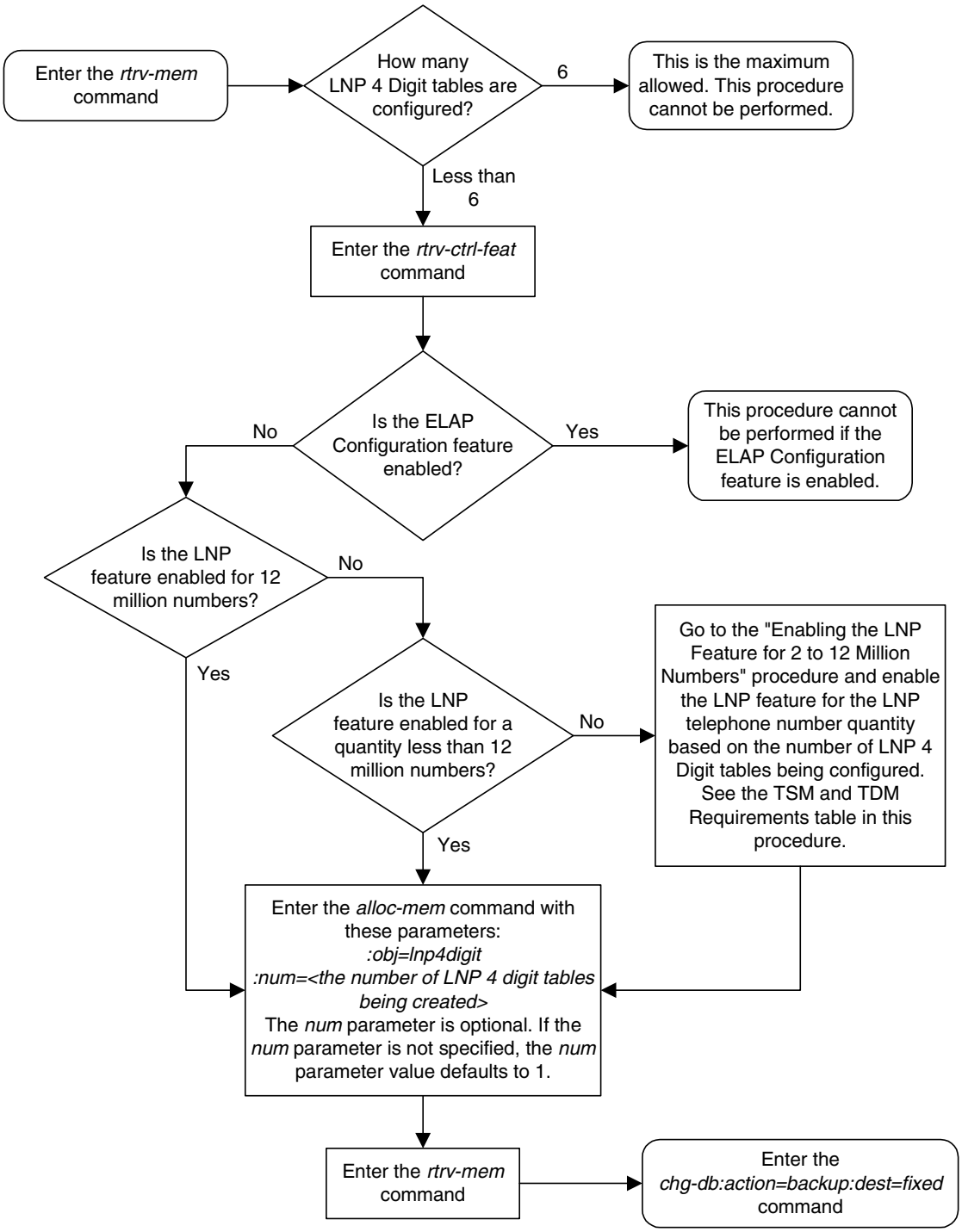
```
rlghncxa03w 05-03-07 00:57:31 GMT EAGLE5 32.0.0
LNP 4DIGIT OBJECT  %FULL
-----------------  -----
LNP_4DIG.TBL         75
LNP4DIG1.TBL          0
LNP4DIG2.TBL          0
LNP4DIG3.TBL          0
LNP4DIG4.TBL          0
LNP4DIG5.TBL          0

LNP 4DIGIT database is (1500000 of 12000000) 13% full

rlghncxa03w 05-03-07 00:57:31 GMT EAGLE5 32.0.0
Memory retrieval complete.
```

---

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

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

Flowchart 2-4. Configuring the LNP 4 Digit Tables



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 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. 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, 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 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, see either the "Enabling the LNP Feature for 2 to 12 Million Numbers" procedure on page 2-16, or the procedures in the *LNP Feature Activation Guide*, depending on the desired LNP telephone number quantity.

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 05-03-07 00:57:31 GMT EAGLE5 32.0.0
CHG-FEAT: MASP A - COMPLTD
```

---

3. Verify whether or not the LNP feature is enabled by using the **rtrv-ctrl-feat** command. If the LNP feature is enabled, the entry LNP 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 05-03-30 21:15:37 GMT EAGLE5 32.0.0
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

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 one of these procedures, depending on the desired LNP telphone number quantity.

   - For 2 million to 12 million telephone number quantities – the "Enabling the LNP Feature for 2 to 12 Million Numbers" procedure on page 2-16.

     After the LNP feature has been enabled for 2 to 12 million numbers, go to the "Configuring the Eagle for the LNP Feature" section on page 3-7 to configure the required LNP elements in the Eagle.

   - For 24 million to 96 million telephone number quantities – perform the procedures in the *LNP Feature Activation Guide*.

---

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 theTriggerless LNP feature, contact your Tekelec Sales Representative or Account Representative.

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

```
rlghncxa03w 05-03-07 00:57:31 GMT EAGLE5 32.0.0
CHG-FEAT: MASP A - COMPLTD
```

---

6. Verify the changes using the **`rtrv-feat`** command. The **`GWS = on`** and **`TLNP = on`** should be shown in the **`rtrv-feat`** output.

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

---

7. Display the LNP options for the jurisdiction information parameter by entering the **rtrv-lnpopts** command. The jurisdiction information parameter options are shown in the **JIPPROV** and **JIPDIGITS** fields as shown in bold in the example output.

```
rlghncxa03w 05-03-07 00:57:31 GMT EAGLE5 32.0.0
AMASLPID    = 123456789
INCSLP      = yes
AMACTYPE    = 003
AMAFEATID   = 010
CIC         = 1369
AUD         = on
SP          = a123
FRCSMPLX    = yes
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 05-03-07 00:57:31 GMT EAGLE5 32.0.0
CHG-LNPOPTS: MASP A - COMPLTD
```

---

9. Verify the changes using the **rtrv-lnpopts** command. The following is an example of the possible output.

```
rlghncxa03w 05-03-07 00:57:31 GMT EAGLE5 32.0.0
AMASLPID    = 123456789
INCSLP      = yes
AMACTYPE    = 003
AMAFEATID   = 010
CIC         = 1369
AUD         = on
SP          = a123
FRCSMPLX    = yes
ADMHIPRI    = yes
GTWYSTP     = yes
JIPPROV     = yes
JIPDIGITS   = 423929
```

---

10. Display the gateway screening stop action sets in the database using the **rtrv-gws-actset** command. The Triggerless LNP feature requires a gateway stop action set with the **tlnp** gateway screening stop action. The **tlnp** gateway stop action is shown by the entry **tlnp** in the **rtrv-gws-actset** command output. The following is an example of the possible output.

```
rlghncxa03w 05-03-07 00:57:31 GMT EAGLE5 32.0.0
ACT  ACT    ACT  ACT  ACT  ACT  ACT  ACT  ACT  ACT  ACT  ACT
ID   NAME   1    2    3    4    5    6    7    8    9    10
--   ------ ---- ---- ---- ---- ---- ---- ---- ---- ---- ----
1    copy   copy
2    rdct   rdct
3    cr     copy rdct
4    crcncf copy cncf rdct
5    cncf   cncf
6    cfrd   cncf rdct

GWS action set table is (6 of 16) 38% full
```

If the **tlnp** gateway screening stop action is not shown in the **rtrv-gws-actset** command output, go to step 11. 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 05-03-07 00:57:31 GMT EAGLE5 32.0.0
CAUTION: GWS action set may be referenced by one or more GWS rules
CHG-GWS-ACTSET: MASP A - COMPLTD
```

---

12. Verify the changes with the **rtrv-gws-actset** command. This is an example of the possible output.

```
rlghncxa03w 05-03-07 00:57:31 GMT EAGLE5 32.0.0
ACT  ACT    ACT  ACT  ACT  ACT  ACT  ACT  ACT  ACT  ACT  ACT
ID   NAME   1    2    3    4    5    6    7    8    9    10
--   ------ ---- ---- ---- ---- ---- ---- ---- ---- ---- ----
1    copy   copy
2    rdct   rdct
3    cr     copy rdct
4    crcncf copy cncf rdct
5    cncf   cncf
6    cfrd   cncf rdct
7    tlnp   tlnp
8    cptlnp copy tlnp

GWS action set table is (8 of 16) 50% full
```

NOTE: If step 2 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 05-03-07 00:57:31 GMT EAGLE5 32.0.0
                              L3T  SLT
LSN       APCA (SS7)   SCRN   SET  SET BEI  LST LNKS GWSA GWSM GWSD SLSCI NIS
atmansi0  179-100-087  scr2   1    1   no   a   0    on   off  off  no    off
atmansi1  200-050-176  scr1   1    1   no   a   0    on   off  off  no    off
lsa1      240-020-000  scr1   1    1   yes  a   1    off  off  off  no    off
lsa2      240-030-000  scr2   1    2   no   c   3    on   on   on   yes   off
lsa3      240-040-000  gws2   1    3   yes  c   5    off  off  off  yes   off
ls01      002-002-002  scr1   1    1   no   c   0    on   off  off  no    off
ls02      004-004-004  scr1   1    1   no   b   0    on   off  off  no    off

                              L3T  SLT
LSN       APCA (X25)   SCRN   SET  SET BEI  LST LNKS GWSA GWSM GWSD SLSCI NIS
ls6       244-010-004  scr4   1    4   no   a   6    off  off  off  ---   off
ls7       244-012-005  scr5   1    5   no   c   3    on   on   on   ---   off
ls8       244-012-006  scr6   1    6   no   c   8    off  off  off  ---   off

                              L3T  SLT
LSN       APCI (SS7)   SCRN   SET  SET BEI  LST LNKS GWSA GWSM GWSD SLSCI NIS
lsi1      1-111-1      scr1   1    1   yes  a   1    off  off  off  ---   ---
lsi2      1-111-2      scr2   1    2   no   c   3    on   on   on   ---   ---
lsi3      1-111-3      scr3   1    3   yes  c   5    off  off  off  ---   ---
lsi7      3-150-4      scr1   1    1   no   a   0    on   off  off  ---   ---

                              L3T  SLT
LSN       APCN (SS7)   SCRN   SET  SET BEI  LST LNKS GWSA GWSM GWSD SLSCI NIS
lsn1      11111        scr1   1    1   yes  a   1    off  off  off  ---   on
lsn2      11112        scr2   1    2   no   c   3    on   on   on   ---   on

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 05-03-07 00:57:31 GMT EAGLE5 32.0.0
SCRN  NSFI    NSR/ACT   RULES  DESTFLD
gws2  BLKOPC  gws5         2   N
      SIO     iec          3
      DPC     abc2         5
      BLKDPC  gw11         2
      BLKDPC  gw12         2
      BLKDPC  wdb2         2
      DESTFLD dst1         1
      DESTFLD fld5         1
      CGPA    gw13         3
      TT      gw16         2
      CDPA    gw18         2
      AFTPC   gw20         1
```

If the screen set contains an Allowed SIO screen, go to step 15. 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 05-03-07 00:57:31 GMT EAGLE5 32.0.0
SCREEN = ALLOWED SIO
SR    NIC  PRI  SI  H0     H1     NSFI    NSR/ACT
IEC   1    1    5   --     --     BLKDPC  WDB2
IEC   1    2    5   --     --     STOP    CRCNCF
IEC   1    3    5   --     --     DPC     ABC2
```

If the **SI** field does not contain the value 5, this screen does not allow ISUP messages into the Eagle. 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.
- 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, go to 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, go to 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.
- 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.

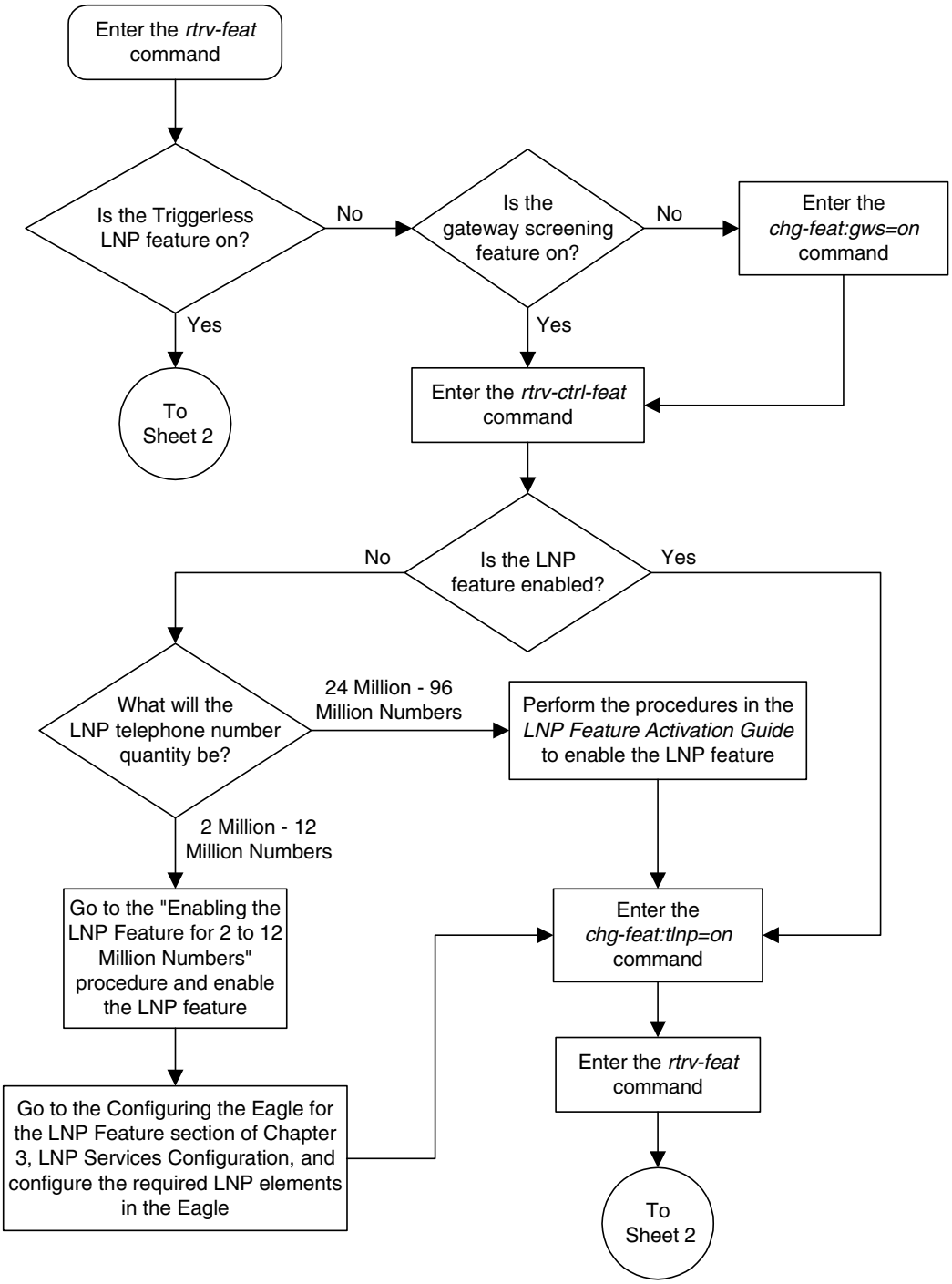
- Allowed DESTFLD – see the "Removing an Allowed Affected Destination Field Screen" procedure
- Allowed CGPA – see the "Removing an Allowed Calling Party Address Screen" procedure
- Allowed TT – see the "Removing an Allowed Translation Type Screen" procedure
- Allowed CDPA – see the "Removing an Allowed 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.

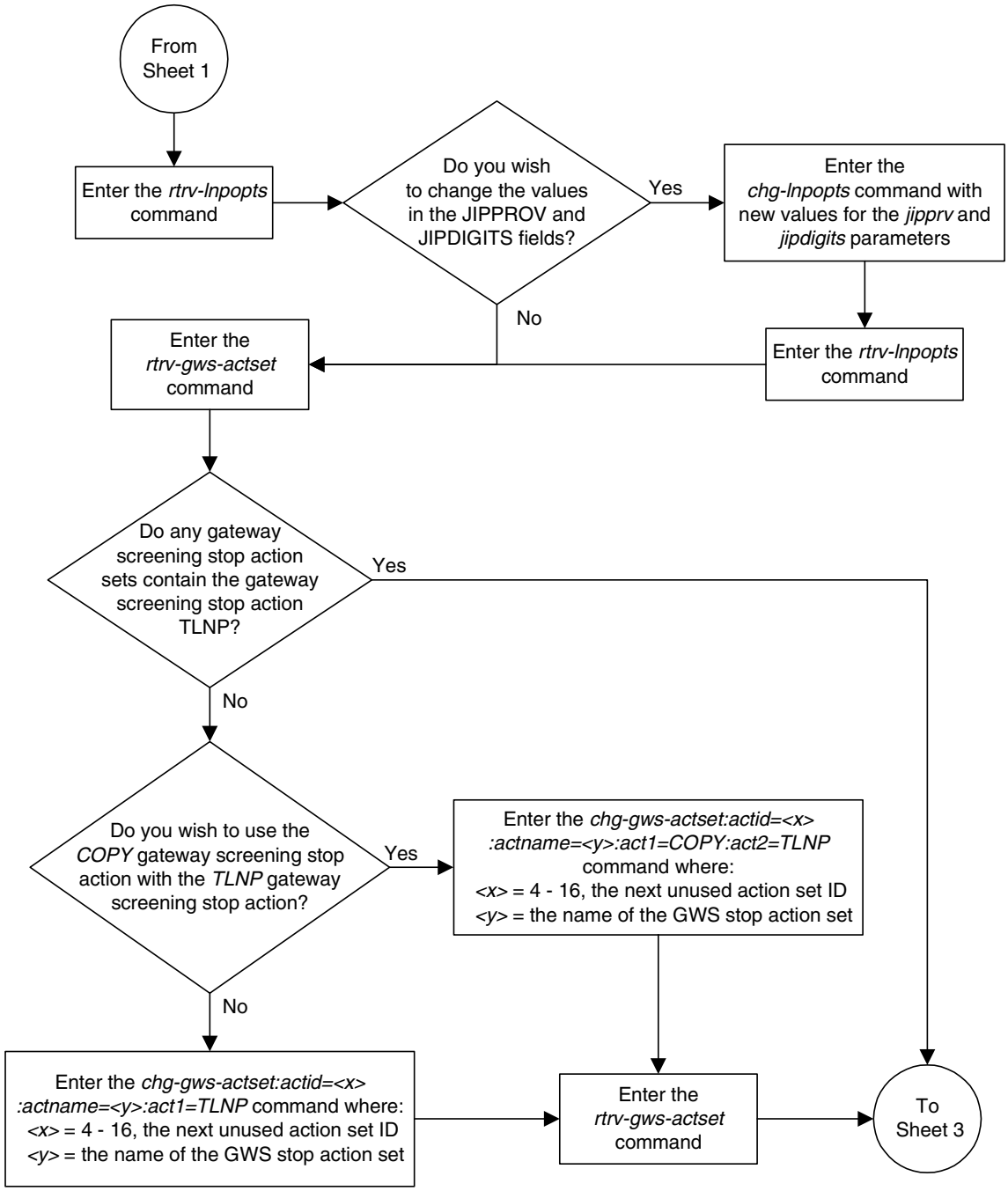
This procedure is finished.

Flowchart 2-5. Configuring the Triggerless LNP Feature (Sheet 1 of 5)

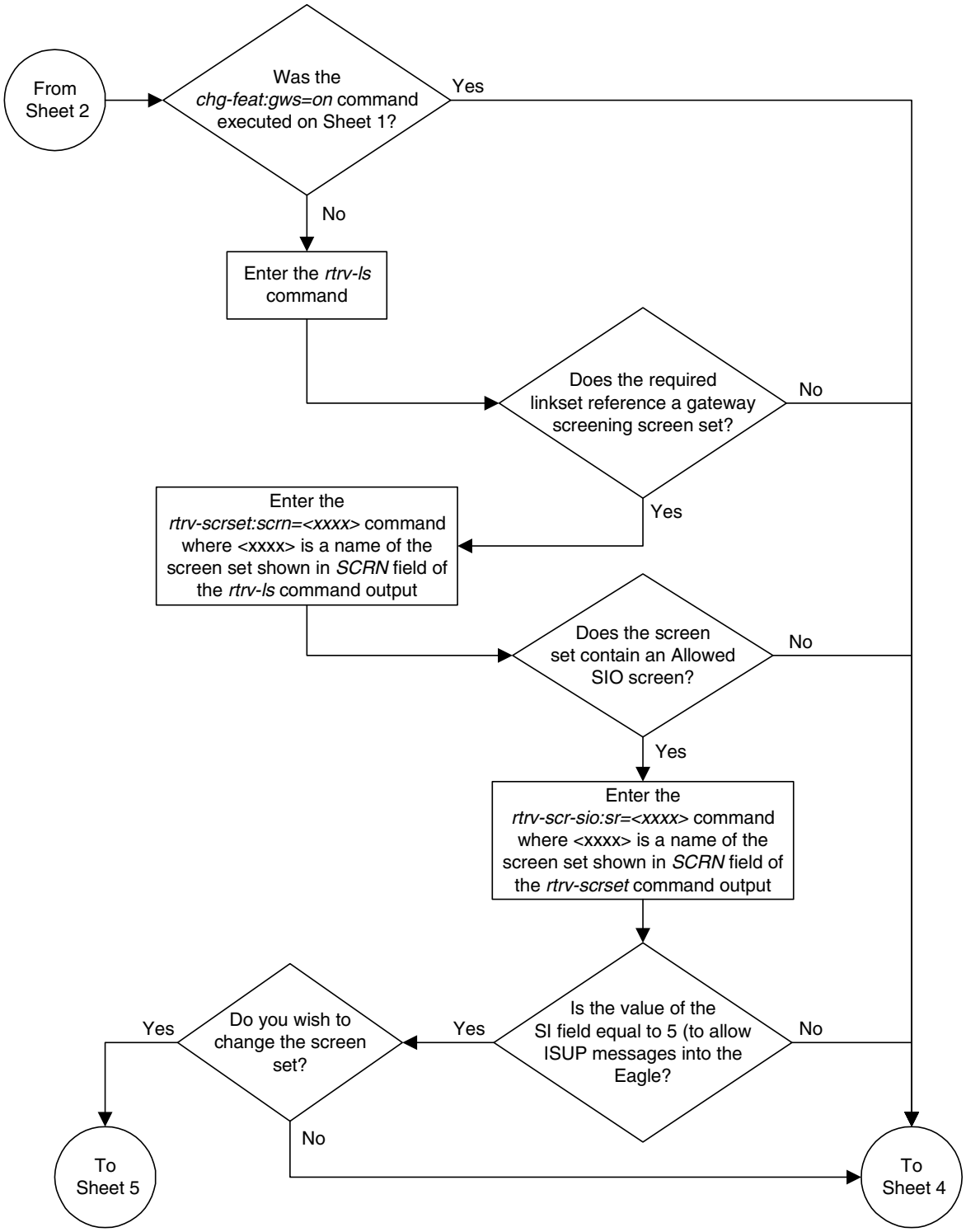
NOTE: Before executing this procedure, make sure you have purchased the Gateway Screening and Triggerless LNP features. If you are not sure if you have purchased the Gateway Screening or Triggerless LNP features, contact your Tekelec Sales Representative or Account Representative.



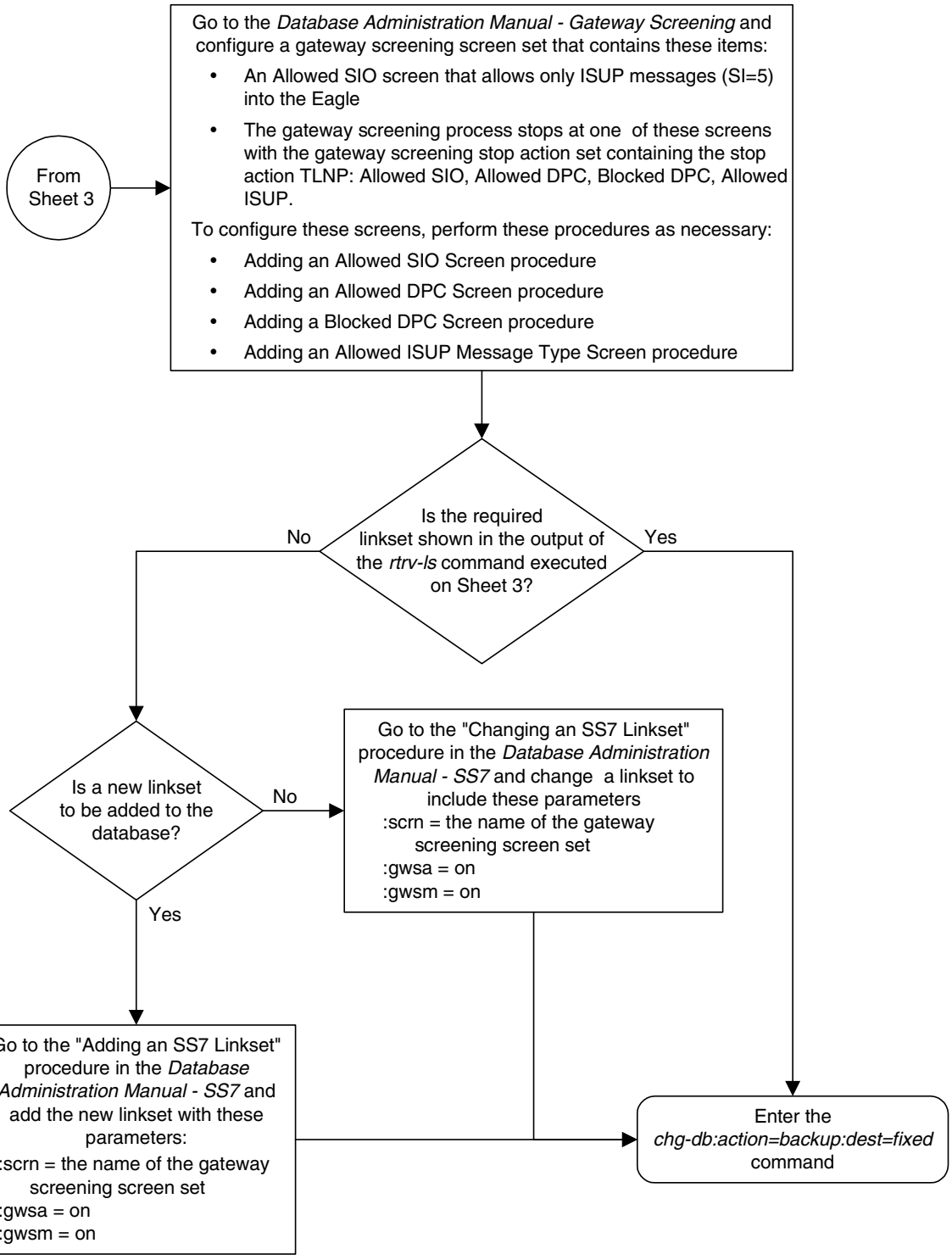
Flowchart 2-5. Configuring the Triggerless LNP Feature (Sheet 2 of 5)



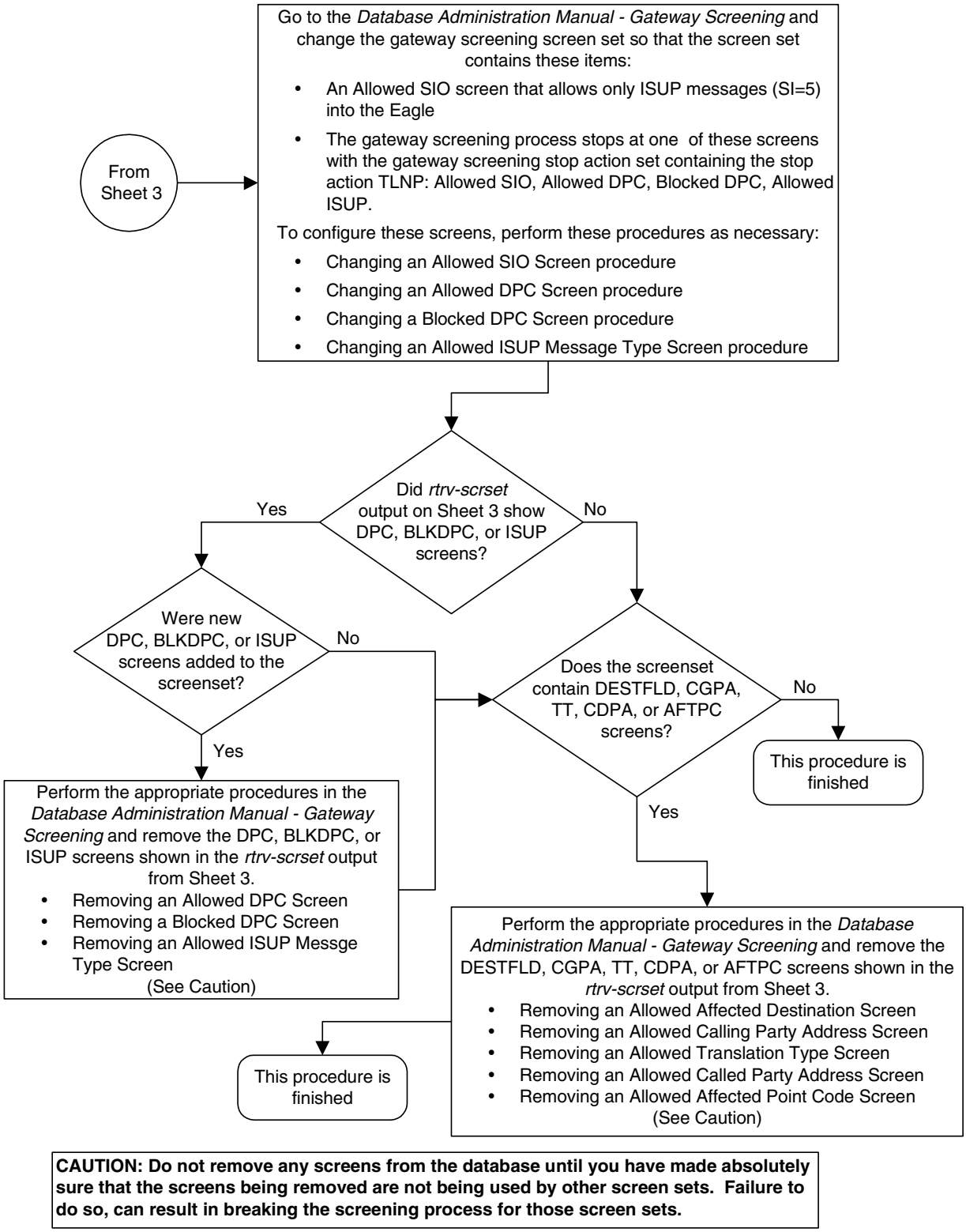
Flowchart 2-5. Configuring the Triggerless LNP Feature (Sheet 3 of 5)



Flowchart 2-5. Configuring the Triggerless LNP Feature (Sheet 4 of 5)



Flowchart 2-5. Configuring the Triggerless LNP Feature (Sheet 5 of 5)



3

LNP Services Configuration

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This chapter contains the procedures for configuring these elements of the LNP feature.

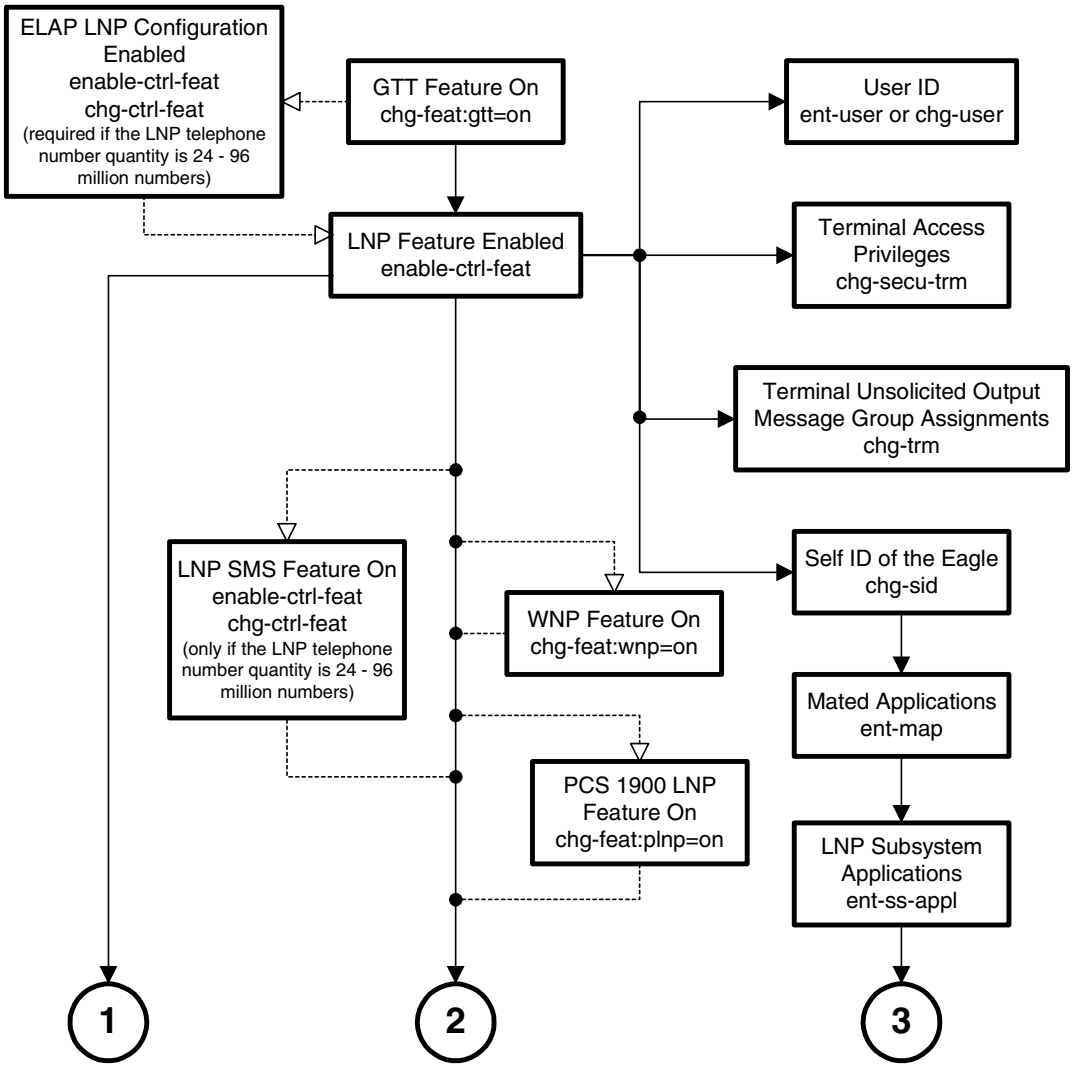
NOTE: If the ELAP Configuration feature is enabled, only the LNP services, LNP subsystem applications, and the LNP options can be provisioned on the Eagle.

- LNP services
- LNP subsystem applications
- Service providers
- NPANXXs
- LNP telephone number subscription
- Location Routing Numbers (LRNs)
- Split NPAs
- LNP options

NOTE: The LNP data administration is done by the LSMS (local service management system). These procedures are used for diagnostic and testing purposes and to make any minor corrections to the LNP data in the database.

Figure 3-1 shows the shows the relationships of the LNP database elements configured by these procedures.

Figure 3-1. LNP Database Relationships (Sheet 1 of 2)



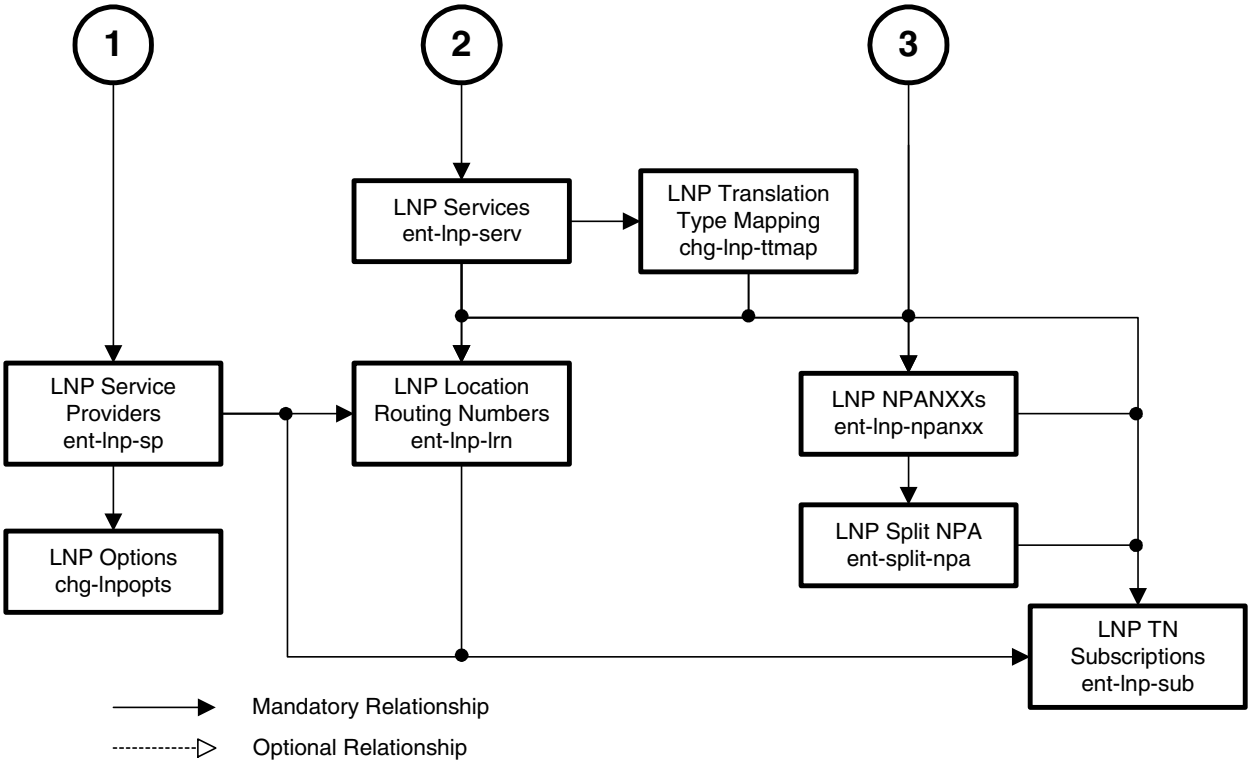
Notes:

1. The global title translation, wireless number portability, PCS 1900 number portability must be purchased before you turn the features on with the *chg-feat* command. If you are not sure if you have purchased the global title translation, wireless number portability, or PCS 1900 number portability features, contact your Tekelec Sales Representative or Account Representative.

2. The LNP, ELAP LNP Configuration, and LNP SMS features require a feature access key to be enabled. These feature access keys must be purchased from Tekelec. If you are not sure if you have purchased the required feature access keys, contact your Tekelec Sales Representative or Account Representative.

3. If the LNP feature is enabled for telephone number quantities of 24 - 96 million numbers, only the LNP services, LNP options, and LNP subsystem applications can be provisioned on the Eagle.

Figure 3-1. LNP Database Relationships (Sheet 2 of 2)



Note: If the LNP feature is enabled for telephone number quantities of 24 - 96 million numbers, only the LNP services, LNP options, and LNP subsystem applications can be provisioned on the Eagle.

LNP System Requirements

Before any LNP commands can be executed, the system must meet these requirements

- The system's maintenance baseline must be established or the LNP commands are rejected with this message.

  ```
  E3110 Cmd Rej: Loading Mode unstable due to maint. baseline not established
  ```

  If this condition is present, the MASP is re-initializing. Wait until the MASP has re-initialized, then re-enter the LNP command.

- The state of 80% of the LIMs must be either in service normal (IS-NR) or out of service maintenance disabled (OOS-MT-DSBLD) and the minimum number of TSMs required to support 80% of the LIMs, whose states are either IS-NR or OOS-MT-DSBLD, must be either in the IS-NR state or the OOS-MT-DSBLD state. If this condition is not satisfied, the LNP commands are rejected with this message.

  ```
  E3111 Cmd Rej: Loading Mode unstable.  System's LIM service is unavailable
  ```

  This condition can be verified with the **rept-stat-slk** and **rept-stat-sccp** commands.

- The SCCP service cannot be deficient, which occurs when:
  - The LIMs are being denied SCCP service
  - The state of any SCCP card is neither IS-NR or OOS-MT-DSBLD

  If the SCCP service is deficient, the LNP commands are rejected with this message.

  ```
  E3112 Cmd Rej: Loading Mode unstable due to SCCP service is deficient
  ```

  This condition can be verified with the **rept-stat-slk** and **rept-stat-sccp** commands.

For more information on these error messages, go to the *Commands Error Recovery Manual*.

- The system must have the correct SCCP cards installed to support the LNP feature. The hardware requirements to support the LNP feature are based on the LNP telephone number quantity being enabled. Table 3-1 on page 3-6 shows the minimum hardware requirments. The output of the **rept-stat-card** command using the **mode=full** parameter shows the card type and the amount of memory on each SCCP card.

Table 3-1. Minimum LNP Hardware Requirements

LNP Telephone Number Quantity	Minimum Hardware
2 Million	256 MB TSM
4 Million	512 MB TSM
6 Million	768 MB TSM
8 Million	1 GB TSM
12 Million	1 GB TSM or 1 GB DSM
24 Million	2 GB DSM
36 Million	3 GB DSM
48 Million	4 GB DSM
60 Million	4 GB DSM
72 Million	4 GB DSM
84 Million	4 GB DSM
96 Million	4 GB DSM
108 Million	4 GB DSM
120 Million	4 GB DSM

Configuring the Eagle for the LNP Feature

The following list shows the steps and commands required to configure the Eagle for the LNP feature. While the LNP data administration is done by the LSMS (local service management system), steps 1 through 11 must be performed before any data can be downloaded from the LSMS, or entered manually into the LNP portion of the Eagle database. Steps 12 through 19 are used for diagnostic and testing purposes, and to make any minor corrections to the LNP data in the database.

NOTE: This procedure covers the steps for configuring the Eagle for the LNP feature with telephone number quantities of 2 to 12 million numbers, with the ELAP Configuration feature disabled. To enable the LNP feature for telephone number quantities greater than 12 million numbers, perform the procedures in the *LNP Feature Activation Guide*. If the ELAP Configuration feature is enabled, only LNP services (step 12), LNP subsystem applications (step 9), the LNP options (step 15), the Wireless Number Portability (WNP) feature (step 10), PCS 1900 Number Portability (PLNP) feature (step 11), and the LNP Short Message Service (SMS) feature (*LNP Feature Activation Guide*) can be provisioned.

Procedure

1. Turn on the global title translation feature.

   ```
   chg-feat:gtt=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 features 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.

2. Enable the LNP feature.

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

   For more information, see "Enabling the LNP Feature for 2 to 12 Million Numbers" on page 2-16.

   NOTE: Once the LNP telephone quantity is enabled, it cannot be reduced. The feature access key is provided by Tekelec. If you are not sure if you have the required feature access key, contact your Tekelec Sales Representative or Account Representative.

3. The TSMs (translation service modules) or DSMs (database service modules) must be configured in the database. For more information, see see "Adding an SCCP Card" on page 2-3.

---

4. Authorize the user privileges. For more information, see "Adding a User to the System" or "Changing User Information" in the *Database Administration Manual - System Management*.

   ent-user:uid=<userID>:lnpbas=yes:lnpdb=yes:lnpsub=yes:db=yes :sys=yes

   or

   chg-user:uid=<userID>:lnpbas=yes:lnpdb=yes:lnpsub=yes:db=yes :sys=yes

---

5. Authorize the terminal access privileges. For more information, see "Changing Terminal Command Class Assignments" in the *Database Administration Manual - System Management*.

   chg-secu-trm:term=<term #>:lnpbas=yes:lnpdb=yes:lnpsub=yes :db=yes:sys=yes

---

6. Allow the terminals to receive LNP unsolicited output messages. For more information, see "Changing Terminal Characteristics" or "Configuring the OAP Port" in the *Database Administration Manual - System Management*.

   chg-trm:term=<term #>:lnpdb=yes:lnpsub=yes:db=yes:sys=yes

---

7. Change the site ID of the Eagle to include an LNP CPC. For more information, see "Changing the Self Identification of the System" in the *Database Administration Manual - SS7*.

   chg-sid:cpctype=lnp:cpc=<Eagle pair's capability point code>

---

8. Enter the mated application with Eagle's True Point Code (TPC) and the Subsystem Number (SSN) for LNP database. For more information, see "Adding a Mated Application" in the *Database Administration Manual – Features*.

   ent-map:pc=<Eagle TPC>:ssn=<LNP SSN>:mssn=<Mate LNP SSN>: rc=<Eagle RC>:materc=<Mate RC>:mpc=<Eagle Mate's TPC>

---

9. Enter the LNP subsystem and put the LNP subsystem on-line. For more information, see "Adding a Subsystem Application" on page 3-57.

   ent-ss-appl:appl=lnp:ssn=<LNP SSN>:stat=online

---

10. If wireless number portability services are to be used, turn the wireless number portability feature on.

    chg-feat:wnp=on

    NOTE: Once the wireless number portability and PCS 1900 number portability features are turned on with the `chg-feat` command, they cannot be turned off.

---

11. If PCS 1900 number portability services are to be used, turn the PCS 1900 number portability feature on.

    chg-feat:plnp=on

    NOTE: The wireless number portability and PCS 1900 number portability 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 wireless number portability and PCS 1900 number portability features, contact your Tekelec Sales Representative or Account Representative.

---

12. Add the LNP service and translation type. For more information, see "Adding an LNP Service" on page 3-30.

    ent-lnp-serv:serv=<LNP service>:tt=<LNP translation type>
    :ttn=<LNP translation type name>:dv=<SCCP or **TCAP>**

    or

    ent-lnp-serv:serv=<LNP service>:alias=<alias translation type>
    (used to enter alias translation types to the LNP service)

---

13. If the LNP translation type is to be mapped to another translation type, enter the mapped translation types. For more information, see "Mapping LNP Translation Types" on page 3-176.

    chg-lnp-ttmap:tt=<LNP translation type>
    :pc=<point code assigned to the LNP translation type>
    :nngt=<new LNP translation type>:nrgta=<yes or **no>**

---

14. Add the LNP service provider. For more information, see "Adding an LNP Service Provider" on page 3-77.

```
ent-lnp-sp:sp=<service provider ID>
```

---

15. Change the LNP options, if necessary. For more information, see "Changing LNP Options" on page 3-165.

```
chg-lnpopts:sp=<service provider ID>
:amaslpid=<AMA service logic ID>
:incslp=<AMA service logic ID included in the response>
:amactype=<AMA call type>
:cic=<carrier identification code>
:aud=<AMA audit indicator>
```

---

16. Add the LNP NPANXX. For more information, see "Adding an LNP NPANXX" on page 3-85.

```
ent-lnp-npanxx:npanxx=<LNP NPANXX>:mr=<yes or no>
:gt1=<first default global title translation>
:gt2=<second default global title translation>
```

---

17. If the NPANXX is being split, add the LNP NPA split. For more information, see "Adding a Split NPANXX" on page 3-110.

```
ent-split-npa:npanxx=<LNP NPANXX>:nnpanxx=<new LNP NPANXX>
```

---

18. Add the LNP location routing number. For more information, see "Adding an LNP Location Routing Number" on page 3-116.

```
ent-lnp-lrn:lrn=<location routing number>
:sp=<service provider ID>
:mrgt1=<first message relay global title translation>
:mrgt2=<second message relay global title translation>
```

---

19. Add the LNP telephone number subscription. For more information, see "Adding an LNP Telephone Number Subscription" on page 3-137.

```
ent-lnp-sub:tn=<10-digit ported telephone number>
:sp=<service provider ID>
:lrn=<location routing number>
:mrgt1=<first message relay global title translation>
:mrgt2=<second message relay global title translation>
```

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 route-on-gt. The Eagle 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 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 checks for message relay override data. If there is override data for the location routing number, the Eagle 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 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 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 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 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 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 3-2 shows the result of the 10-digit message relay processing, and the processing required to route a message.

Table 3-2. LNP Message Relay

Ported MR NPANXX	Ported TN	LNP Message Relay Processing	NPAC GTT Data for any Service
No	No	Nonported subscriber. See Table 3-4.	N/A
No (See Note).	Yes	Ported subscriber.	Yes - See Table 3-3.
			No - See Table 3-4.
Yes	No	Nonported subscriber. See Table 3-4.	N/A
Yes	Yes	Ported subscriber.	Yes - See Table 3-3.
			No - See Table 3-4.
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 creates an NPANXX entry, if none exists, when it receives a ported subscriber record.			

Table 3-3 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 3-3. 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 3-4.

Table 3-3. 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
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 3-4.
Yes	No	No See Note 1.	N/A	The message is routed using the NPAC global title translation data.
Yes	Yes	N/A	N/A	The message is routed using the location routing number override global title translation data.
Yes	N/A	Yes See Note 2.	Yes	The message is routed using the NPAC global title translation data.
Yes	N/A	Yes See Note 2.	No	The message is discarded, The "No Translation Available" UIM and UDTS messages are generated if return on error set.

Notes:

1. The 10-digit number has a location routing number assigned, but the location routing number has no matching entry in the override table.

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 3-4 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 3-4. 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.
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 3-2 shows how normal global title and message relay are performed on Eagle.

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

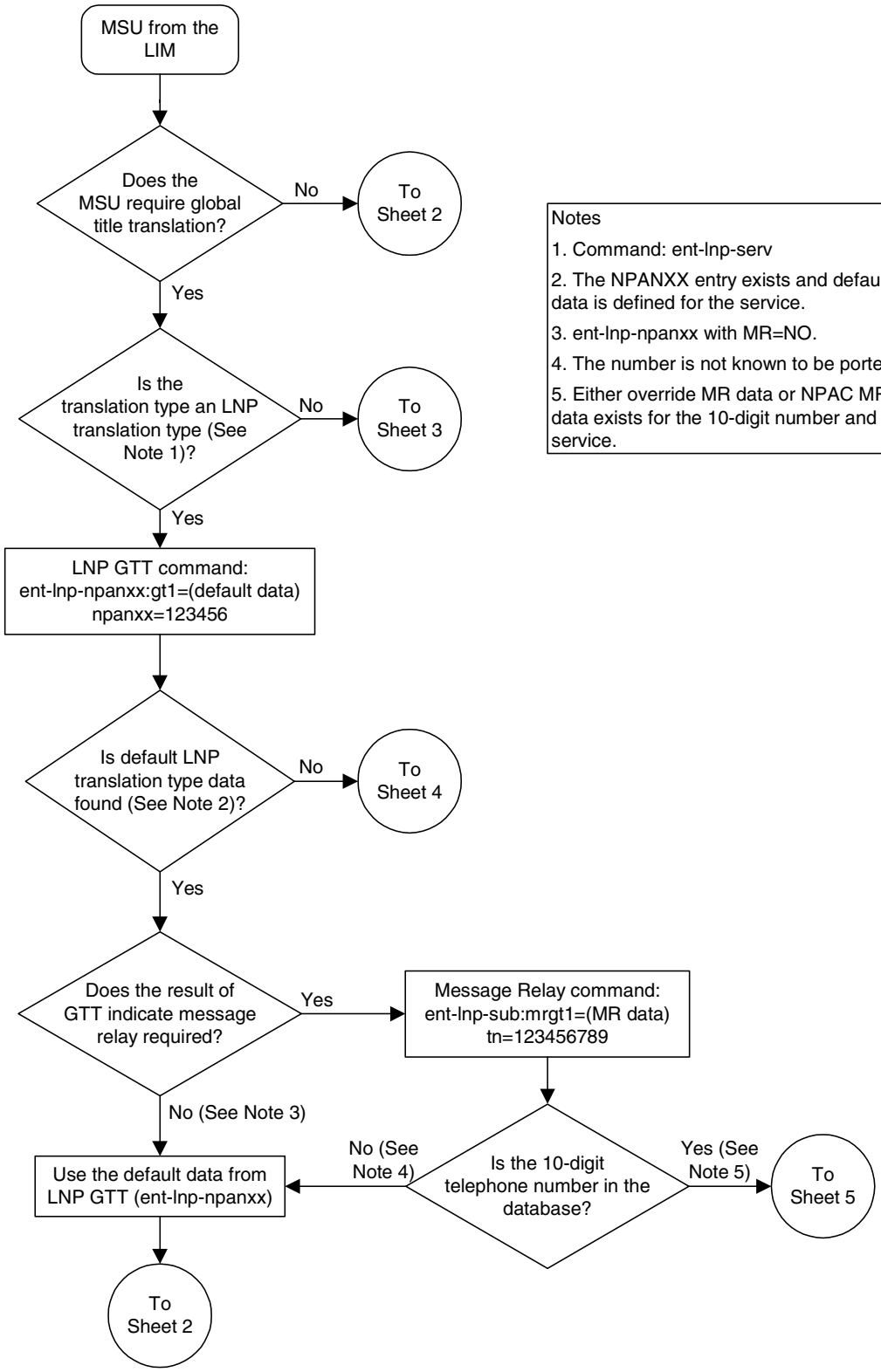


Figure 3-2. Message Flow For Global Title and Message Relay (Sheet 2 of 6)

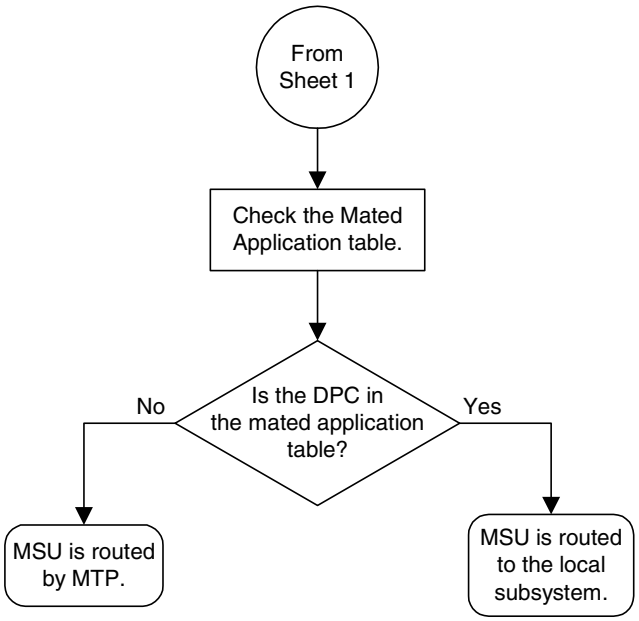


Figure 3-2. Message Flow For Global Title and Message Relay (Sheet 3 of 6)

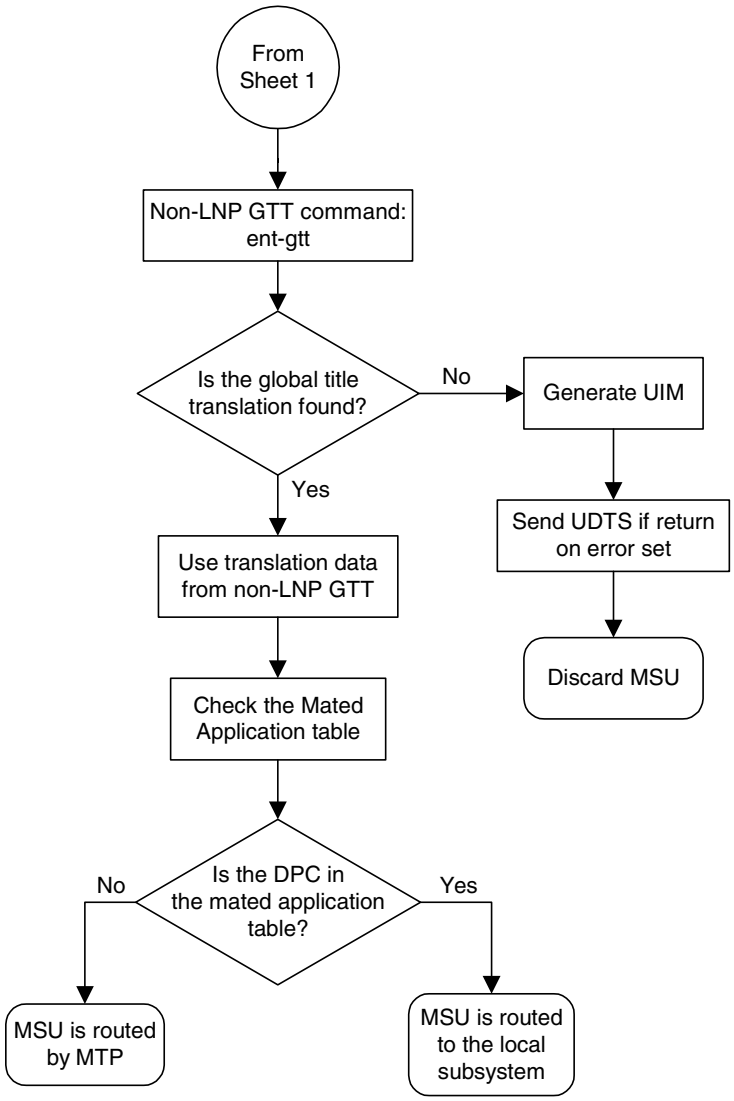


Figure 3-2. Message Flow For Global Title and Message Relay (Sheet 4 of 6)

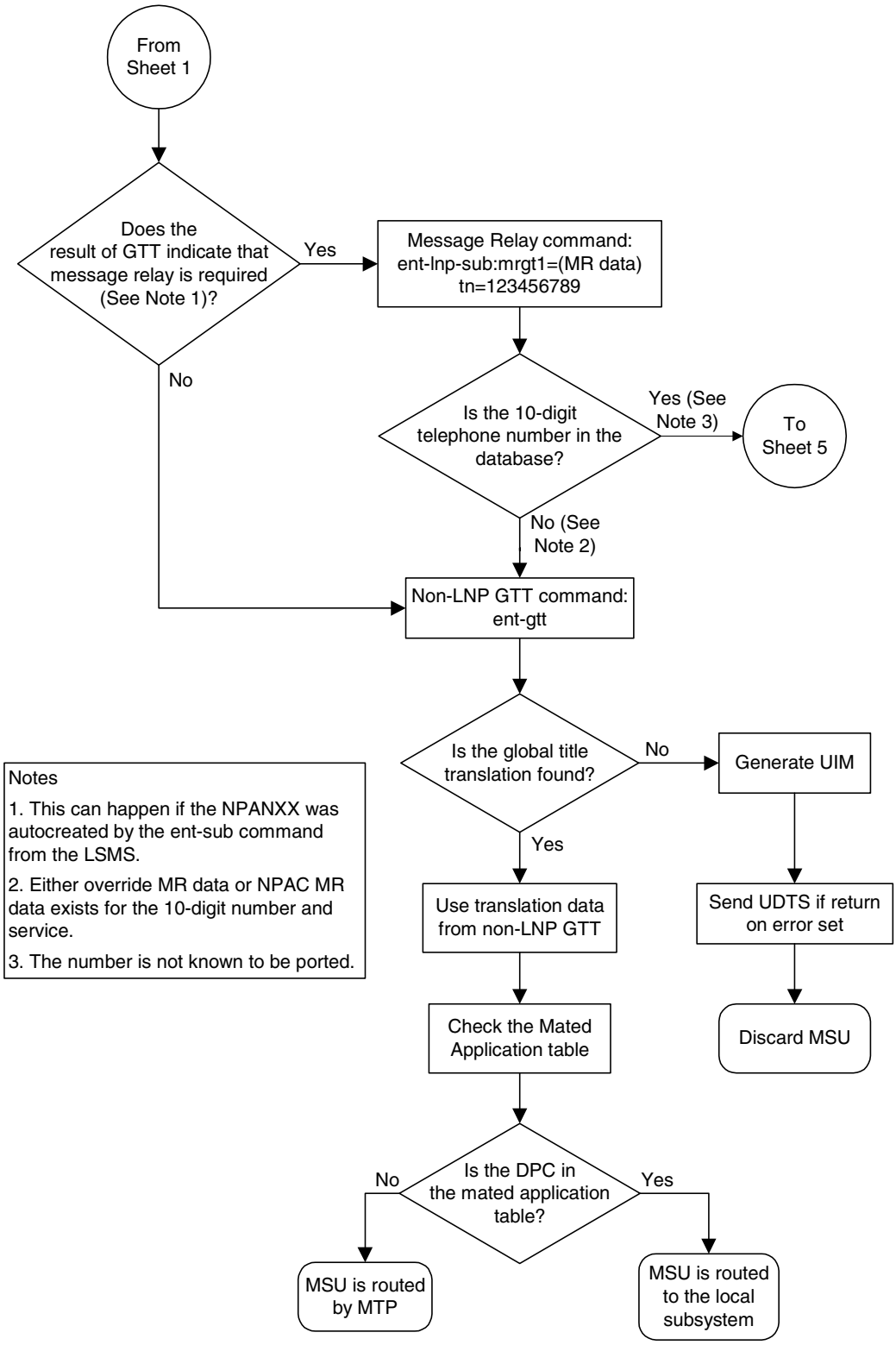


Figure 3-2. Message Flow For Global Title and Message Relay (Sheet 5 of 6)

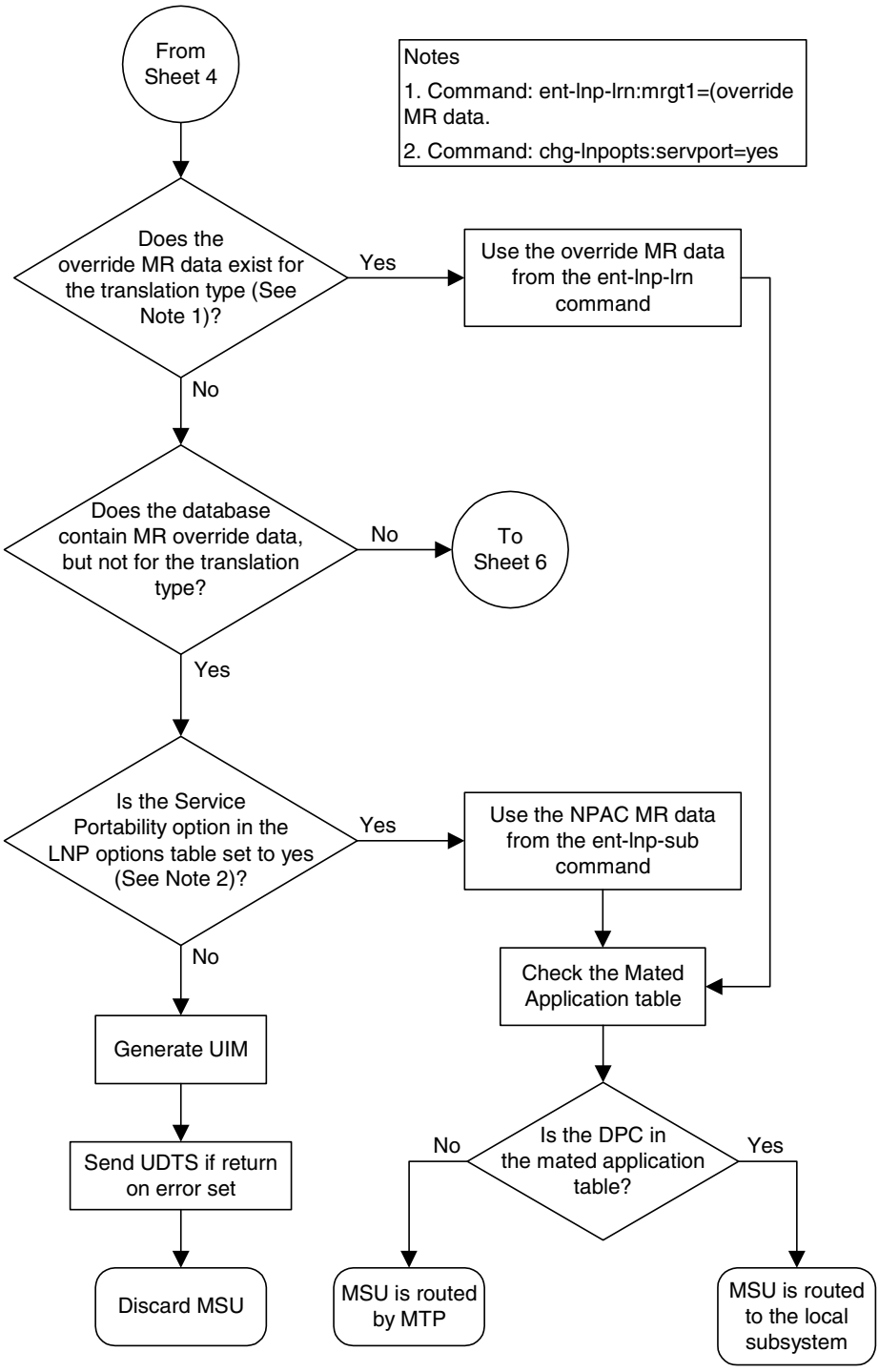
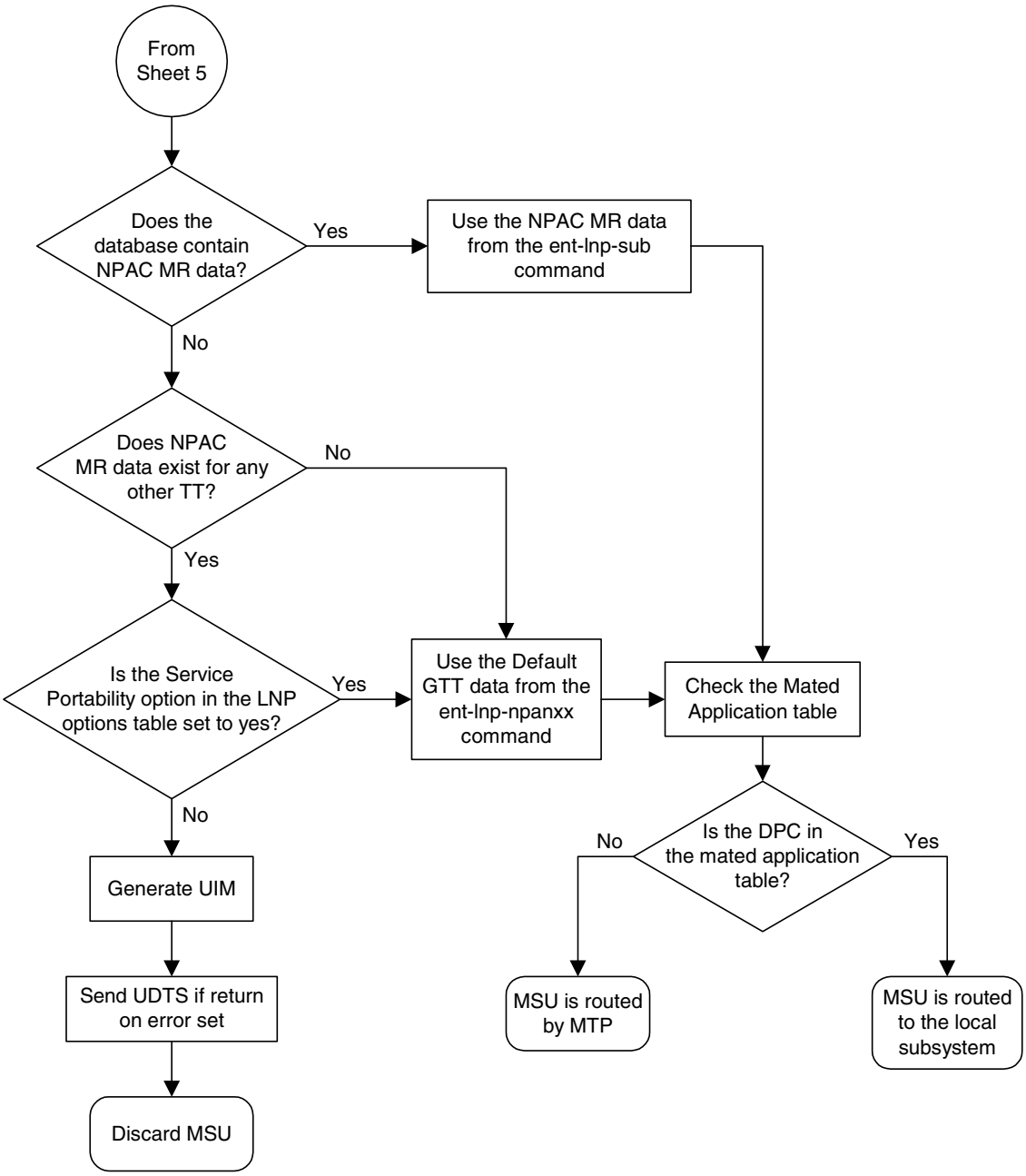


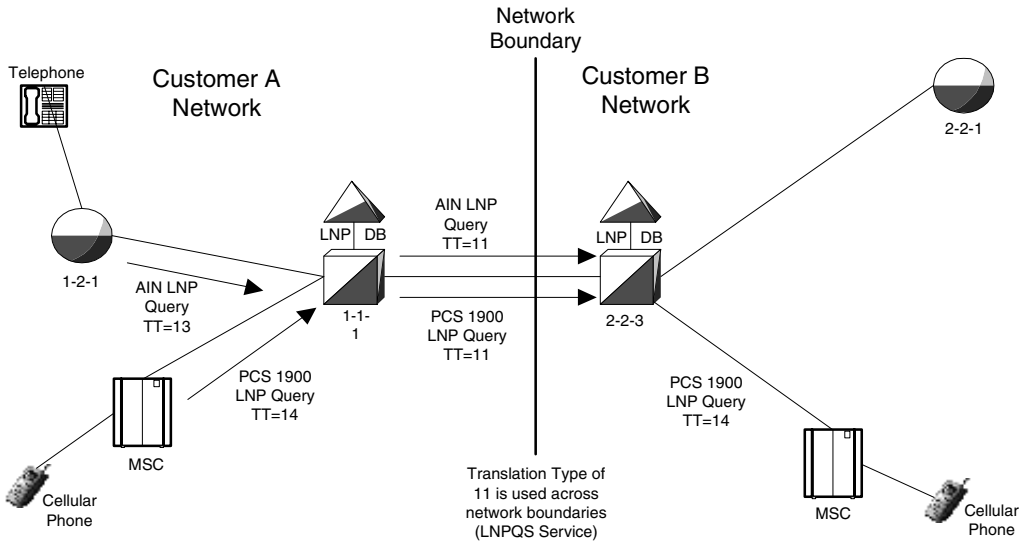
Figure 3-2. Message Flow For Global Title and Message Relay (Sheet 6 of 6)



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 3-3.

Figure 3-3. 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.

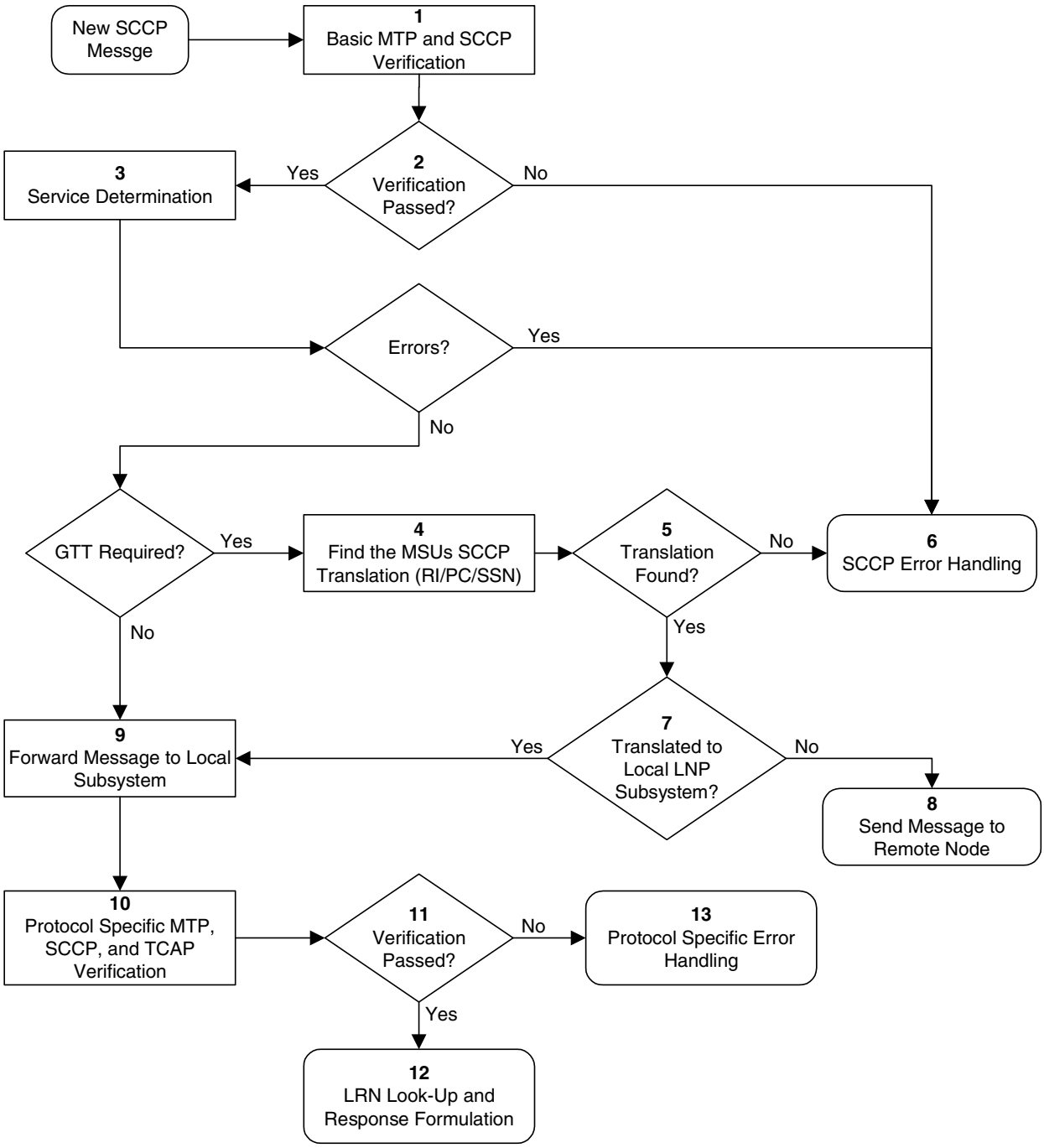
With the TT Independence for LNP Queries feature, the LNP subsystem will be able to determine the protocol of the query based on other fields in the SS7 message, rather than relying on the TT value. This allows the same translation type to be used for multiple protocols, and allows a query between two 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 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 3-4 on page 3-23

Figure 3-4. LNP Query Processing



In previous releases, the LNP service (step 3 in Figure 3-4) was determined by the translation type contained in the query.

When an LNP query arrives at the Eagle with the LNPQS service translation type, the Eagle 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 3-5 shows the OPCODE values for the query types.

Table 3-5. 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 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 containing the specific PCS translation type, the query is treated as a PCS query. Figure 3-5 on page 3-25 shows the LNP service determination process for queries containing the LNPQS translation type.

Figure 3-5. LNP Service Determination Process (Sheet 1 of 3)

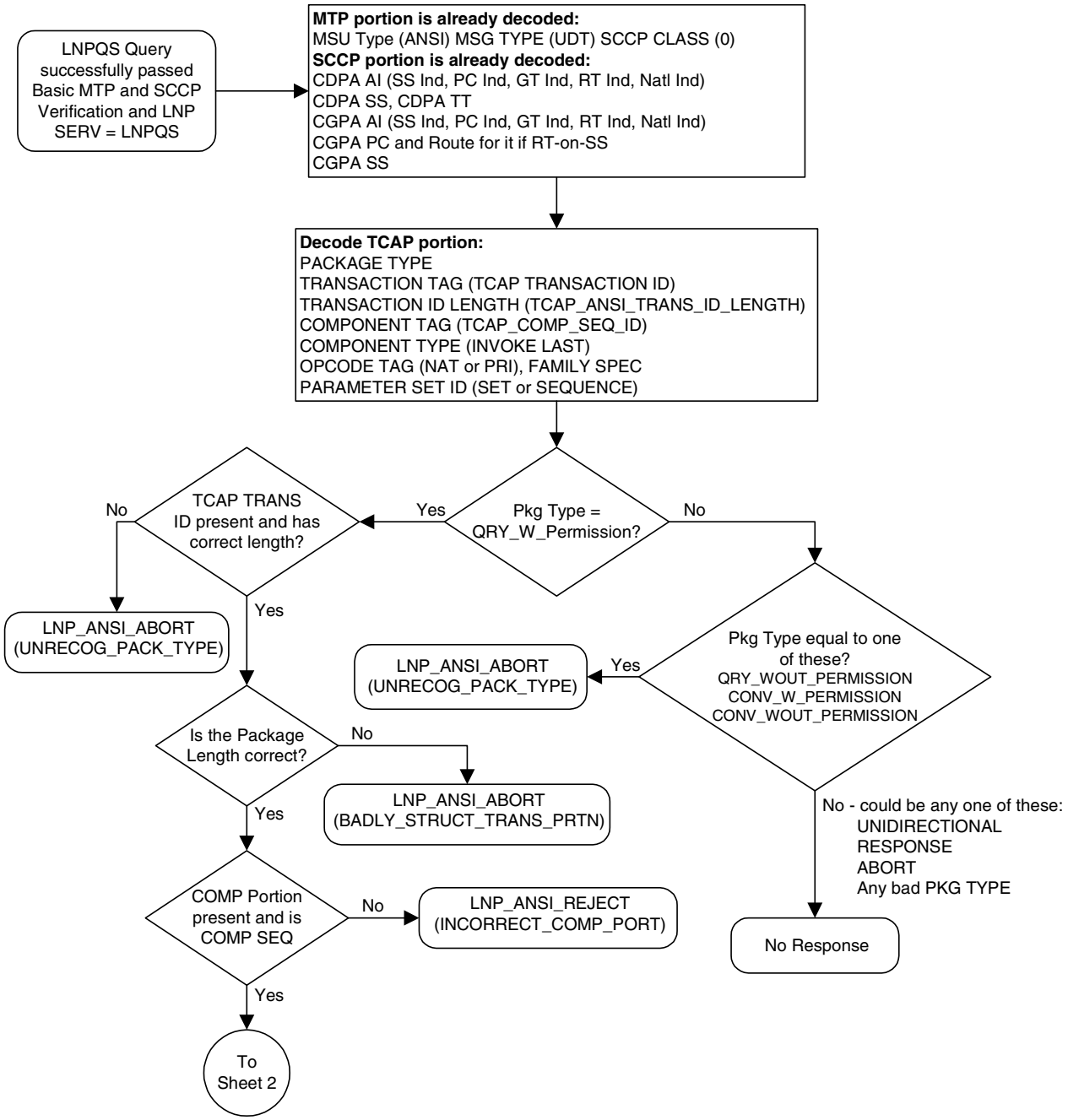


Figure 3-5. LNP Service Determination Process (Sheet 2 of 3)

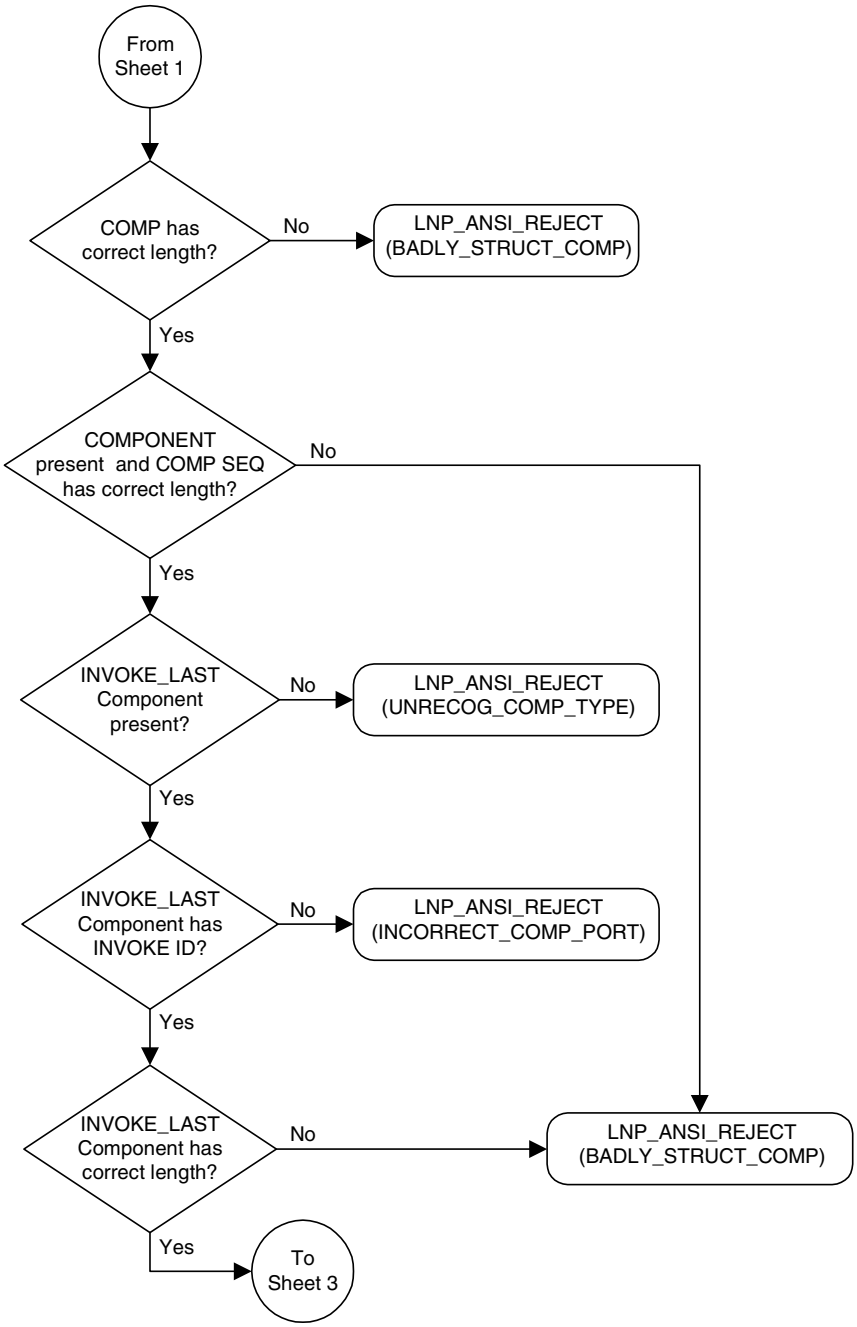
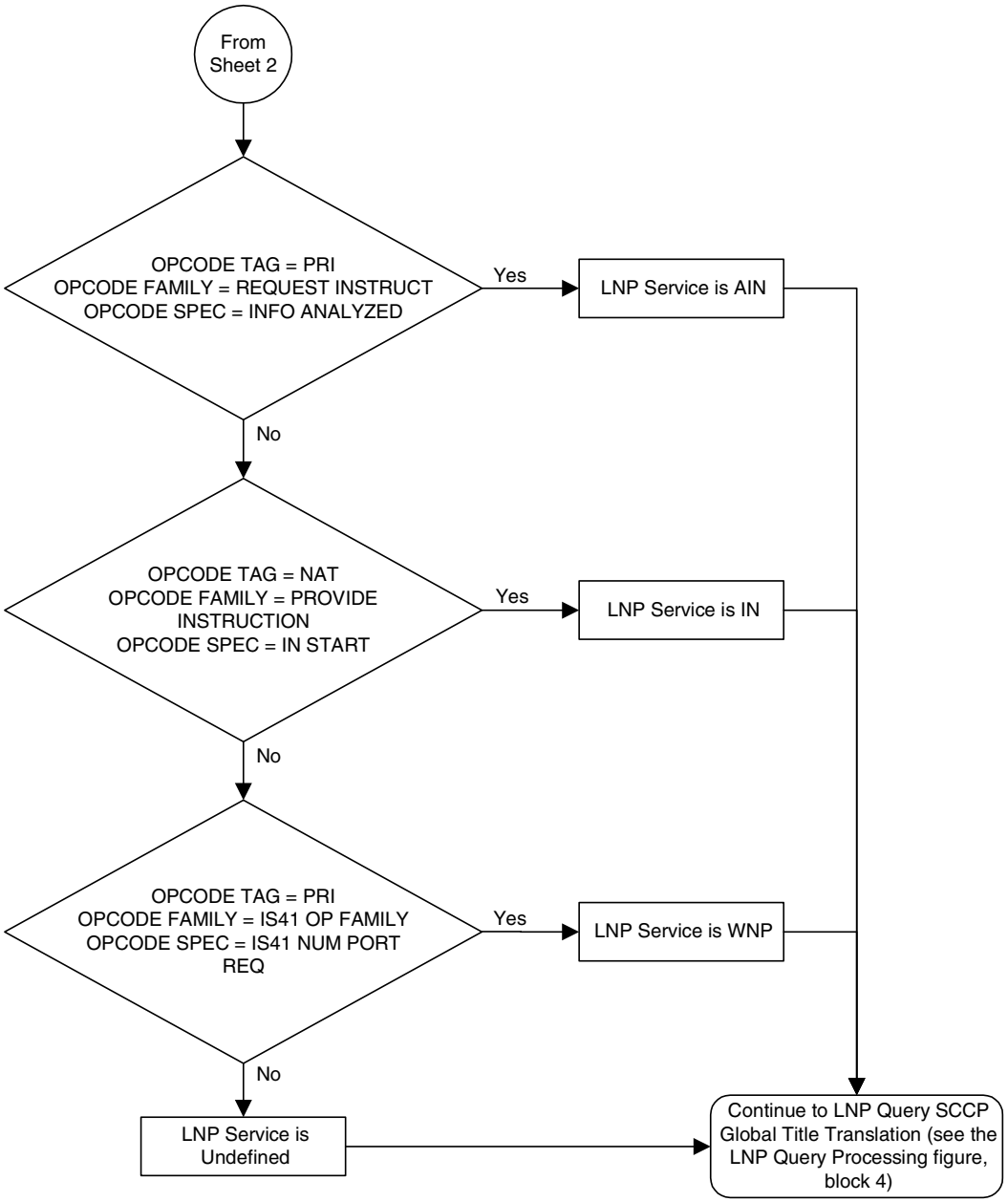


Figure 3-5. LNP Service Determination Process (Sheet 3 of 3)



Limitations

PCS queries containing the LNPQS translation type are processed as IN queries. Thus, erroneous PCS queries containing the LNPQS translation type are shown in the **rept-stat-lnp** output in the **LNPQS** field, not the **PLNPQS** field.

The LNPQS translation type cannot be specified with the **ent-lnp-npanxx**, **chg-lnp-npanxx**, **ent-lnp-lrn**, **chg-lnp-lrn**, **ent-lnp-sub**, and **chg-lnp-sub** commands.

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. 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 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.

Make sure that the system meets the requirements shown in the "LNP System Requirements" section on page 3-5. If the system does not meet these requirements, the LNP commands will be rejected.

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).

If the LNP services CLASS, CNAM, LIDB, or ISVM are specified by the **serv** parameter of the **ent-lnp-serv** command, and the Eagle currently uses the OAP for the LNP feature, used only if the LNP is enabled for 2 to 12 million numbers (the ELAP Configuration feature must be disabled), go to the "Configuring the OAP from the Eagle" procedure in the *Database Administration Manual - System Management* to update the OAP configuration.

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. Other LNP commands, such as **ent-lnp-sub**, can only use the true translation type value in the database. 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, go to the *LNP Feature Activation Guide* 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 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. Go to the "Changing an LNP Service" procedure on page 3-48 to change the translation type of the existing service. See the LNP Query Service (LNPQS) Details section on page 3-22 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 3-6.

Table 3-6. 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 05-03-30 21:15:37 GMT EAGLE5 32.0.0
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

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, go to either the "Enabling the LNP Feature for 2 to 12 Million Numbers" procedure on page 2-16, or the procedures in the *LNP Feature Activation Guide* (for LNP telephone quantities of 24 to 96 million numbers) and 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 05-03-28 14:42:38 GMT EAGLE5 32.0.0
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 05-03-10 11:43:04 GMT EAGLE5 32.0.0
   CHG-FEAT: MASP A - COMPLTD
   ```

---

5. Turn the PCS 1900 number portability feature on with the **chg-feat** command. For this example, enter this command.

   chg-feat:plnp=on

   NOTE: Once the PCS 1900 number portability feature is turned on with the chg-feat command, it cannot be turned off.

   The PCS 1900 number portability feature must be purchased before you turn the feature on with the chg-feat command. If you are not sure if you have purchased the PCS 1900 number portability feature, contact your Tekelec Sales Representative or Account Representative.

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

```
rlghncxa03w 05-03-10 11:43:04 GMT EAGLE5 32.0.0
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, go to the *LNP Feature Activation Guide* to enable and turn the LNP SMS feature on. Skip step 7 and go to step 8.

NOTE: If you are not assiging 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, go to the "Changing an LNP Service" procedure on page 3-48 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
```

If the Eagle currently uses the OAP for the LNP feature, used only if the LNP is enabled for 2 to 12 million numbers (the ELAP Configuration feature must be disabled), go to the "Configuring the OAP from the Eagle" procedure in the *Database Administration Manual - System Management* to update the OAP configuration.

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

```
rlghncxa03w 05-03-28 14:42:38 GMT EAGLE5 32.0.0
ENT-LNP-SERV: MASP A - COMPLTD
```

9. Verify the changes with the **rtrv-lnp-serv** command. This is an example of the possible output.

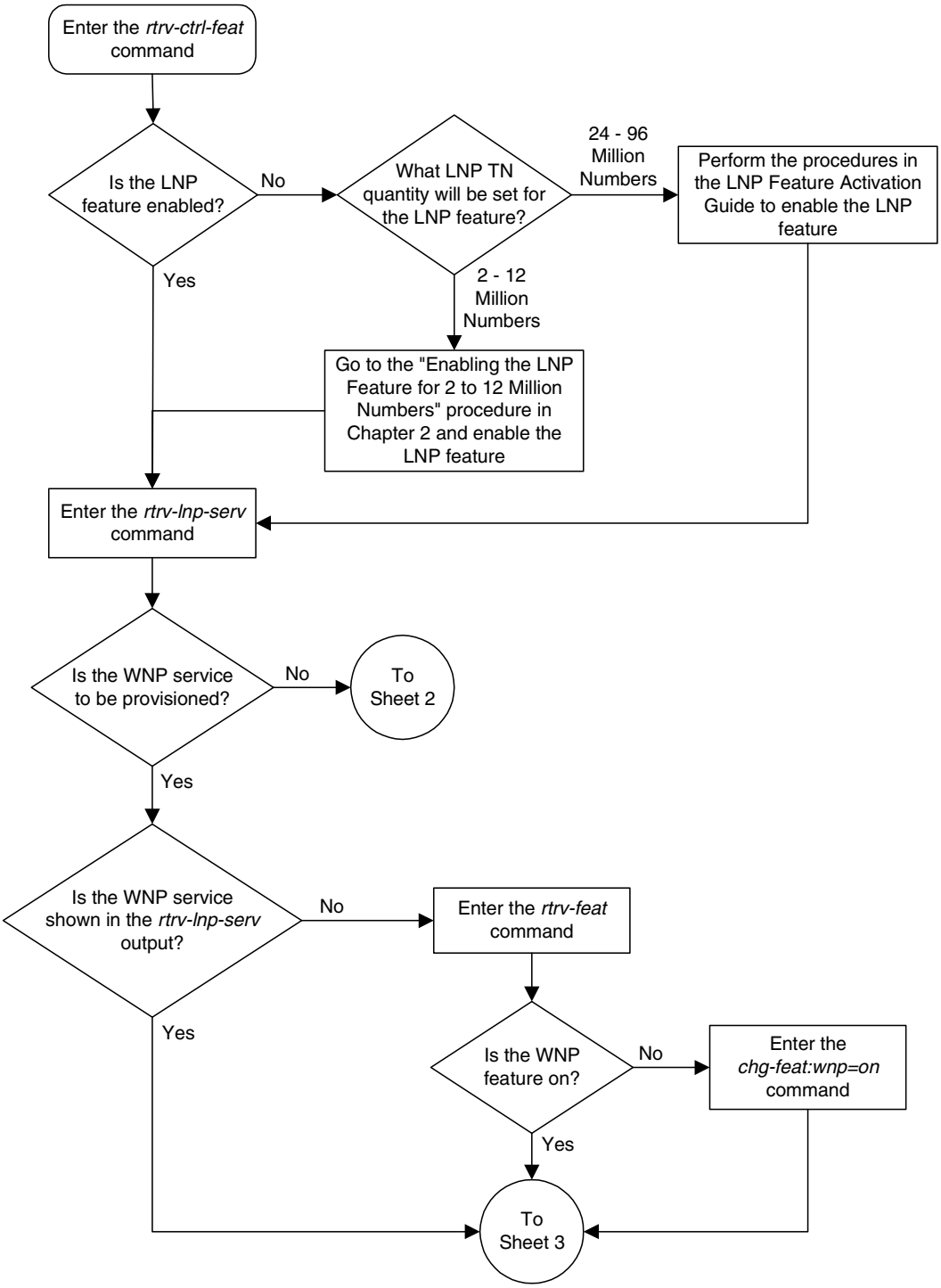
```
rlghncxa03w 05-03-28 14:42:38 GMT EAGLE5 32.0.0
SERV       TT    TTN        DV      ALIAS
AIN        15    AINGTE     TCAP    235
                                     236
                                     240
IN         30    INGTE      TCAP    150
                                     175
LIDB       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.

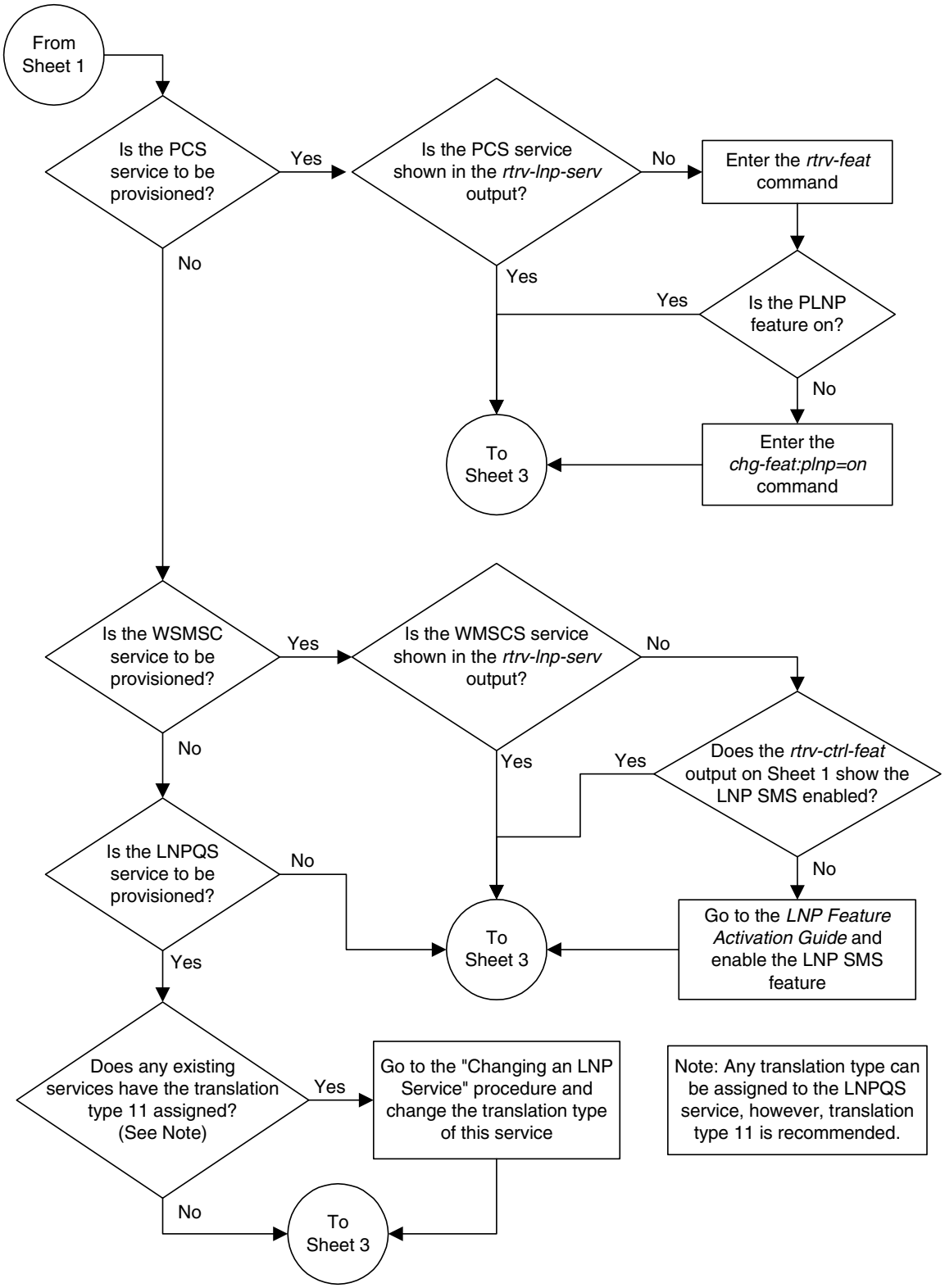
```
BACKUP (FIXED): MASP A - Backup starts on active MASP.
BACKUP (FIXED): MASP A - Backup on active MASP to fixed disk complete.
BACKUP (FIXED): MASP A - Backup starts on standby MASP.
BACKUP (FIXED): MASP A - Backup on standby MASP to fixed disk complete.
```

Flowchart 3-1. Adding an LNP Service (Sheet 1 of 3)

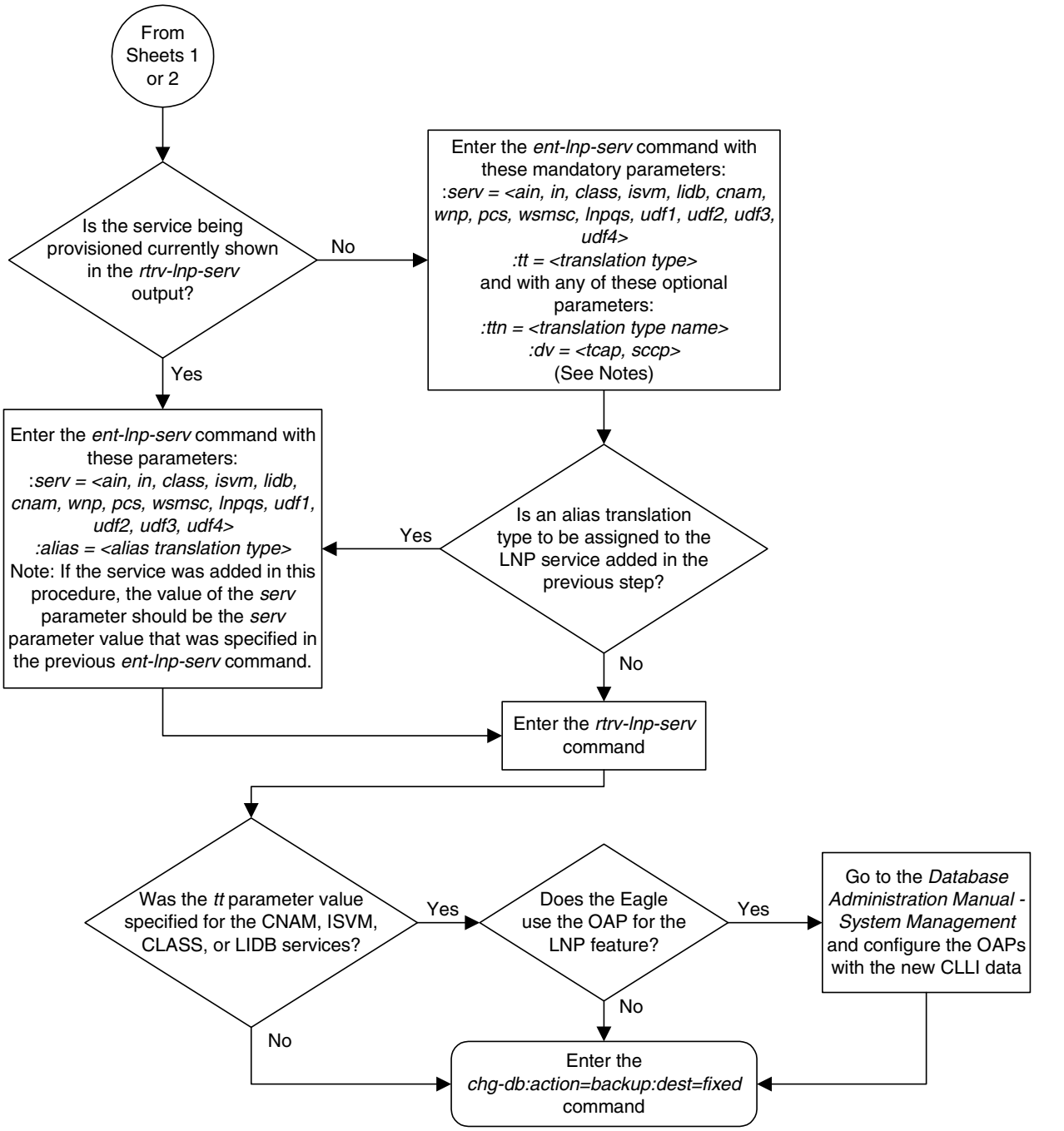
NOTE: Before executing this procedure, make sure you have purchased the LNP, wireless number portability, PCS 1900 number portability, or LNP SMS features. If you are not sure if you have purchased the LNP, wireless number portability, PCS 1900 number portability, or LNP SMS features, contact your Tekelec Sales Representative or Account Representative.



Flowchart 3-1. Adding an LNP Service (Sheet 2 of 3)



Flowchart 3-1. Adding an LNP Service (Sheet 3 of 3)



Notes:

1. The *dv* parameter value *tcap* must be specified for these services: *ain*, *in*, *wnp*, *pcs*, or *lnpqs*. The default value of the *dv* parameter for these services is *tcap*.

2. The *dv* parameter value *sccp* must be specified for the user-defined services, *udf1*, *udf2*, *udf3*, or *udf4*. The default value of the *dv* parameter for these services, *cnam*, *isvm*, *lidb*, *class*, *wsmsc*, and the user-defined services is *sccp*.

3. If the *ttn* parameter is not specified, the translation type name is set to the *serv* parameter value. The translation type name must be unique in the database. If the *ttn* value is to be an LNP service name, the *ttn* value must be the same as the *serv* parameter value.

4. Any translation type can be assigned to the LNPQS service, however, translation type 11 is recommended.

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

Make sure that the system meets the requirements shown in the "LNP System Requirements" section on page 3-5. If the system does not meet these requirements, the LNP commands will be rejected.

The LNP service specified by the **serv** parameter must be in the database and must not be referenced in the database. This can be verified with the **rtrv-lnp-npanxx**, **rtrv-lnp-lrn**, **rtrv-lnp-sub** commands. If any of these commands show references to the LNP service being removed, go to one of these procedures and remove the reference to the LNP service.

- "Removing an LNP NPANXX" procedure on page 3-95
- "Removing an LNP Location Routing Number" procedure on page 3-125
- "Removing an LNP Telephone Number Subscription" procedure on page 3-149

  NOTE: If the LNP feature is enabled for quantities greater than 12 million numbers, the procedures in this bullet list cannot be performed on the Eagle. This data must be removed at the ELAP. See the *ELAP Administration Manual* for more information about removing this data.

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.

If the LNP services CLASS, CNAM, LIDB, or ISVM are specified by the **serv** parameter of the **dlt-lnp-serv** command, and the Eagle currently uses the OAP for the LNP feature, used only if the LNP is enabled for 2 to 12 million numbers (the ELAP Configuration feature must be disabled), go to the "Configuring the OAP from the Eagle" procedure in the *Database Administration Manual - System Management* to update the OAP configuration.

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 05-03-28 14:42:38 GMT EAGLE5 32.0.0
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. Display the NPANXXs in the database using the **rtrv-lnp-npanxx** command.

NOTE: Because of the large number of NPANXX entries that can be in the database, the rtrv-lnp-npanxx command contains these parameters, num and force. The num parameter specifies the number of entries to display. The force parameter specifies whether more than 50 entries are displayed. This prevents trying to display extremely large amounts of entries which could take hours.

The following is an example of the possible output.

```
rlghncxa03w 05-03-28 14:42:38 GMT EAGLE5 32.0.0
NPANXX  MR   LRN  TT   XLAT    RI   PCA          SSN  NGT
423743  yes  yes  15   DPC     GT   100-100-110  0    ---
                  20   DPCNGT  GT   001-001-002  0    30
                  201  DPCSSN  SSN  200-150-007  254  ---

909335  yes  yes  16   DPC     GT   001-001-001  0    ---
                  18   DPCNGT  GT   002-002-002  0    10
                  19   DPCSSN  SSN  002-002-004  20   ---
                  100  DPC     GT   007-007-007  0    ---

909336  yes  yes  16   DPC     GT   001-001-001  0    ---
                  201  DPCSSN  SSN  200-150-007  254  ---

919460  yes  yes  10   DPCSSN  SSN  003-003-005  254  ---
                  25   DPC     GT   010-010-010  0    ---
                  30   DPCNGT  GT   150-175-000  0    150
NPANXX TABLE IS 1% FULL
```

If any NPANXXs use the translation type being removed in this procedure, these NPANXXs must be removed from the database. Go to the "Removing an LNP NPANXX" procedure on page 3-95 to remove these NPANXXs.

3. Display the LRNs in the database using the **rtrv-lnp-lrn** command.

   NOTE: Because of the large number of LRN entries that can be in the database, the rtrv-lnp-lrn command contains these parameters, num and force. The num parameter specifies the maximum number of entries to display. The force parameter specifies whether more than 50 entries are displayed. This prevents trying to display extremely large amounts of entries which could take hours.

   This is an example of the possible output.

```
rlghncxa03w 05-03-28 14:23:37 GMT EAGLE5 32.0.0
LRN         SP    TT   XLAT    RI   PCA          SSN  NGT  RGTA
9093350000  12ab  16   DPCSSN  SSN  001-001-001  20   ---  yes
                  18   DPCSSN  SSN  002-002-002  30   ---  yes
                  19   DPCSSN  SSN  002-002-004  20   ---  yes
                  30   DPC     GT   101-101-101  ---  ---  yes

9093350099  50hi  15   DPCSSN  SSN  003-003-003  254  ---  yes
                  25   DPCNGT  GT   200-150-175  ---  100  yes
9093360000  12bb  20   DPCSSN  SSN  006-006-006  250  ---  yes
                  125  DPCNGT  GT   020-020-020  ---  110  yes
9105840000  99zy  50   DPCSSN  SSN  005-005-005  250  ---  yes
                  175  DPC     GT   010-101-010  ---  ---  yes
9193370000  67mi  30   DPCSSN  SSN  004-004-004  254  ---  yes
                  201  DPCNGT  GT   135-145-155  ---  75   yes

LRN TABLE IS 1% FULL
```

   If any LRNs use the translation type being removed in this procedure, these LRNs must be removed from the database. Go to the "Removing an LNP Location Routing Number" procedure on page 3-125 to remove these LRNs.

---

4. Display the 10-digit telephone number subscriptions in the database using the **rtrv-lnp-sub** command, specifying a range of telephone numbers with the **tn** and **etn** parameters), the translation type assigned to the LNP service being removed (with the **tt** parameter), and the **num** parameter. If the **num** parameter value is greater than 50, the **force=yes** parameter must be specified. The range of values for the **num** parameter is 1 to 10,000. If the **num=100** and **force=yes** parameters are specified with the **rtrv-lnp-sub** command, up to 100 entries in the specified range of 10-digit telephone numbers that contain the specified translation type are displayed.

   NOTE: The range of 10-digit telephone numbers cannot cross an NPANXX boundary. For example, specifying the tn=9194600000 and the etn=9194619999 parameters is not allowed. Using this example, specifying the tn=9194600000 and the etn=9194609999, or the tn=9194610000 and the etn=9194619999 parameters are allowed.

   For this example, enter this command.

```
rtrv-lnp-sub:tn=312000000:etn=3129999999:tt=100:num=100
:force=yes
```

This is an example of the possible output.

```
rlghncxa03w 05-03-28 14:42:38 GMT EAGLE5 32.0.0
TN          SP    LRN         PTYPE
3125841***  ba90  9105840000  POOL

  TT   XLAT    RI   PCA          SSN  NGT  RGTA
  100  DPCSSN   SSN 005-005-005  250  ---  yes

Service provider table is 1% full
LRN table is  1% full
MESSAGE relay table is  1% full
NPANXX table is  1% full
PORTED TN table is  1% full
SCCP cards configured to support a maximum of  500000 ported TNs
```

If any 10-digit telephone number subscriptions use the translation type being removed in this procedure, these 10-digit telephone number subscriptions must be removed from the database. Go to the "Removing an LNP Telephone Number Subscription" procedure on page 3-149 to remove these 10-digit telephone number subscriptions.

Repeat step 4 until all 10-digit telephone numbers have been displayed.

---

5. 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
   ```

   If the Eagle currently uses the OAP for the LNP feature, used only if the LNP is enabled for 2 to 12 million numbers (the ELAP Configuration feature must be disabled), go to the "Configuring the OAP from the Eagle" procedure in the *Database Administration Manual - System Management* to update the OAP configuration.

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

   ```
   rlghncxa03w 05-03-28 14:42:38 GMT EAGLE5 32.0.0
   DLT-LNP-SERV: MASP A - COMPLTD
   ```

---

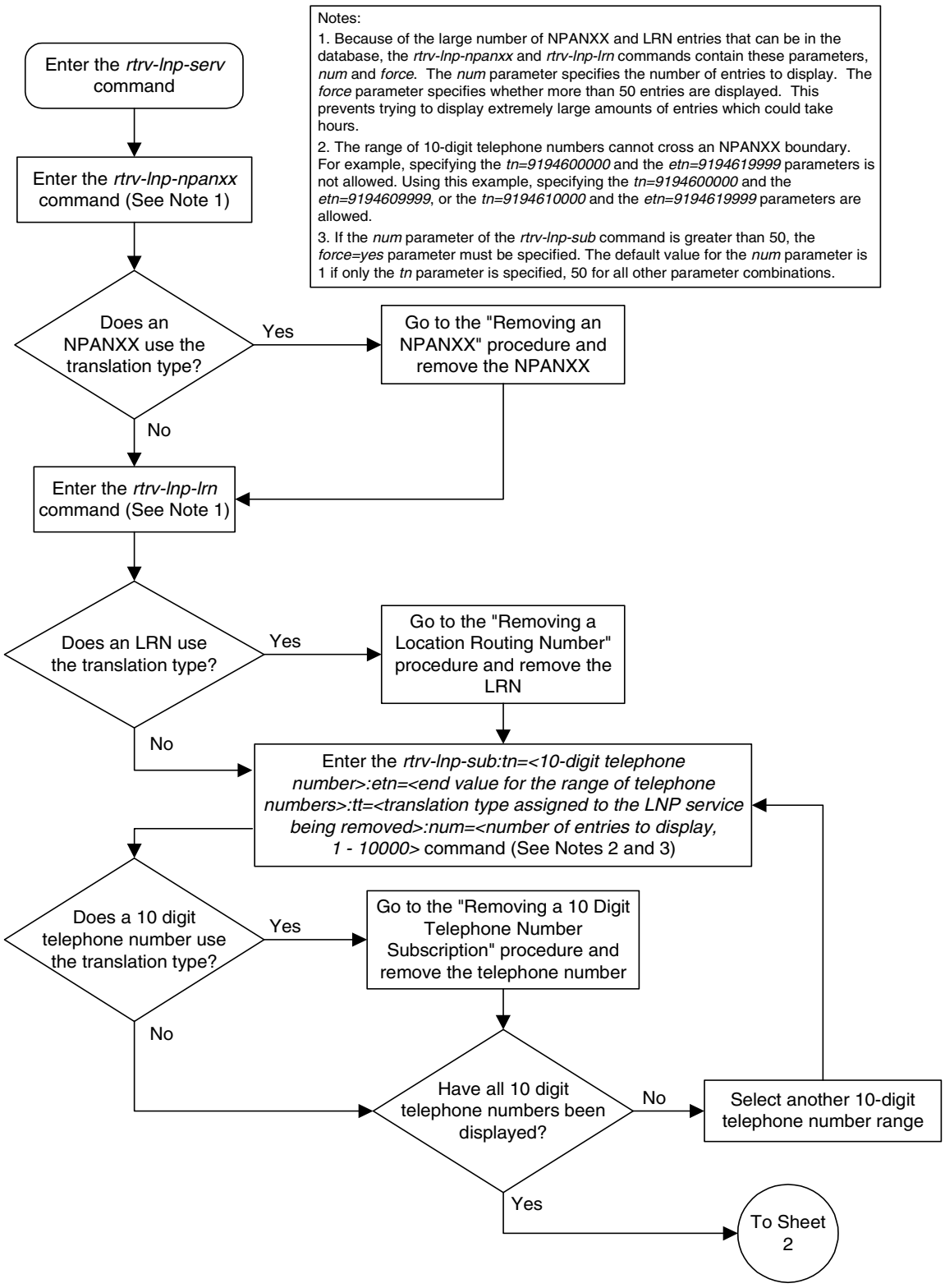
6. Verify the changes with the **rtrv-lnp-serv** command. This is an example of the possible output.

```
rlghncxa03w 05-03-28 14:42:38 GMT EAGLE5 32.0.0
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
```

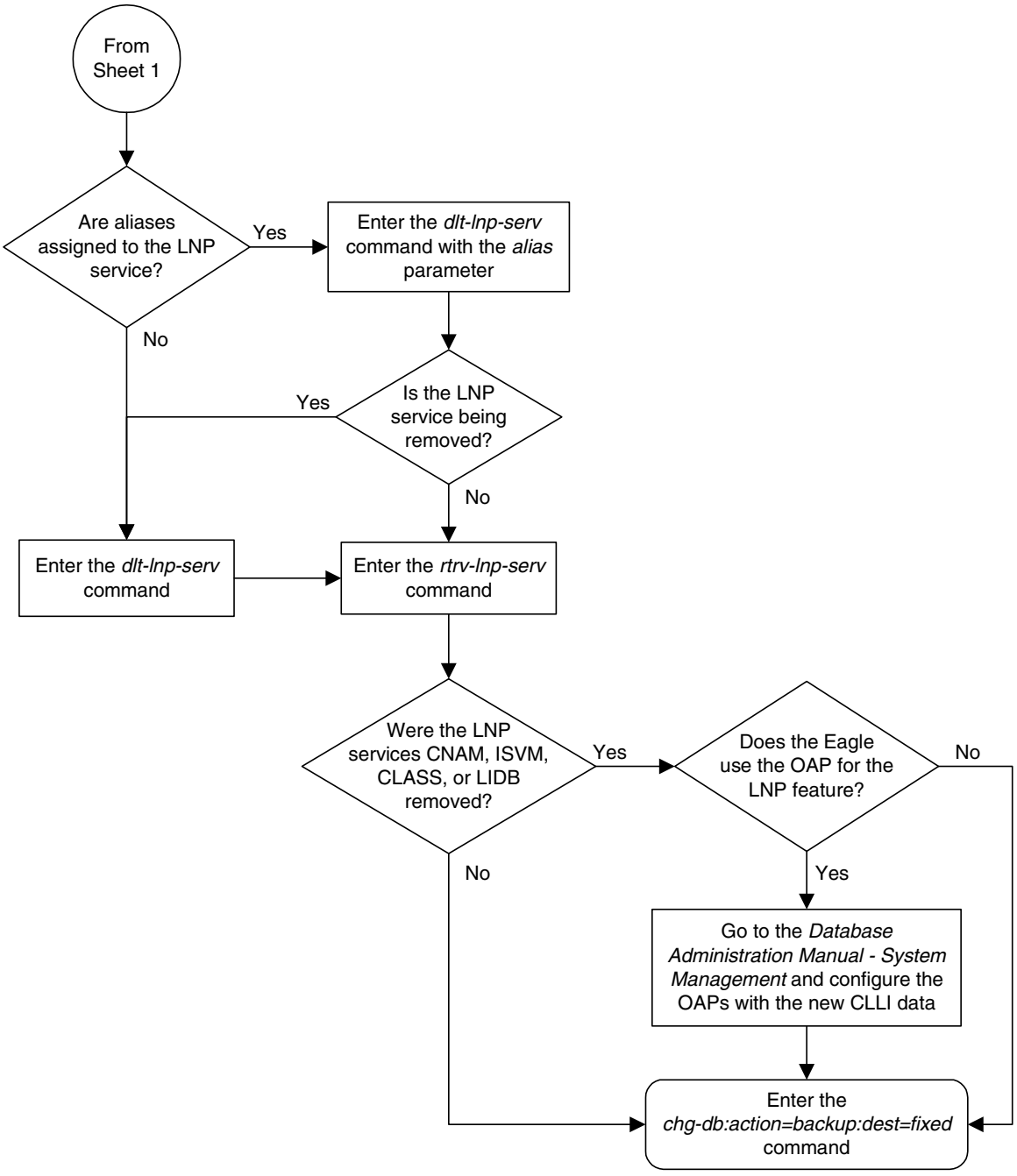
7. Backup the new changes using the **chg-db:action=backup:dest=fixed** command. The following messages should appear, the active Maintenance and Administration Subsystem Processor (MASP) appears first.

```
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.
```

Flowchart 3-2. Removing an LNP Service (Sheet 1 of 2)



Flowchart 3-2. Removing an LNP Service (Sheet 2 of 2)



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

Make sure that the system meets the requirements shown in the "LNP System Requirements" section on page 3-5. If the system does not meet these requirements, the LNP commands will be rejected.

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.

If the LNP services CLASS, CNAM, LIDB, or ISVM are specified by the **serv** parameter of the **chg-lnp-serv** command, and the Eagle currently uses the OAP for the LNP feature, used only if the LNP is enabled for 2 to 12 million numbers (the ELAP Configuration feature must be disabled), go to the "Configuring the OAP from the Eagle" procedure in the *Database Administration Manual - System Management* to update the OAP configuration.

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 3-7.

Table 3-7. 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 05-03-28 14:42:38 GMT EAGLE5 32.0.0
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 05-03-28 14:42:38 GMT EAGLE5 32.0.0
   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 05-03-10 11:43:04 GMT EAGLE5 32.0.0
   CHG-FEAT: MASP A - COMPLTD
   ```

5. Turn the PCS 1900 number portability feature on with the **chg-feat** command. For this example, enter this command.

   chg-feat:plnp=on

   NOTE: Once the PCS 1900 number portability feature is turned on with the chg-feat command, it cannot be turned off.

   The PCS 1900 number portability feature must be purchased before you turn the feature on with the chg-feat command. If you are not sure if you have purchased the PCS 1900 number portability feature, contact your Tekelec Sales Representative or Account Representative.

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

   ```
   rlghncxa03w 05-03-10 11:43:04 GMT EAGLE5 32.0.0
   CHG-FEAT: MASP A - COMPLTD
   ```

NOTE: If the LNP service name (serv parameter value) is being changed to a service name other than WSMSC, skip step 6 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, go to the *LNP Feature Activation Guide* 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
```

If the Eagle currently uses the OAP for the LNP feature, used only if the LNP is enabled for 2 to 12 million numbers (the ELAP Configuration feature must be disabled), when this procedure is finished, go to the "Configuring the OAP from the Eagle" procedure in the *Database Administration Manual - System Management* to update the OAP configuration.

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

```
rlghncxa03w 05-03-28 14:42:38 GMT EAGLE5 32.0.0
CHG-LNP-SERV: MASP A - COMPLTD
```

8. Verify the changes with the **rtrv-lnp-serv** command. This is an example of the possible output.

```
rlghncxa03w 05-03-28 14:42:38 GMT EAGLE5 32.0.0
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
```

If the Eagle currently uses the OAP for the LNP feature, used only if the LNP is enabled for 2 to 12 million numbers (the ELAP Configuration feature must be disabled), when this procedure is finished, go to the "Configuring the OAP from the Eagle" procedure in the *Database Administration Manual - System Management* to update the OAP configuration.

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

```
rlghncxa03w 05-03-28 14:42:38 GMT EAGLE5 32.0.0
ENT-LNP-SERV: MASP A - COMPLTD
```

10. Verify the changes with the **rtrv-lnp-serv** command. This is an example of the possible output.

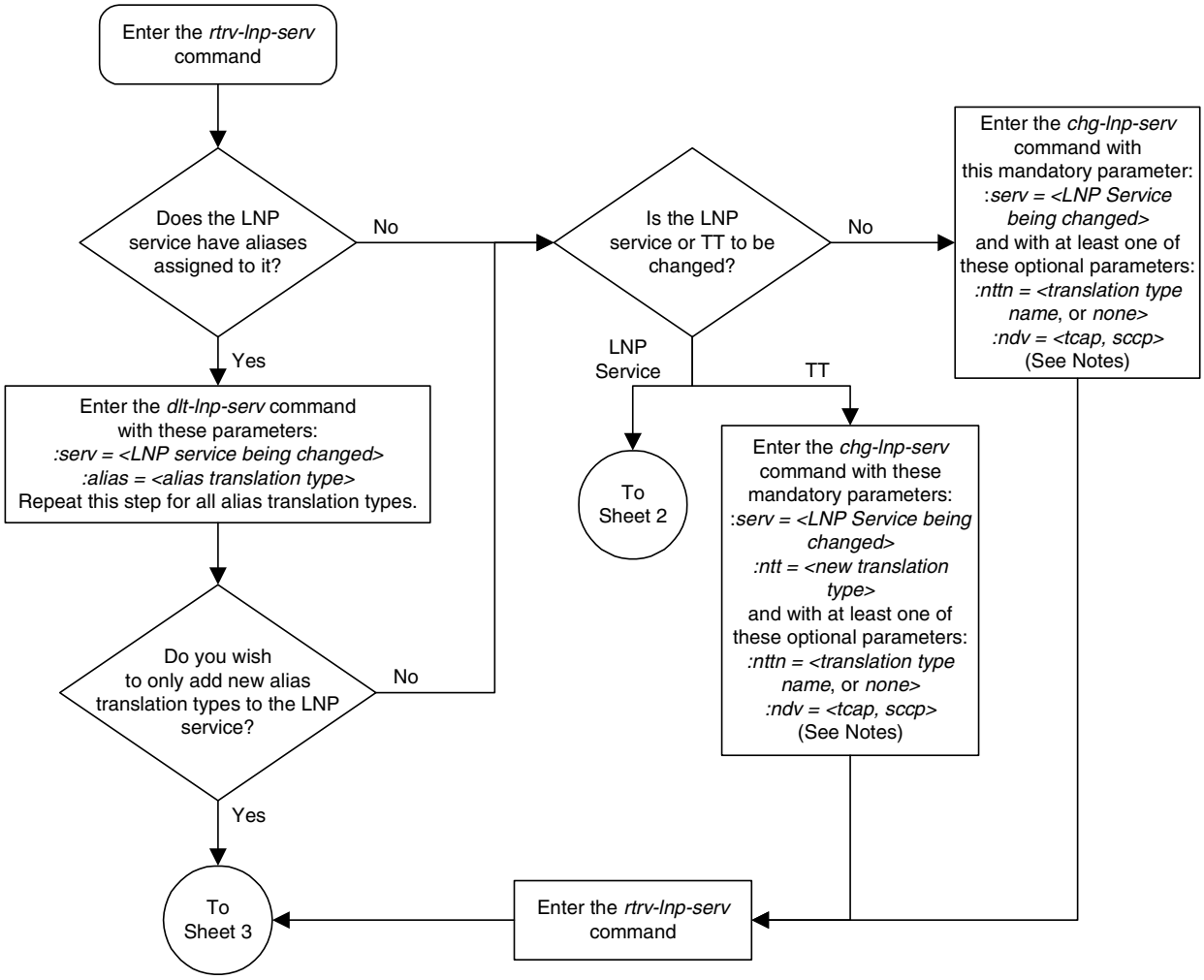
```
rlghncxa03w 05-03-28 14:42:38 GMT EAGLE5 32.0.0
SERV       TT    TTN        DV      ALIAS
AIN        55    AINGTE     TCAP    235
                                     236
                                     240
IN         30    INGTE      TCAP    150
                                     175
LIDB       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.
```

Flowchart 3-3. Changing an LNP Service (Sheet 1 of 3)

NOTE: Before executing this procedure, make sure you have purchased the wireless number portability, PCS 1900 number portability, or LNP SMS features. If you are not sure if you have purchased the LNP, wireless number portability, PCS 1900 number portability, or LNP SMS features, contact your Tekelec Sales Representative or Account Representative.



Notes:

1. The *dv* parameter value *tcap* must be specified for these services: *ain*, *in*, *wnp*, *pcs*, or *lnpqs.*

2. The *dv* parameter value *sccp* must be specified for the user-defined services *udf1*, *udf2*, *udf3*, or *udf4*, or the *wsmsc* service.

3. The translation type name must be unique in the database. If the new translation type name value is to be an LNP service name, the *nttn* value must be the same as the *serv* parameter value.

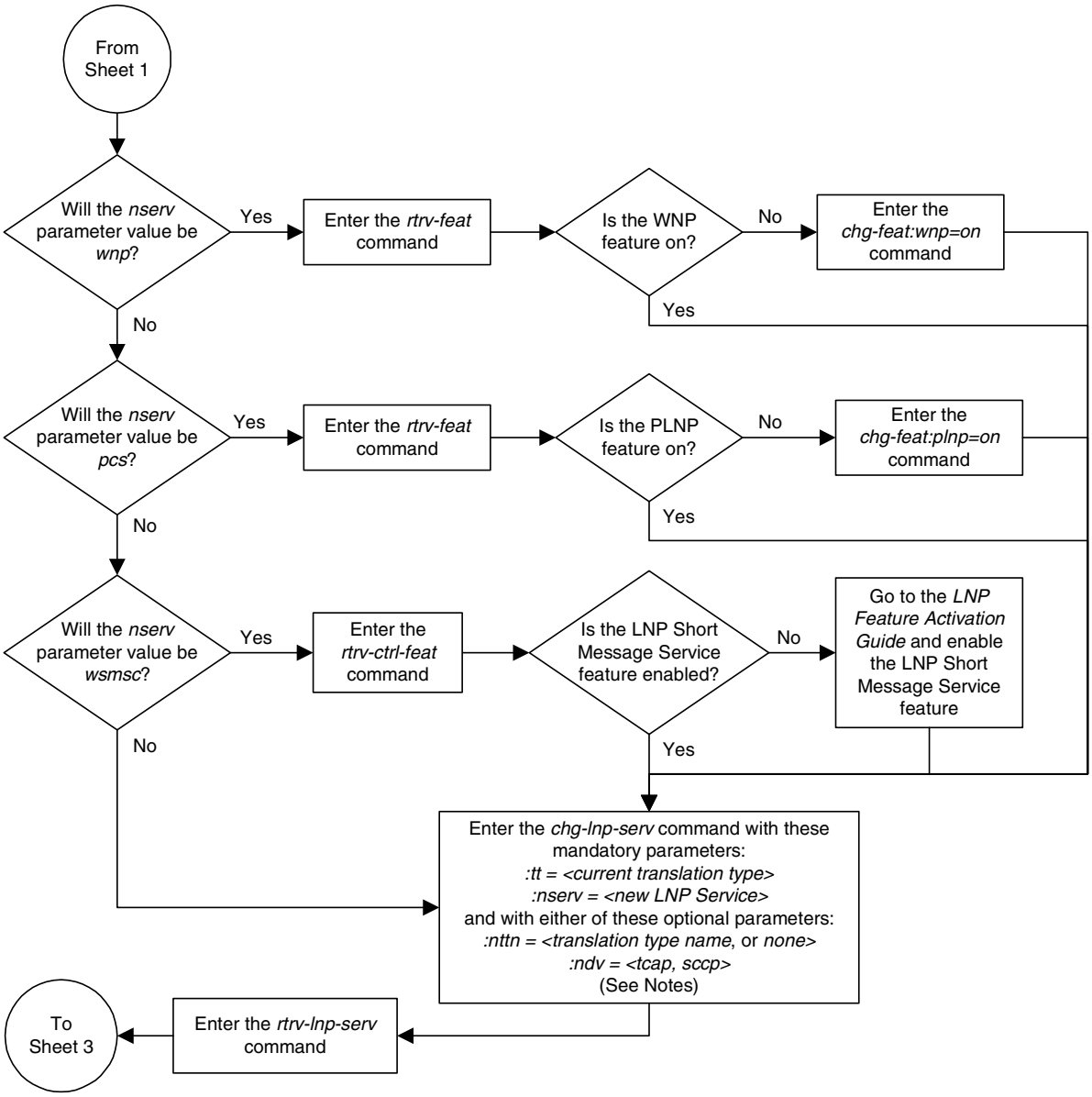
4. Any translation type can be assigned to the LNPQS service, however, translation type 11 is recommended. If you are changing the translation type of another service, and the LNPQS service is provisioned in the database, select a translation type other than 11.

5. 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*.

6. The *nttn=none* parameter sets the translation type name value to the service type name.

7. The new translation type (*ntt*) cannot be in the database as a true translation type or an alias translation type.

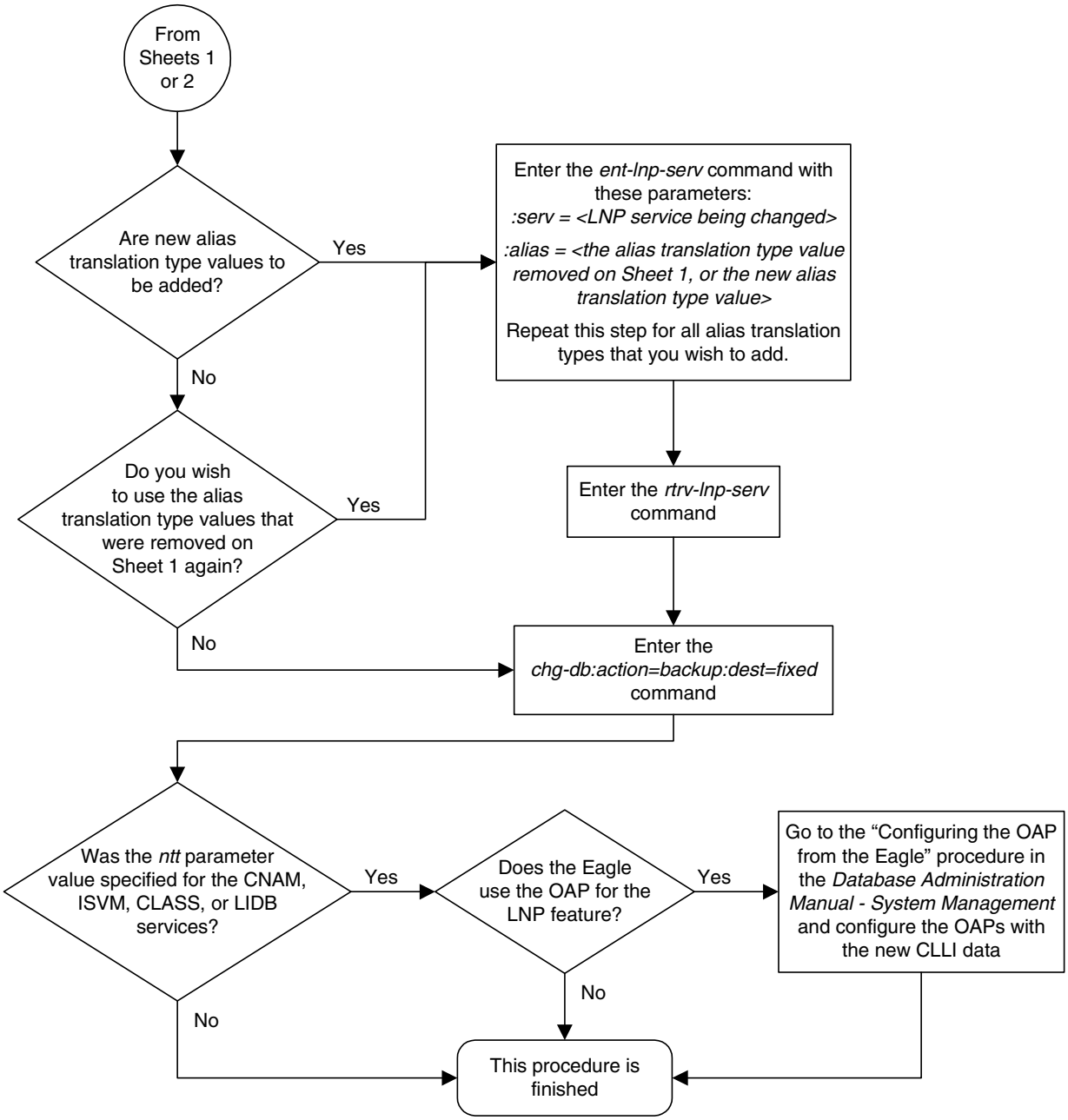
Flowchart 3-3. Changing an LNP Service (Sheet 2 of 3)



Notes:

1. The LNP services are: *ain*, *in*, *class*, *isvm*, *lidb*, *cnam*, *wnp*, *pcs*, *wsmsc*, *lnpqs*, *udf1*, *udf2*, *udf3*, and *udf4*.
2. The new LNP service name (*nserv* parameter value) cannot be shown in the *rtrv-lnp-serv* output.
3. The *dv* parameter value *tcap* must be specified for these services: *ain*, *in*, *wnp*, *pcs*, or *lnpqs*.
4. The *dv* parameter value *sccp* must be specified for the user-defined services *udf1*, *udf2*, *udf3*, or *udf4*, or the *wsmsc* service.
5. The translation type name must be unique in the database. If the new translation type name value is to be an LNP service name, the *nttn* value must be the same as the *serv* parameter value.
6. 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*.
7. The *nttn=none* parameter sets the translation type name value to the service type name.

Flowchart 3-3. Changing an LNP Service (Sheet 3 of 3)



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, go to either the "Enabling the LNP Feature for 2 to 12 Million Numbers" procedure on page 2-16 (for LNP telephone number quantities of 2 to 12 million numbers), or the procedures in the *LNP Feature Activation Guide* (for LNP telephone number quantities of 24 to 96 million numbers) and enable the LNP feature.

Make sure that the system meets the requirements shown in the "LNP System Requirements" section on page 3-5. If the system does not meet these requirements, the LNP commands will be rejected.

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's true point code and the subsystem number must be in the mated application table. The Eagle'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'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's true point code and the subsystem number are not shown in the **rtrv-map** command output, go to the "Adding a Mated Application" procedure in the *Database Administration Manual – Global Title Translation* and add the Eagle'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 05-03-30 21:15:37 GMT EAGLE5 32.0.0
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

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, go to either the "Enabling the LNP Feature for 2 to 12 Million Numbers" procedure on page 2-16, or the procedures in the *LNP Feature Activation Guide* (for LNP telephone quantities of 24 to 96 million numbers) and 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 05-03-28 14:42:38 GMT EAGLE5 32.0.0
APPL       SSN       STAT


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

3. Display the Eagle's true point code using the **rtrv-sid** command. The Eagle'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 05-03-10 11:43:04 GMT  EAGLE5 32.0.0
PCA              PCI              PCN           CLLI             PCTYPE
100-100-100      3-75-7           7-9-8-1       rlghncxa03w      OTHER

CPCA
002-002-002       002-002-003       002-002-004      002-002-005
002-002-006       002-002-007       002-002-008      002-002-009
004-002-001       004-003-003       050-060-070

CPCA (LNP)
005-005-002       005-005-004       005-005-005      006-006-006

CPCI
1-002-1           1-002-2           1-002-3          1-002-4
2-001-1           7-222-7

CPCN
2-0-10-3          2-0-11-0          2-0-11-2         2-0-12-1
2-2-3-3           2-2-4-0           10-14-10-1
```

4. Display the mated applications using the **rtrv-map** command specifying the Eagle'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 05-03-10 09:28:10 GMT  EAGLE5 32.0.0
MAP TABLE IS   3 % FULL (33 of 1024)

PCA          SSN  RC MULT MPCA        MSSN MATERC MULT SRM MRC GRP NAME SSO
100-100-100  254  10 SOL                                --- --- -------- OFF
```

   If the Eagle's true point code and LNP subsystem number are not shown in the **rtrv-map** output, go to the "Adding a Mated Application" procedure in the *Database Administration Manual – Global Title Translation* and add the Eagle'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 05-03-28 14:42:38 GMT EAGLE5 32.0.0
ENT-SS-APPL: MASP A - COMPLTD
```

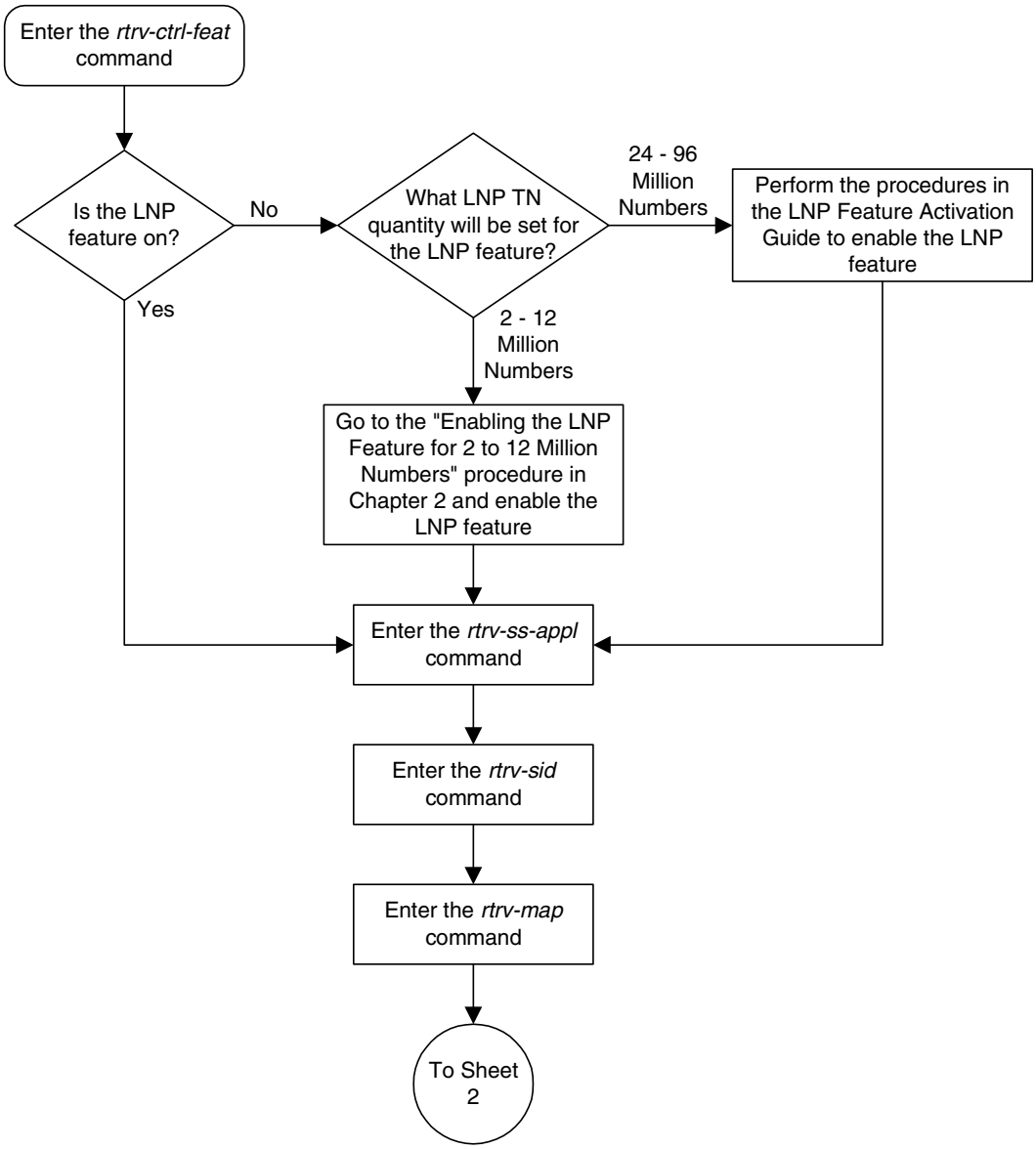
6. Verify the changes with the **rtrv-ss-appl** command. This is an example of the possible output.

```
rlghncxa03w 05-03-28 14:42:38 GMT EAGLE5 32.0.0
APPL       SSN       STAT
LNP        254       ONLINE

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

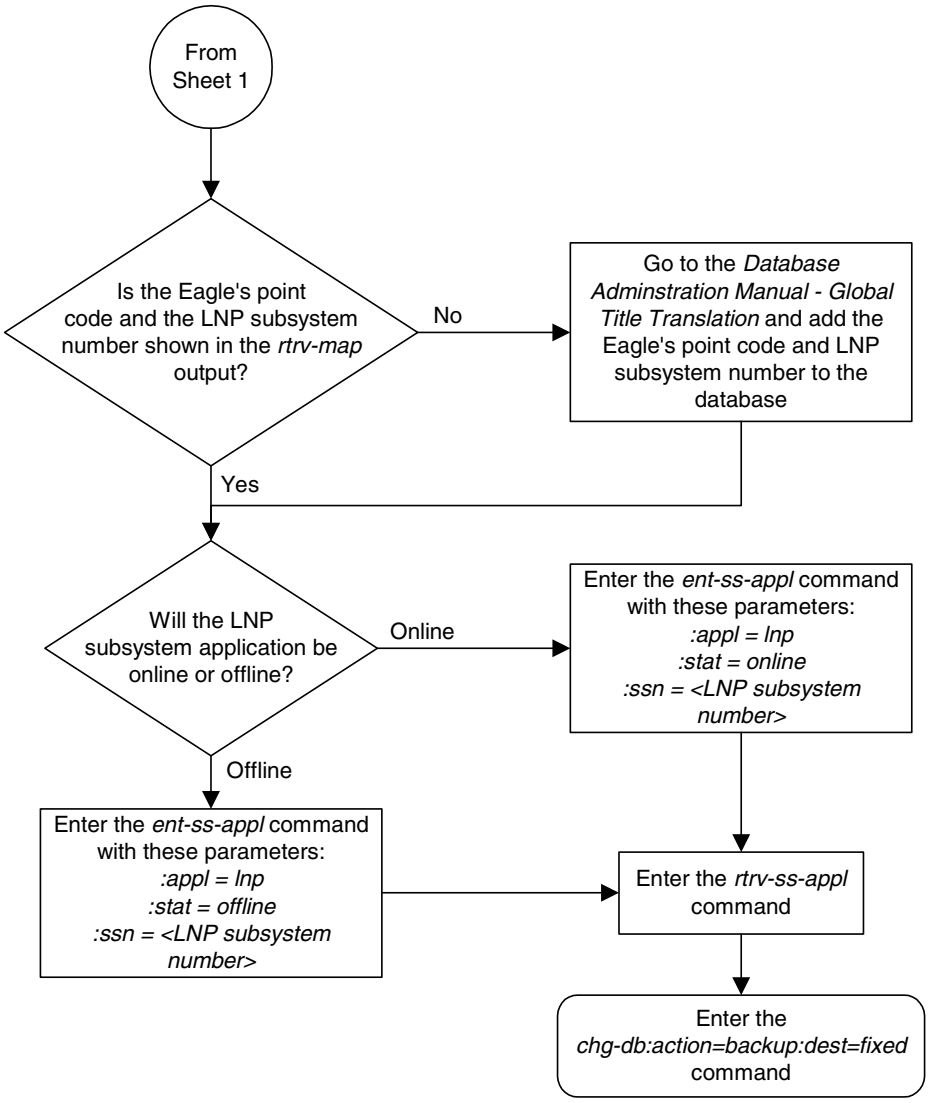
7. Backup the new changes using the **chg-db:action=backup:dest=fixed** command. The following messages should appear, the active Maintenance and Administration Subsystem Processor (MASP) appears first.

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

Flowchart 3-4. Adding a Subsystem Application (Sheet 1 of 2)



Flowchart 3-4. Adding a Subsystem Application (Sheet 2 of 2)



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 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.

Make sure that the system meets the requirements shown in the "LNP System Requirements" section on page 3-5. If the system does not meet these requirements, the LNP commands will be rejected.

Procedure

1. Display the status of the LNP subsystem with the **rept-stat-lnp** command. This is an example of the possible output.

```
rlghncxa03w 05-03-28 14:42:38 GMT EAGLE5 32.0.0
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
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 05-03-28 14:42:38 GMT EAGLE5 32.0.0
APPL       SSN       STAT
LNP        254       ONLINE

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

NOTE: If the LNP subsystem is out of service, shown by the entry LNP SUBSYSTEM REPORT OOS-MT_DSBLD in the rept-stat-lnp output in step 1, 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 05-03-28 14:42:38 GMT EAGLE5 32.0.0
Inhibit map subsystem command sent to all SCCP cards.
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 05-03-28 14:42:38 GMT EAGLE5 32.0.0
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
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 05-03-28 14:42:38 GMT EAGLE5 32.0.0
DLT-SS-APPL: MASP A - COMPLTD
```

---

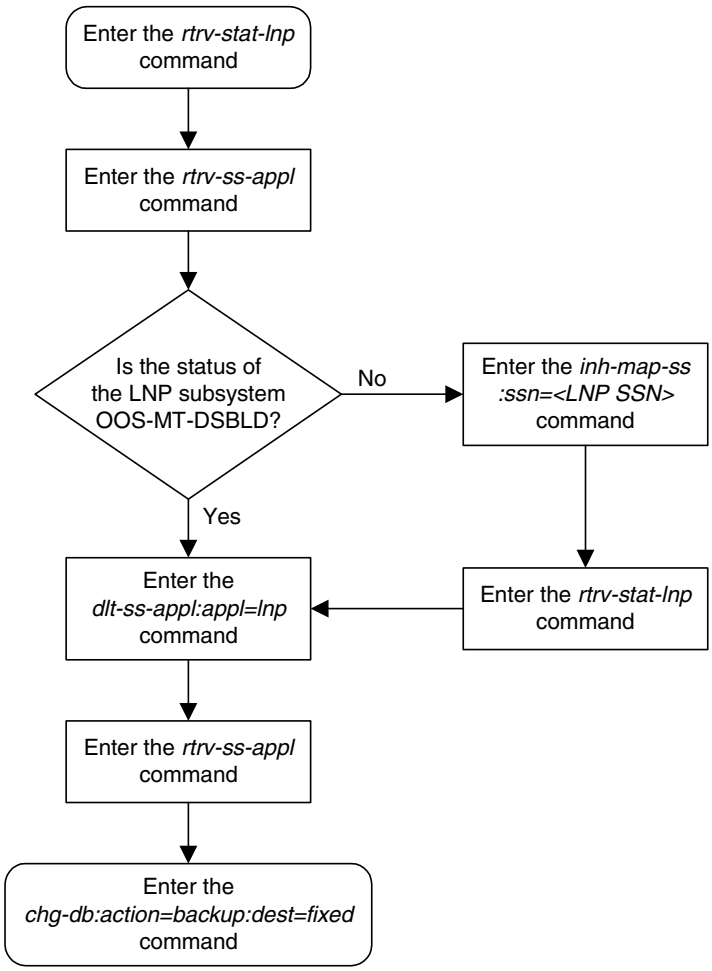
6. Verify the changes with the **rtrv-ss-appl** command. This is an example of the possible output.

```
rlghncxa03w 05-03-28 14:42:38 GMT EAGLE5 32.0.0
APPL       SSN       STAT


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

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

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

Flowchart 3-5. Removing a Subsystem Application



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 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

Make sure that the system meets the requirements shown in the "LNP System Requirements" section on page 3-5. If the system does not meet these requirements, the LNP commands will be rejected.

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 before the **chg-ss-appl** command is executed with the **nstat=offline** parameter.

If the subystem application is being placed online (**nstat=online**), the subsystem must be placed back into service with the **alw-map-ss** command after the **chg-ss-appl** command has been executed with the **nstat=online** parameter.

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.

Taking 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 05-03-28 14:42:38 GMT EAGLE5 32.0.0
APPL       SSN       STAT
LNP        254       ONLINE

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

If the LNP subsystem is offline, this procedure does not need to be performed.

2. Display the status of the LNP subsystem with the **rept-stat-lnp** command. This is an example of the possible output.

```
rlghncxa03w 05-03-28 14:42:38 GMT EAGLE5 32.0.0
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
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.

NOTE: If the output of step 2 shows that the LNP subsystem is out of service maintenance disabled (OOS-MT-DSBLD), skip steps 3 through 6, and go to step 7.

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 05-03-28 14:42:38 GMT EAGLE5 32.0.0
Inhibit map subsystem command sent to all SCCP cards.
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 05-03-28 14:42:38 GMT EAGLE5 32.0.0
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
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.

NOTE: If the output of step 4 shows that the LNP subsystem is out of service maintenance disabled (OOS-MT-DSBLD), skip steps 5 and 6, and go to step 7.

5. Place the LNP subsystem out of service with the **inh-map-ss** command specifying the LNP subsystem number used in step 3, and with the **force=yes** parameter. For this example, enter this command.

   inh-map-ss:ssn=254:force=yes

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

```
rlghncxa03w 05-03-28 14:42:38 GMT EAGLE5 32.0.0
Inhibit map subsystem command sent to all SCCP cards.
Command Completed.
```

---

6. Verify that the LNP subsystem is out of service with the **rept-stat-lnp** command. This an example of the possible output.

```
rlghncxa03w 05-03-28 14:42:38 GMT EAGLE5 32.0.0
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
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.

If the LNP subsystem is still in service, stop performing this procedure and contact Tekelec Technical Services. See "Tekelec Technical Services" on page 1-8.

---

7. 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 05-03-28 14:42:38 GMT EAGLE5 32.0.0
CHG-SS-APPL: MASP A - COMPLTD
```

---

8. Verify the changes with the **rtrv-ss-appl** command. This is an example of the possible output.

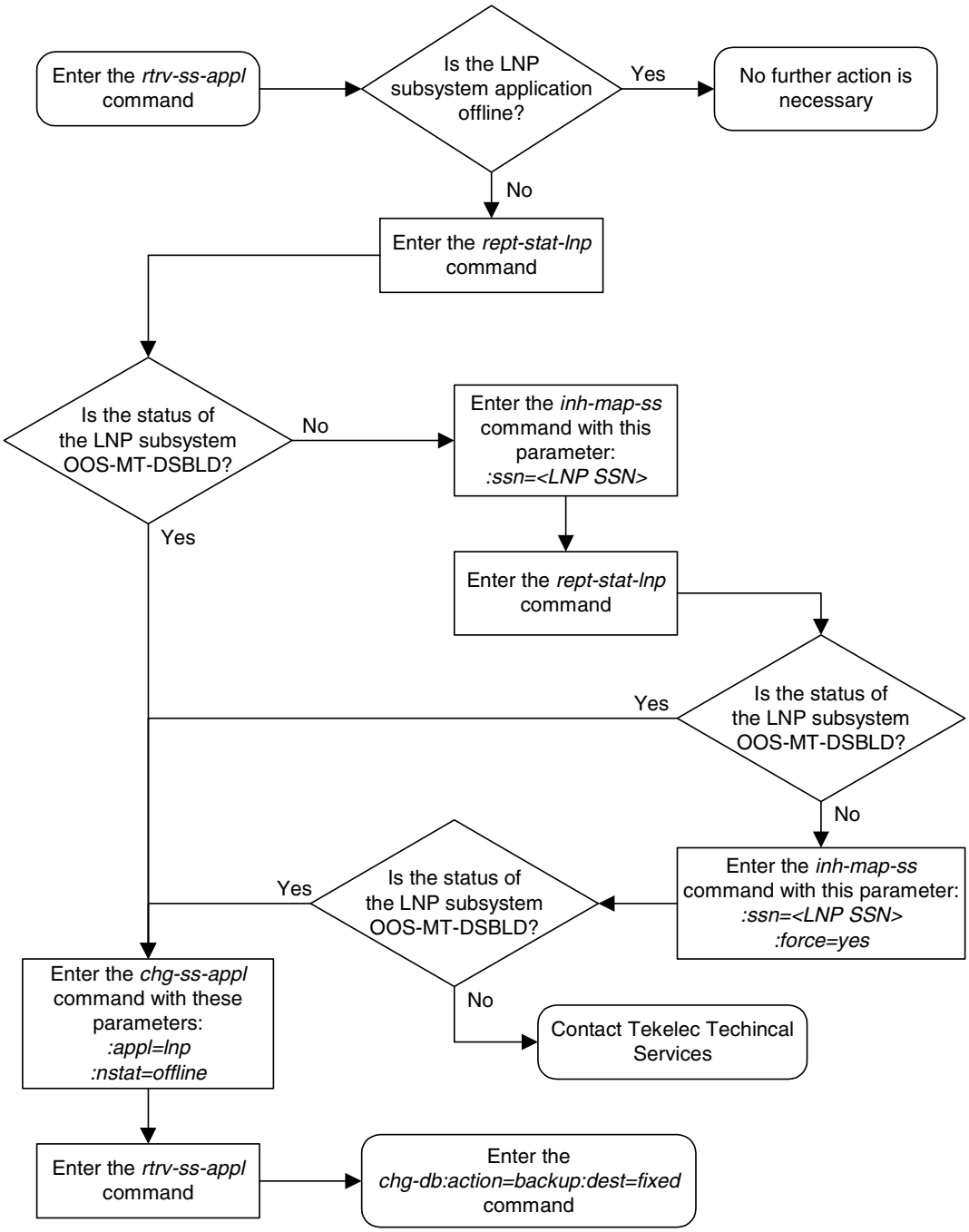
```
rlghncxa03w 05-03-28 14:42:38 GMT EAGLE5 32.0.0
APPL       SSN       STAT
LNP        254       OFFLINE

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

---

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

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

Flowchart 3-6. Taking the LNP Subsystem Offline



Placing the LNP Subsystem Application Online

1. Verify whether or not the LNP subsystem is online or offline with the **rtrv-ss-appl** command. This is an example of the possible output.

```
rlghncxa03w 05-03-28 14:42:38 GMT EAGLE5 32.0.0
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 05-03-28 14:42:38 GMT EAGLE5 32.0.0
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
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 05-03-28 14:42:38 GMT EAGLE5 32.0.0
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 05-03-28 14:42:38 GMT EAGLE5 32.0.0
APPL       SSN       STAT
LNP        254       ONLINE

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

5. Put the LNP subsystem back into service with the **alw-map-ss** command specifying the LNP subsystem number shown in step 4. For this example, enter this command.

   alw-map-ss:ssn=254

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

```
rlghncxa03w 05-03-28 14:42:38 GMT EAGLE5 32.0.0
Allow map subsystem command sent to all SCCP cards.
Command Completed.
```

6. Display the status of the LNP subsystem with the **rept-stat-lnp** command. This is an example of the possible output.

```
rlghncxa03w 05-03-28 14:42:38 GMT EAGLE5 32.0.0
LNP SUBSYSTEM REPORT  IS-NR         Active      -----
LNP Cards Configured=  5
CARD   PST           SST            GTT STATUS   LNP STATUS   CPU USAGE
1106   IS-NR         Active         ACT          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
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.

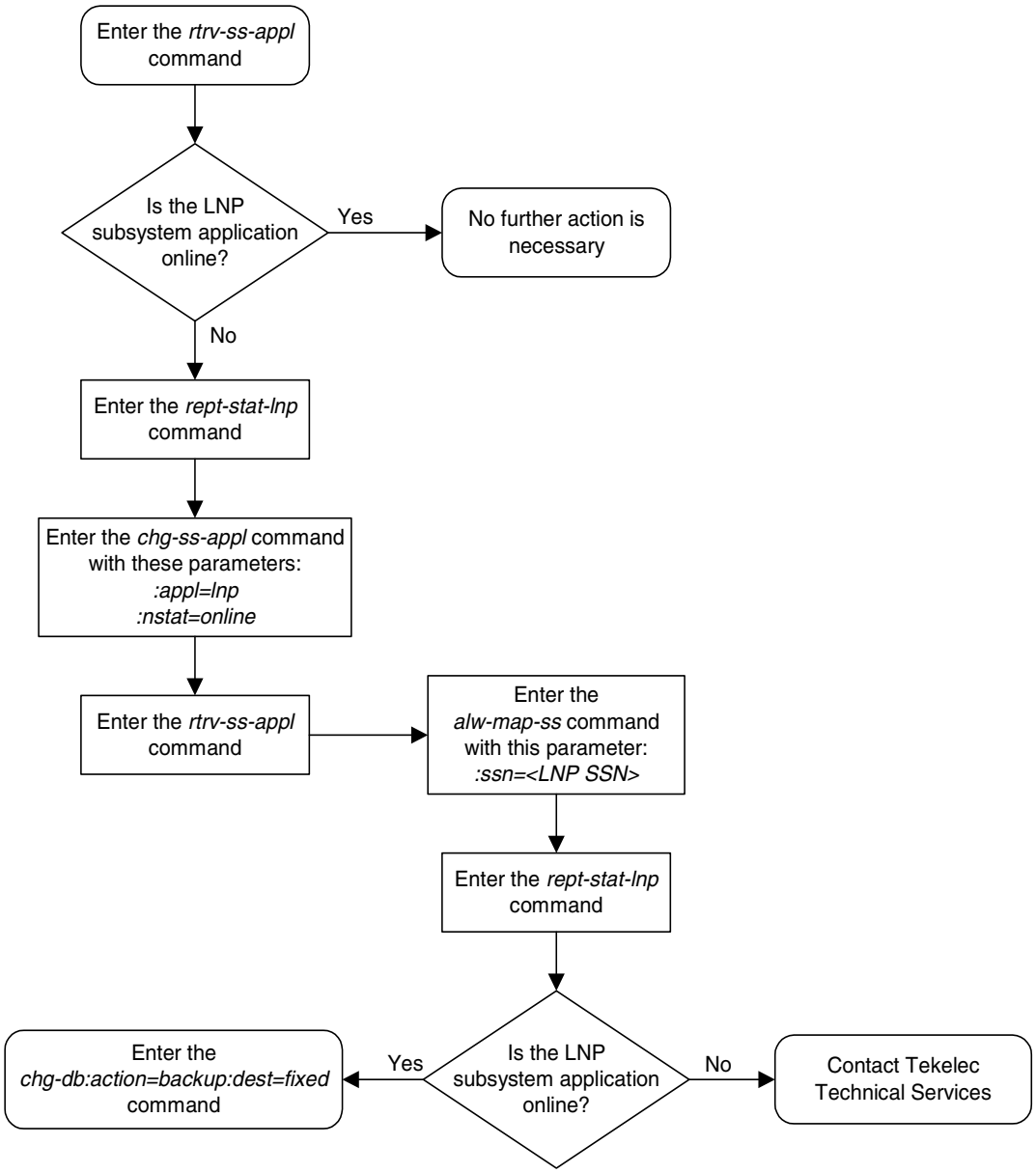
If the status of the LNP subsystem is still out of service maintenance disabled (OOS-MT-DSBLD), stop performing this procedure and contact Tekelec Technical Services. See "Tekelec Technical Services" on page 1-8.

---

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.
```

Flowchart 3-7. Placing the LNP Subsystem Online



Adding an LNP Service Provider

This procedure is used to assign an LNP service provider to the database using the **ent-lnp-sp** command. The **ent-lnp-sp** command uses only one parameter, **sp**, which takes a value of 1 to 4 alphanumeric characters identifying the service provider.

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, go to the "Enabling the LNP Feature for 2 to 12 Million Numbers" procedure on page 2-16 and enable the LNP feature.

Make sure that the system meets the requirements shown in the "LNP System Requirements" section on page 3-5. If the system does not meet these requirements, the LNP commands will be rejected.

The specified service provider cannot be in the database.

A maximum of 10,000 service providers can be configured in the database.

The value of the **sp** parameter can contain from 1 to 4 alphanumeric characters.

The **rtrv-lnp-sp** command is used to display the service provider IDs in the database. Because of the large number of service provider IDs that can be in the database, the **rtrv-lnp-sp** command contains these parameters, **num** and **force**. The **num** parameter specifies the number of entries to display. The **force** parameter specifies whether more than 50 entries are displayed. This prevents trying to display extremely large amounts of entries which could take hours. The **rtrv-lnp-sp** command has another parameter, **sp**. The **sp** parameter is used to display a specific service provider ID and can also be used to limit the amount of information displayed with the **rtrv-lnp-sp** command. If the **num** and **sp** parameters are specified with the **rtrv-lnp-sp** command, the number of service provider IDs specified by the **num** parameter is displayed with the service provider ID specified by the **sp** parameter displayed first.

The example in this procedure adds the service provider ID **99zy** to the database.

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 05-03-30 21:15:37 GMT EAGLE5 32.0.0
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

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, go to the "Enabling the LNP Feature for 2 to 12 Million Numbers" procedure on page 2-16 and enable the LNP feature. Go to step 2.

If the LNP feature is enabled, go to step 2.

---

2. Display the LNP service providers in the database with the **rtrv-lnp-sp** command. This is an example of the possible output.

```
rlghncxa03w 05-03-28 14:42:38 GMT EAGLE5 32.0.0
SP
12ab
12bb
5512

SP TABLE IS (3 of 10000) 1% FULL
```

---

3. Add the LNP service provider ID to the database using the **ent-lnp-sp** command. For this example, enter this command.

ent-lnp-sp:sp=99zy

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

```
rlghncxa03w 05-03-28 14:42:38 GMT EAGLE5 32.0.0
ENT-LNP-SP: MASP A - COMPLTD
```

---

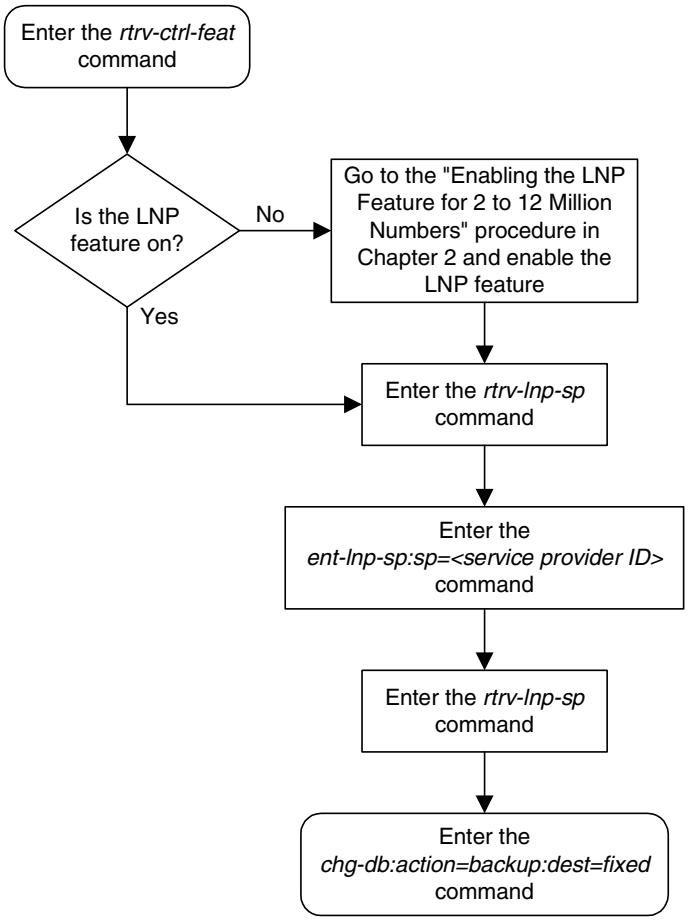
4. Verify the changes with the **rtrv-lnp-sp** command. This is an example of the possible output.

```
rlghncxa03w 05-03-28 14:42:38 GMT EAGLE5 32.0.0
SP
12ab
12bb
5512
99zy

SP TABLE IS (4 of 10000) 1% 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.
```

Flowchart 3-8. Adding an LNP Service Provider



Removing an LNP Service Provider

This procedure is used to remove an LNP service provider from the database using the **dlt-lnp-sp** command. The **dlt-lnp-sp** command uses only one parameter, **sp**, which takes a value of 1 to 4 alphanumeric characters identifying the service provider.

Make sure that the system meets the requirements shown in the "LNP System Requirements" section on page 3-5. If the system does not meet these requirements, the LNP commands will be rejected.

The LNP service provider specified by the **sp** parameter must be in the database and must not be referenced in the database. This can be verified with the **rtrv-lnp-lrn**, **rtrv-lnp-sub** commands. If any of these commands show references to the LNP service provider being removed, go to one of these procedures and remove the reference to the LNP service provider.

- "Removing an LNP Location Routing Number" procedure on page 3-125
- "Removing an LNP Telephone Number Subscription" procedure on page 3-149

The value of the **sp** parameter can contain from 1 to 4 alphanumeric characters.

The **rtrv-lnp-sp** command is used to display the service provider IDs in the database. Because of the large number of service provider IDs that can be in the database, the **rtrv-lnp-sp** command contains these parameters, **num** and **force**. The **num** parameter specifies the number of entries to display. The **force** parameter specifies whether more than 50 entries are displayed. This prevents trying to display extremely large amounts of entries which could take hours. The **rtrv-lnp-sp** command has another parameter, **sp**. The **sp** parameter is used to display a specific service provider ID and can also be used to limit the amount of information displayed with the **rtrv-lnp-sp** command. If the **num** and **sp** parameters are specified with the **rtrv-lnp-sp** command, the number of service provider IDs specified by the **num** parameter is displayed with the service provider ID specified by the **sp** parameter displayed first.

The example in this procedure removes the LNP service provider **5512**.

Procedure

1. Display the LNP service providers in the database with the **rtrv-lnp-sp** command. This is an example of the possible output.

```
rlghncxa03w 05-03-28 14:42:38 GMT EAGLE5 32.0.0
SP
12ab
12bb
5512
99zy

SP TABLE IS (4 of 10000) 1% FULL
```

2. Display the LRNs in the database using the **rtrv-lnp-lrn** command.

   NOTE: Because of the large number of LRN entries that can be in the database, the rtrv-lnp-lrn command contains these parameters, num and force. The num parameter specifies the maximum number of entries to display. The force parameter specifies whether more than 50 entries are displayed. This prevents trying to display extremely large amounts of entries which could take hours.

   This is an example of the possible output.

```
rlghncxa03w 05-03-28 14:23:37 GMT EAGLE5 32.0.0
LRN         SP    TT   XLAT    RI   PCA          SSN  NGT  RGTA
9093350000  12ab  16   DPCSSN  SSN  001-001-001  20   ---  yes
                  18   DPCSSN  SSN  002-002-002  30   ---  yes
                  19   DPCSSN  SSN  002-002-004  20   ---  yes
                  30   DPC     GT   101-101-101  ---  ---  yes

9093350099  50hi  15   DPCSSN  SSN  003-003-003  254  ---  yes
                  25   DPCNGT  GT   200-150-175  ---  100  yes
9093360000  12bb  20   DPCSSN  SSN  006-006-006  250  ---  yes
                  125  DPCNGT  GT   020-020-020  ---  110  yes
9105840000  99zy  50   DPCSSN  SSN  005-005-005  250  ---  yes
                  175  DPC     GT   010-101-010  ---  ---  yes
9193370000  67mi  30   DPCSSN  SSN  004-004-004  254  ---  yes
                  201  DPCNGT  GT   135-145-155  ---  75   yes

LRN TABLE IS 1% FULL
```

   If any LRNs use the service provider being removed in this procedure, these LRNs must be removed from the database. Go to the "Removing an LNP Location Routing Number" procedure on page 3-125 to remove these LRNs.

3. Display the 10-digit telephone number subscriptions in the database using the **rtrv-lnp-sub** command, specifying a range of telephone numbers with the **tn** and **etn** parameters), the service provider ID being removed (with the **sp** parameter), and the **num** parameter. If the **num** parameter value is greater than 50, the **force=yes** parameter must be specified. The range of values for the **num** parameter is 1 to 10,000. If the **num=100** and **force=yes** parameters are specified with the **rtrv-lnp-sub** command, up to 100 entries in the specified range of 10-digit telephone numbers that contain the specified service provider ID are displayed.

   NOTE: The range of 10-digit telephone numbers cannot cross an NPANXX boundary. For example, specifying the tn=9194600000 and the etn=9194619999 parameters is not allowed. Using this example, specifying the tn=9194600000 and the etn=9194609999, or the tn=9194610000 and the etn=9194619999 parameters are allowed.

   For this example, enter this command.

   rtrv-lnp-sub:tn=312000000:etn=3129999999:sp=5512:num=100 :force=yes

   This is an example of the possible output.

```
rlghncxa03w 05-03-28 14:42:38 GMT EAGLE5 32.0.0
TN          SP    LRN          PTYPE
3125841***  5512  9105840000   POOL

  TT   XLAT    RI   PCA          SSN  NGT  RGTA
  100  DPCSSN   SSN 005-005-005  250  ---  yes

Service provider table is 1% full
LRN table is  1% full
MESSAGE relay table is  1% full
NPANXX table is  1% full
PORTED TN table is  1% full
SCCP cards configured to support a maximum of  500000 ported TNs
```

   If any 10-digit telephone number subscriptions use the translation type being removed in this procedure, these 10-digit telephone number subscriptions must be removed from the database. Go to the "Removing an LNP Telephone Number Subscription" procedure on page 3-149 to remove these 10-digit telephone number subscriptions.

   Repeat step 3 until all 10-digit telephone numbers have been displayed.

---

4. Remove the LNP service provider from the database using the **dlt-lnp-sp** command. For this example, enter this command.

   dlt-lnp-sp:sp=5512

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

```
rlghncxa03w 05-03-28 14:42:38 GMT EAGLE5 32.0.0
DLT-LNP-SP: MASP A - COMPLTD
```

---

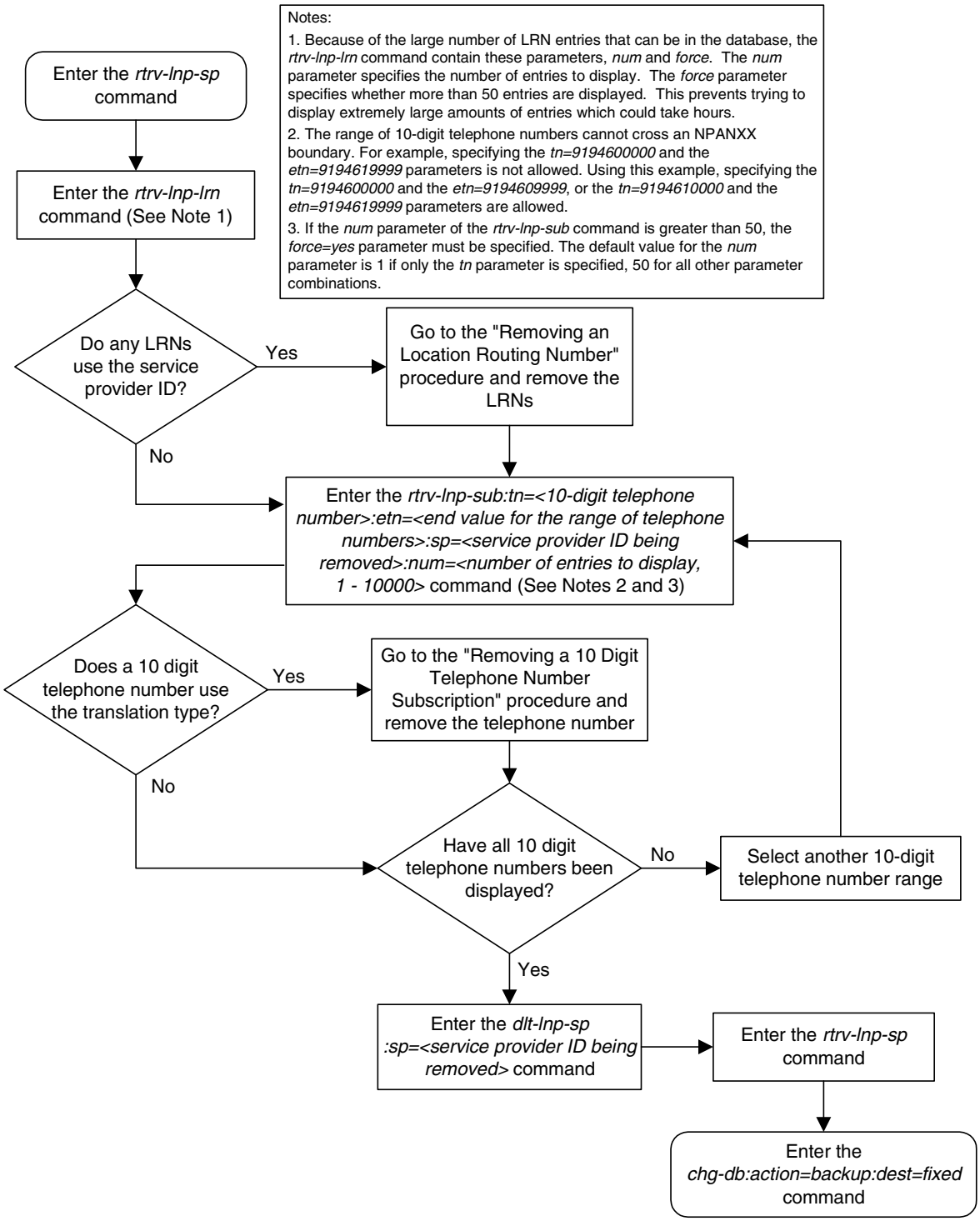
5. Verify the changes with the **rtrv-lnp-sp** command. This is an example of the possible output.

```
rlghncxa03w 05-03-28 14:42:38 GMT EAGLE5 32.0.0
SP
12ab
12bb
99zy

SP TABLE IS (3 of 10000) 1% FULL
```

6. 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.
```

Flowchart 3-9. Removing an LNP Service Provider



Adding an LNP NPANXX

This procedure is used to add an LNP NPANXX and its associated default global title translations to the database using the **ent-lnp-npanxx** command. The **ent-lnp-npanxx** command uses these parameters.

:npanxx – the LNP NPANXX

:mr – the message relay ported indicator. This parameter shows whether the NPANXX has been ported for message relay and applies only to message relay default global title translations.

:gt1 – the first default global title translation

:gt2 – the second default global title translation

The value of the **gt1** and **gt2** parameters uses these values.

- tt-pc-ssn-xlat-ri-ngt

  tt – the global title translation type

  pc – a full ANSI point code

  ssn – the global title translation subsystem number

  xlat – the global title translation translate indicator

  ri – the global title translation routing indicator

  ngt – the new global title translation type

  NOTE: The LNP Eagle stores the 6-digit default global title NGT (new global title) value on a per service, point code, and subsystem combination basis, not on an NPA-NXX basis. This design allows a user to always modify the NGT field for all NPA-NXXs assigned the same service, point code, and subsystem combination instantly with one command. Conversely, the LSMS stores the NGT field independently for each 6-digit default (NPA-NXX) global title translation entered.

  When an NGT field is modified or assigned to a particular LNP 6-digit global title translation (either via the LSMS interface or directly from an Eagle terminal), every existing NPA-NXX entry in the LNP Eagle with the same combination of service, point code, and subsystem will reflect that NGT. Because of this difference in how this information is stored on the LSMS versus how it is stored on the Eagle, a user could get into a situation where the NGT values in the LSMS are not reflective of those stored in the Eagle. The NGT value must be specified correctly every time a 6-digit default (NPA-NXX) global title translation is updated or the LNP service on the Eagle could be seriously impacted.

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, go to the "Enabling the LNP Feature for 2 to 12 Million Numbers" procedure on page 2-16 and enable the LNP feature.

Make sure that the system meets the requirements shown in the "LNP System Requirements" section on page 3-5. If the system does not meet these requirements, the LNP commands will be rejected.

The database can contain a maximum of 150,000 NPANXX entries, whether these entries are configured with the **ent-lnp-npanxx**, **ent-split-npa**, or **ent-lnp-sub** commands.

The global title translation type must be reserved for the LNP feature. This can be verified with the **rtrv-lnp-serv** command.

Translation types assigned to the wireless number portability service, the PCS 1900 number portability service, or the LNP query service cannot be specified with the **ent-lnp-npanxx** command. Use the **rtrv-lnp-serv** command to verify the translation type and LNP service assignments. If translation types are assigned to either of these services, the entries **WNP** (for the wireless number portability service), **PCS** (for the PCS 1900 number portability service), or **LNPQS** (for the LNP query service) are displayed 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. This point code must be a full point code and cannot be either a cluster point code or a network routing point code. If the default global title translation point code is not in the routing table, it must be added using either the "Adding a Route" or "Changing a Route" procedures in the *Database Administration Manual – SS7*.

The global title translation point code must be in the routing table or must be the Eagle's true point code and LNP subsystem number (application). Enter the **rtrv-rte** command to verify if the point code is in the routing table. If the default global title translation point code is not in the routing table, but should be in the routing table, it must be added using either the "Adding a Route" or "Changing a Route" procedures in the *Database Administration Manual – SS7*. If you wish to use the Eagle's true point code and LNP subsystem number in the default global title translation, enter the **rtrv-sid** command to verify the Eagle's true point code and the **rtrv-ss-appl** command to verify the LNP subsystem number. If the LNP subsystem number is not in the database, add the LNP subsystem number with the "Adding a Subsystem Application" procedure on page 3-57.

More than one global title translation can be entered for an NPANXX. If an existing NPANXX is specified, at least one of the other parameters must be specified.

If the **mr** parameter is not specified, the value of the **mr** parameter defaults to **yes**.

The translation type value can only be used once for each NPANXX and cannot be defined in the database as an alias translation type. Enter the **rtrv-lnp-serv** to display the alias translation types.

If the global title translation translate indicator is **dpcssn**, the value of the subsystem number cannot be 0.

If the global title translation translate indicator is either **dpcssn** or **dpc**, the value of the new global title translation type must be 0.

If the global title translation translate indicator is either **dpcngt** or **dpc**, the value of the subsystem number must be 0.

If the global title translation translate indicator is **dpcngt**, the value of the routing indicator must be **gt** and the value of the new global title translation type cannot be 0.

The examples in this procedure adds the default global title translations and the NPANXXs shown in Table 3-8.

Table 3-8. Example NPANXX Configuration

NPANXX	MR	TT	XLAT	RI	PCA	SSN	NGT
423743	Y	20	DPCNGT	GT	001-001-002	0	30
423743	Y	15	DPC	GT	100-100-110	0	0
423743	Y	201	DPCSSN	SSN	200-150-007	254	0
919460	Y	10	DPCSSN	SSN	003-003-005	254	0
919460	Y	30	DPCNGT	GT	150-175-000	0	150
919460	Y	25	DPC	GT	010-010-010	0	0
909335	Y	100	DPC	GT	007-007-007	0	0
909336	Y	201	DPCSSN	SSN	200-150-007	254	0

The **rtrv-lnp-npanxx** command is used to display the NPANXXs in the database. Because of the large number of NPANXX entries that can be in the database, the **rtrv-lnp-npanxx** command contains these parameters, **num** and **force**. The **num** parameter specifies the number of entries to display. The **force** parameter specifies whether more than 50 entries are displayed. This prevents trying to display extremely large amounts of entries which could take hours. The **rtrv-lnp-npanxx** command has two other parameters, **npanxx** and **enpanxx**. The **npanxx** parameter is used to display a specific NPANXX or to show the beginning of a range of NPANXXs. The **enpanxx** parameter shows the NPANXX that ends the range of NPANXXs. These two parameters can also be used to limit the amount of information displayed with the **rtrv-lnp-npanxx** command.

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 05-03-30 21:15:37 GMT EAGLE5 32.0.0
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

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, go to the "Enabling the LNP Feature for 2 to 12 Million Numbers" procedure on page 2-16 and enable the LNP feature. Go to step 2.

If the LNP feature is enabled, go to step 2.

2. Display the LNP NPANXXs in the database with the **rtrv-lnp-npanxx** command. This is an example of the possible output.

```
rlghncxa03w 05-03-28 14:42:38 GMT EAGLE5 32.0.0
NPANXX  MR   LRN  TT   XLAT    RI   PCA          SSN  NGT
909335  yes  yes  16   DPC     GT   001-001-001  0    ---
                  18   DPCNGT  GT   002-002-002  0    10
                  19   DPCSSN  SSN  002-002-004  20   ---

909336  yes  yes  16   DPC     GT   001-001-001  0    ---

NPANXX TABLE IS 1% FULL
```

3. Display the LNP services in the database using the **rtrv-lnp-serv** command. This is an example of the possible output.

```
rlghncxa03w 05-03-28 14:42:38 GMT EAGLE5 32.0.0
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
```

If the desired translation type is not in the database, go to the "Adding an LNP Service" procedure on page 3-30 and add the translation type.

NOTE: If the global title translation (GTT) being assigned to the NPANXX is not a message relay GTT, skip this step and step 5, and go to step 6.

4. Display the Eagle's true point code using the **rtrv-sid** command. The Eagle'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 05-03-10 11:43:04 GMT  EAGLE5 32.0.0
PCA              PCI              PCN           CLLI             PCTYPE
100-100-100      3-75-7           7-9-8-1       rlghncxa03w      OTHER

CPCA
002-002-002       002-002-003       002-002-004      002-002-005
002-002-006       002-002-007       002-002-008      002-002-009
004-002-001       004-003-003       050-060-070

CPCA (LNP)
005-005-002       005-005-004       005-005-005      006-006-006

CPCI
1-002-1           1-002-2           1-002-3          1-002-4
2-001-1           7-222-7

CPCN
2-0-10-3          2-0-11-0          2-0-11-2         2-0-12-1
2-2-3-3           2-2-4-0           10-14-10-1
```

NOTE: The point code of the GTT must be either the DPC of a route or the Eagle's true point code. If the point code of the GTT is shown in the `rtrv-sid` output in step 4, skip step 5 and go to step 6.

5. Display the routes in the database using the **`rtrv-rte`** command. This is an example of the possible output.

```
rlghncxa03w 05-03-28 11:43:04 GMT  EAGLE5 32.0.0
DPCA        ALIASI      ALIASN      CLLI        LSN      RC APCA
001-001-001 ----------- ----------- lsn4clli    lsn4     10 001-001-001
                                                ls04     20 001-002-003
001-001-002 ----------- ----------- lsn2clli    lsn2     10 001-001-002
001-002-003 ----------- ----------- ls04clli    ls04     10 001-002-003
002-002-002 ----------- ----------- ls01clli    ls01     10 002-002-002
                                                ls02     20 004-004-004
                                                ls03     30 003-003-003
002-002-004 ----------- ----------- lsn3clli    lsn3     10 002-002-004
002-007-008 ----------- ----------- ls06clli    ls06     10 002-007-008
003-003-003 ----------- ----------- ls03clli    ls03     10 003-003-003
                                                ls01     20 002-002-002
                                                ls02     30 004-004-004
003-003-005 ----------- ----------- lsn4clli    lsn4     10 003-003-005
004-004-004 ----------- ----------- ls02clli    ls02     10 004-004-004
                                                ls01     20 002-002-002
                                                ls03     30 003-003-003
005-005-005 ----------- ----------- lsn5clli    lsn5     10 005-005-005
006-006-006 ----------- ----------- lsn6clli    lsn6     10 006-006-006
007-007-007 ----------- ----------- lsn7clli    lsn7     10 007-007-007
010-010-010 ----------- ----------- lsn8clli    lsn8     10 010-010-010
100-100-100 ----------- ----------- lsn9clli    lsn9     10 100-100-100
100-100-110 ----------- ----------- lsn0clli    lsn0     10 100-100-110
                                                lsn9     20 100-100-100
150-175-000 ----------- ----------- lsn10clli   ls10     10 150-175-000
200-150-007 ----------- ----------- lsn11clli   ls11     10 200-150-007
                                                ls10     10 150-175-000
200-200-200 ----------- ----------- lsn12clli   ls12     10 200-200-200

DPCI        ALIASN      ALIASA      CLLI         LSN      RC APCI

DPCN        ALIASA      ALIASI      CLLI         LSN      RC APCN
```

If the point code is not shown in the **`rtrv-rte`** output, go to the *Database Administration Manual - SS7* and assign the point code of the GTT to a route.

---

6. 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 05-03-28 14:42:38 GMT EAGLE5 32.0.0
APPL       SSN       STAT
LNP        254       ONLINE

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

If the LNP subsystem number is not shown in the **`rtrv-ss-appl`** output, go to the "Adding a Subsystem Application" procedure on page 3-57 and add the LNP subystem number to the database.

---

7. Add the LNP NPANXXs using the **ent-lnp-npanxx** command. For this example, enter these commands.

ent-lnp-npanxx:npanxx=423743:mr=yes:gt1=20,001,001,002,
0,dpcngt,gt,30:gt2=15,100,100,110,0,dpc,gt,0

ent-lnp-npanxx:npanxx=423743:gt1=201,200,150,007,254,dpcssn,
ssn,0

ent-lnp-npanxx:npanxx=919460:mr=yes:gt1=10,003,003,005,254,
dpcssn,ssn,0:gt2=30,150,175,000,0,dpcngt,gt,150

ent-lnp-npanxx:npanxx=919460:gt1=25,010,010,010,0,dpc,gt,0

ent-lnp-npanxx:npanxx=909335:gt1=100,007,007,007,0,dpc,gt,0

ent-lnp-npanxx:npanxx=909336:gt1=201,200,150,007,254,dpcssn,
ssn,0

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

```
rlghncxa03w 05-03-28 14:42:38 GMT EAGLE5 32.0.0
ENT-LNP-NPANXX: MASP A - COMPLTD
```

---

8. Verify the changes specifying the **rtrv-lnp-npanxx** command with the NPANXX value used in step 7. For this example, enter these commands.

rtrv-lnp-npanxx:npanxx=423743

This is an example of the possible output.

```
rlghncxa03w 05-03-28 14:42:38 GMT EAGLE5 32.0.0
NPANXX  MR   LRN  TT   XLAT    RI   PCA          SSN  NGT
423743  yes  yes  15   DPC     GT   100-100-110  0    ---
                  20   DPCNGT  GT   001-001-002  0    30
                  201  DPCSSN  SSN  200-150-007  254  ---

NPANXX TABLE IS 1% FULL
```

rtrv-lnp-npanxx:npanxx=919460

This is an example of the possible output.

```
rlghncxa03w 05-03-28 14:42:38 GMT EAGLE5 32.0.0
NPANXX  MR   LRN  TT   XLAT    RI   PCA          SSN  NGT
919460  yes  yes  10   DPCSSN  SSN  003-003-005  254  ---
                  25   DPC     GT   010-010-010  0    ---
                  30   DPCNGT  GT   150-175-000  0    150

NPANXX TABLE IS 1% FULL
```

rtrv-lnp-npanxx:npanxx=909335

This is an example of the possible output.

```
rlghncxa03w 05-03-28 14:42:38 GMT EAGLE5 32.0.0
NPANXX  MR   LRN  TT   XLAT    RI   PCA          SSN  NGT
909335  yes  yes  16   DPC     GT   001-001-001  0    ---
                  18   DPCNGT  GT   002-002-002  0    10
                  19   DPCSSN  SSN  002-002-004  20   ---
                  100  DPC     GT   007-007-007  0    ---

NPANXX TABLE IS 1% FULL
```

rtrv-lnp-npanxx:npanxx=909336

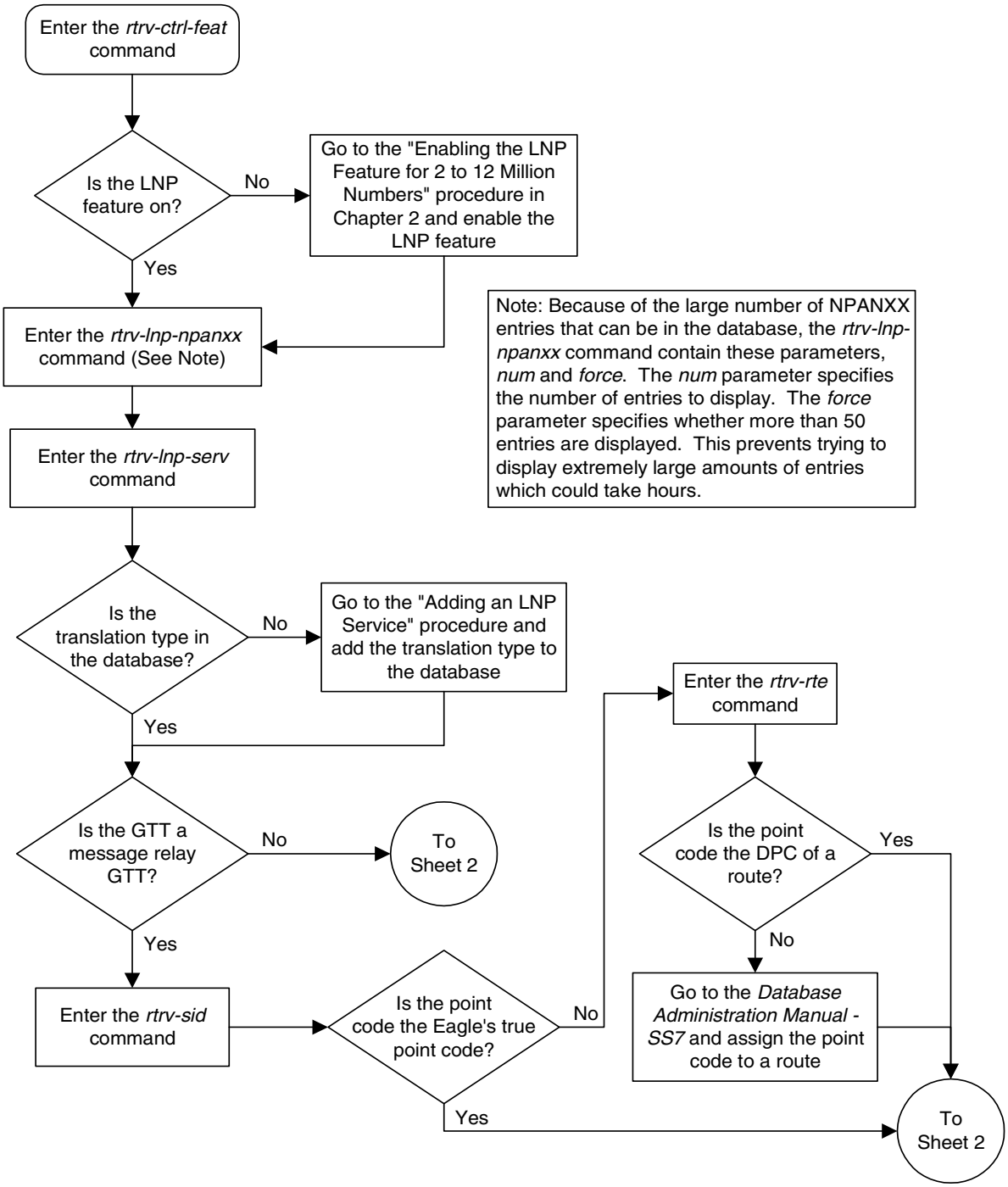
This is an example of the possible output.

```
rlghncxa03w 05-03-28 14:42:38 GMT EAGLE5 32.0.0
NPANXX  MR   LRN  TT   XLAT    RI   PCA          SSN  NGT
909336  yes  yes  16   DPC     GT   001-001-001  0    ---
                  201  DPCSSN  SSN  200-150-007  254  ---

NPANXX TABLE IS 1% FULL
```

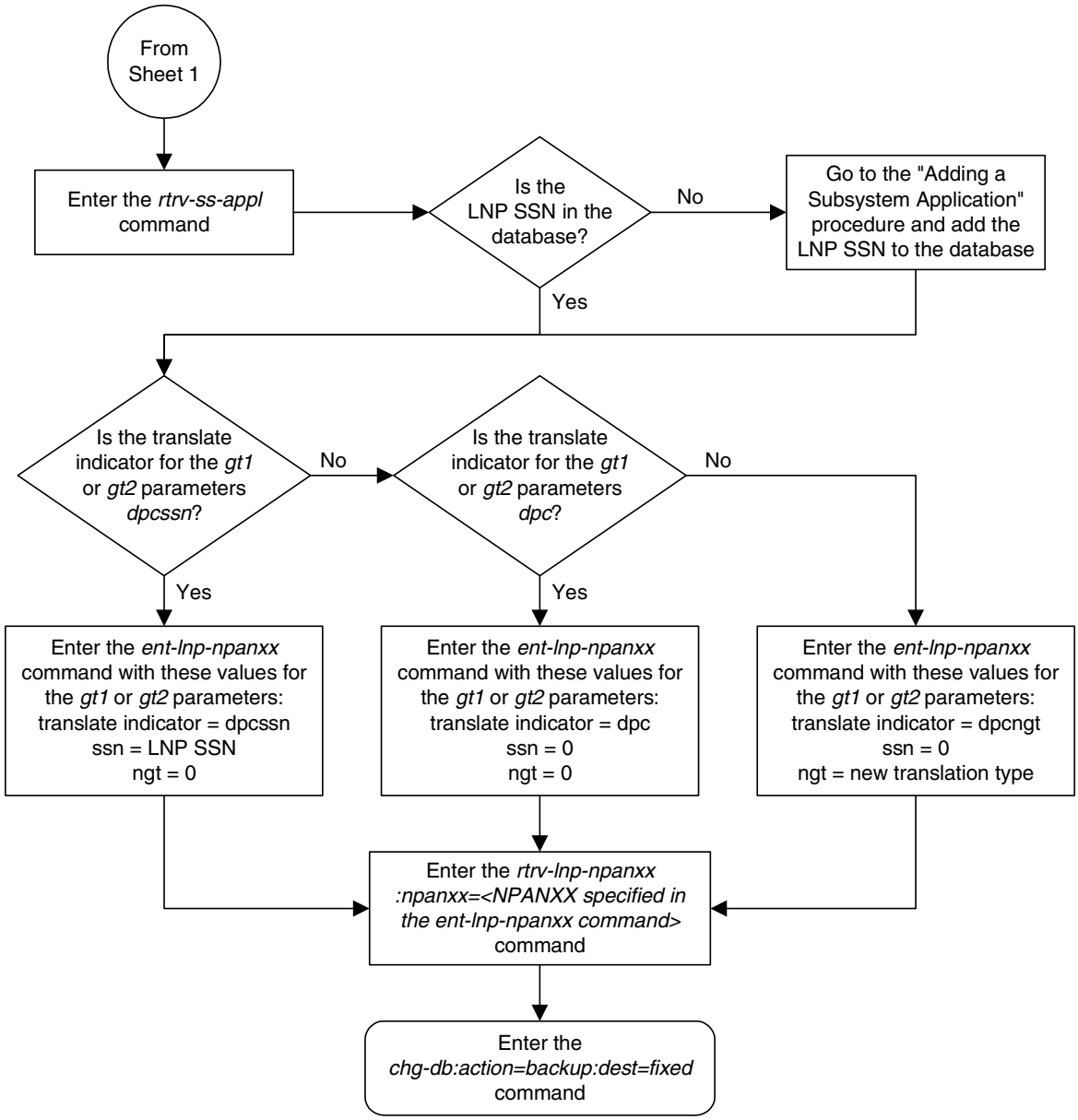
9. Backup the new changes using the **chg-db:action=backup:dest=fixed** command. The following messages should appear, the active Maintenance and Administration Subsystem Processor (MASP) appears first.

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

Flowchart 3-10. Adding an LNP NPANXX (Sheet 1 of 2)



Flowchart 3-10. Adding an LNP NPANXX (Sheet 2 of 2)



Removing an LNP NPANXX

This procedure is used to remove an LNP NPANXX or its associated default global title translations from the database using the **dlt-lnp-npanxx** command. The **dlt-lnp-npanxx** command uses these parameters.

:npanxx – the LNP NPANXX

:tt – the global title translation type

:rmv – the deletion type

Make sure that the system meets the requirements shown in the "LNP System Requirements" section on page 3-5. If the system does not meet these requirements, the LNP commands will be rejected.

The specified LNP NPANXX must be in the database.

Either the **tt** or **rmv** parameters must be specified with the **dlt-lnp-npanxx** command, but not both.

A single translation type for an NPANXX or all translation types for a NPANXX can be removed from the database.

The translation type being removed cannot have any LNP telephone numbers assigned to it. To verify this, enter the **rtrv-lnp-sub** command.

The NPANXX being removed cannot have any LNP services (LNP translation types) assigned to it. To verify this, enter the **rtrv-lnp-serv** command.

If the **rmv=alltt** parameter is specified and no LNP telephone numbers reference the NPANXX, all default global title translations assigned to the NPANXX are removed from the database. The NPANXX is not removed using the **rmv=alltt** parameter. Enter the **rtrv-lnp-sub** command to verify the LNP telephone numbers referencing the NPANXX being removed from the database. If any LNP telephone numbers reference the NPANXX being removed from the database, go to the "Removing an LNP Telephone Number Subscription" procedure on page 3-149 and remove the LNP telephone numbers.

If the **rmv=all** parameter is specified, the NPANXX is removed from the database provided that the LNP telephone numbers assigned to the NPANXX have been removed and no LRNs exist for the NPANXX. This can be verified with the **rtrv-lnp-lrn**, **rtrv-lnp-sub** commands. If any of these commands show references to the NPANXX being removed, go to one of these procedures and remove the reference to the LNP service.

- "Removing an LNP Location Routing Number" procedure on page 3-125
- "Removing an LNP Telephone Number Subscription" procedure on page 3-149

The NPANXX can be removed from the database after all LNP telephone numbers assigned to the NPANXX have been removed either by specifying the **rmv=all** parameter or by not specifying either the **rmv** or **tt** parameters.

The value of the **tt** parameter cannot be defined in the database as an alias translation type or assigned to either the wireless number portability service, the PCS 1900 number portability service, or the LNP query service. To verify this, enter the **rtrv-lnp-serv** command. If translation types are assigned to either of these services, the entries **WNP** (for the wireless number portability service), **PCS** (for the PCS 1900 number portability service), or **LNPQS** (for the LNP query service) are displayed in the **SERV** field of the **rtrv-lnp-serv** command output. Alias translation types are shown in the **ALIAS** field of the **rtrv-lnp-serv** command output.

The **rtrv-lnp-npanxx** command is used to display the NPANXXs in the database. Because of the large number of NPANXX entries that can be in the database, the **rtrv-lnp-npanxx** command contains these parameters, **num** and **force**. The **num** parameter specifies the maximum number of entries to display. The **force** parameter specifies whether more than 50 entries are displayed. This prevents trying to display extremely large amounts of entries which could take hours. The **rtrv-lnp-npanxx** command has two other parameters, **npanxx** and **enpanxx**. The **npanxx** parameter is used to display a specific NPANXX or to show the beginning of a range of NPANXXs. The **enpanxx** parameter shows the NPANXX that ends the range of NPANXXs. These two parameters can also be used to limit the amount of information displayed with the **rtrv-lnp-npanxx** command.

The examples in this procedure remove NPANXX 910584 and translation type 19 assigned to NPANXX 909335 from the database.

Procedure

1. Display the LNP NPANXXs in the database with the **rtrv-lnp-npanxx** command. This is an example of the possible output.

```
rlghncxa03w 05-03-28 14:42:38 GMT EAGLE5 32.0.0
NPANXX  MR   LRN  TT   XLAT    RI   PCA          SSN  NGT
909335  yes  yes  16   DPC     GT   001-001-001  0    ---
                  18   DPCNGT  GT   002-002-002  0    10
                  19   DPCSSN  SSN  002-002-004  20   ---

909336  yes  yes  16   DPC     GT   001-001-001  0    ---
                  20   DPCSSN  SSN  004-004-004  250  ---

910584  yes  yes  50   DPCNGT  GT   003-003-003  0    60

NPANXX TABLE IS 1% FULL
```

NOTE: If the `rmv=all` parameter will be specified with the `dlt-lnp-npanxx` command, skip this step and go to step 3.

2. Remove the translation types assigned to the NPANXX using the **`dlt-lnp-npanxx`** command specifying either the **`tt`** or **`rmv=alltt`** parameters. For this example, enter this command.

   `dlt-lnp-npanxx:npanxx=909335:tt=19`

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

```
rlghncxa03w 05-03-28 14:42:38 GMT EAGLE5 32.0.0
DLT-LNP-NPANXX: MASP A - COMPLTD
```

NOTE: If all the translation types assigned to the NPANXX were removed from the NPANXX in step 2, and you wish to remove the NPANXX, perform step 3. If you do not wish to remove the NPANXX, skip steps 3 and 4, and go to step 5.

3. Display the 10-digit telephone number subscriptions in the database using the **`rtrv-lnp-sub`** command, specifying a range of telephone numbers with the **`tn`** and **`etn`** parameters), the translation type assigned to the LNP service being removed (with the **`tt`** parameter), and the **`num`** parameter. If the **`num`** parameter value is greater than 50, the **`force=yes`** parameter must be specified. The range of values for the **`num`** parameter is 1 to 10,000. If the **`num=100`** and **`force=yes`** parameters are specified with the **`rtrv-lnp-sub`** command, up to 100 entries in the specified range of 10-digit telephone numbers that contain the specified translation type are displayed.

   NOTE: The range of 10-digit telephone numbers cannot cross an NPANXX boundary. For example, specifying the `tn=9194600000` and the `etn=9194619999` parameters is not allowed. Using this example, specifying the `tn=9194600000` and the `etn=9194609999`, or the `tn=9194610000` and the `etn=9194619999` parameters are allowed.

   For this example, enter this command.

   `rtrv-lnp-sub:tn=312000000:etn=3129999999:tt=100:num=100`
   `:force=yes`

   This is an example of the possible output.

```
rlghncxa03w 05-03-28 14:42:38 GMT EAGLE5 32.0.0
TN          SP    LRN         PTYPE
3125841***  ba90  9105840000  POOL

  TT   XLAT    RI   PCA          SSN  NGT  RGTA
  100  DPCSSN   SSN 005-005-005  250  ---  yes

Service provider table is 1% full
LRN table is  1% full
MESSAGE relay table is  1% full
NPANXX table is  1% full
PORTED TN table is  1% full
SCCP cards configured to support a maximum of  500000 ported TNs
```

If any 10-digit telephone number subscriptions use the translation type contained in the NPANXX being removed in this procedure, these 10-digit telephone number subscriptions must be removed from the database. Go to the "Removing an LNP Telephone Number Subscription" procedure on page 3-149 to remove these 10-digit telephone number subscriptions.

Repeat step 2 until all 10-digit telephone numbers have been displayed.

---

4. Remove the LNP NPANXXs using the **dlt-lnp-npanxx** command with either the **rmv=all** parameter or with no parameters (only if all translation types were removed from the NPANXX in step 2). For this example, enter these commands.

dlt-lnp-npanxx:npanxx=910584:rmv=all

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

```
rlghncxa03w 05-03-28 14:42:38 GMT EAGLE5 32.0.0
DLT-LNP-NPANXX: MASP A - COMPLTD
```

---

5. Verify the changes with the **rtrv-lnp-npanxx** command specifying the NPANXX value specified in steps 2 or 4. For this example, enter these comamnds.

rtrv-lnp-npanxx:npanxx=910584

```
rlghncxa03w 05-03-28 14:42:38 GMT EAGLE5 32.0.0
NPANXX  MR   LRN  TT   XLAT    RI   PCA          SSN  NGT
No NPANXX found in range
```

rtrv-lnp-npanxx:npanxx=909335

This is an example of the possible output.

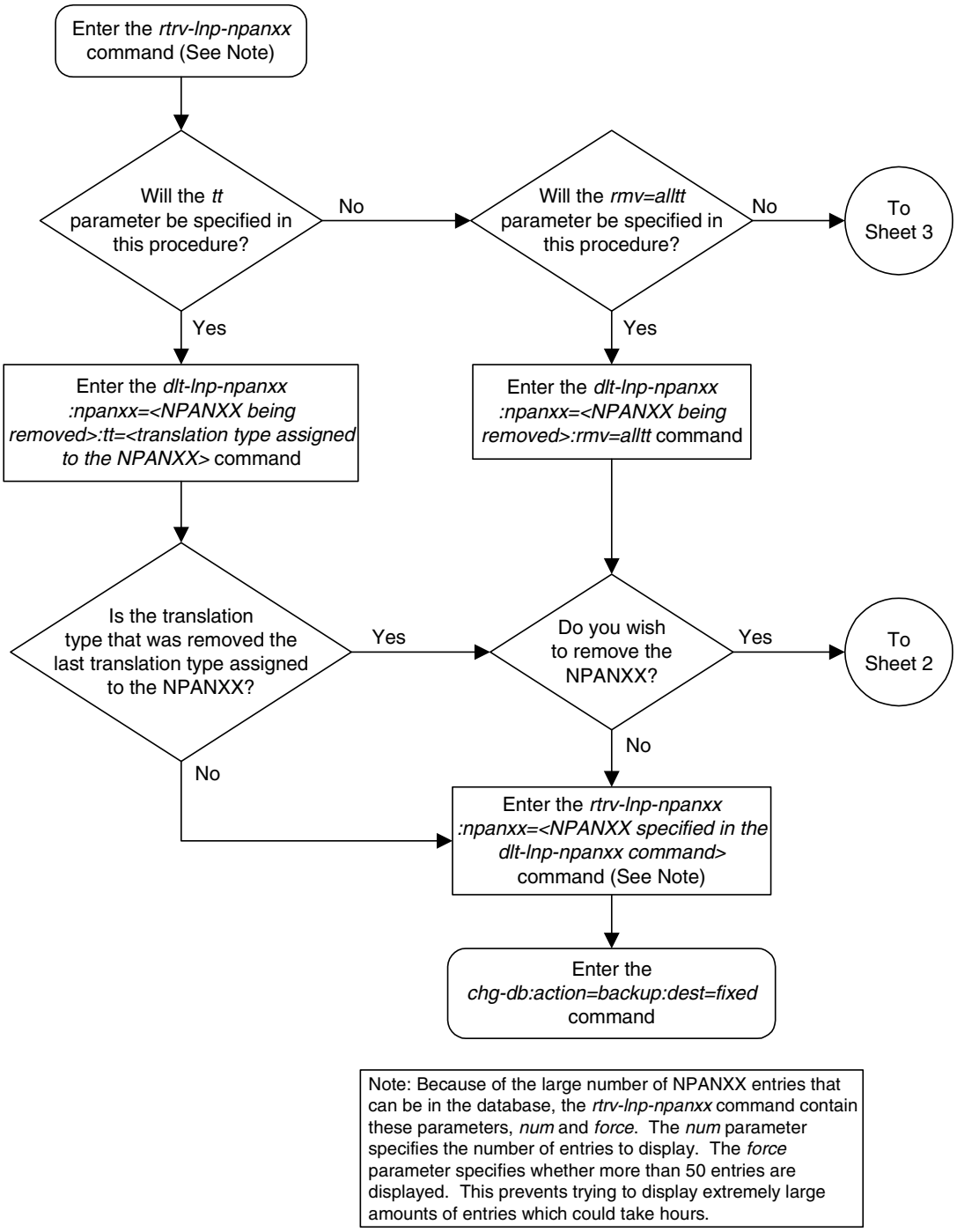
```
rlghncxa03w 05-03-28 14:42:38 GMT EAGLE5 32.0.0
NPANXX  MR   LRN  TT   XLAT    RI   PCA          SSN  NGT
909335  yes  yes  16   DPC     GT   001-001-001  0    ---
                  18   DPCNGT  GT   002-002-002  0    10

NPANXX TABLE IS 1% FULL
```

---

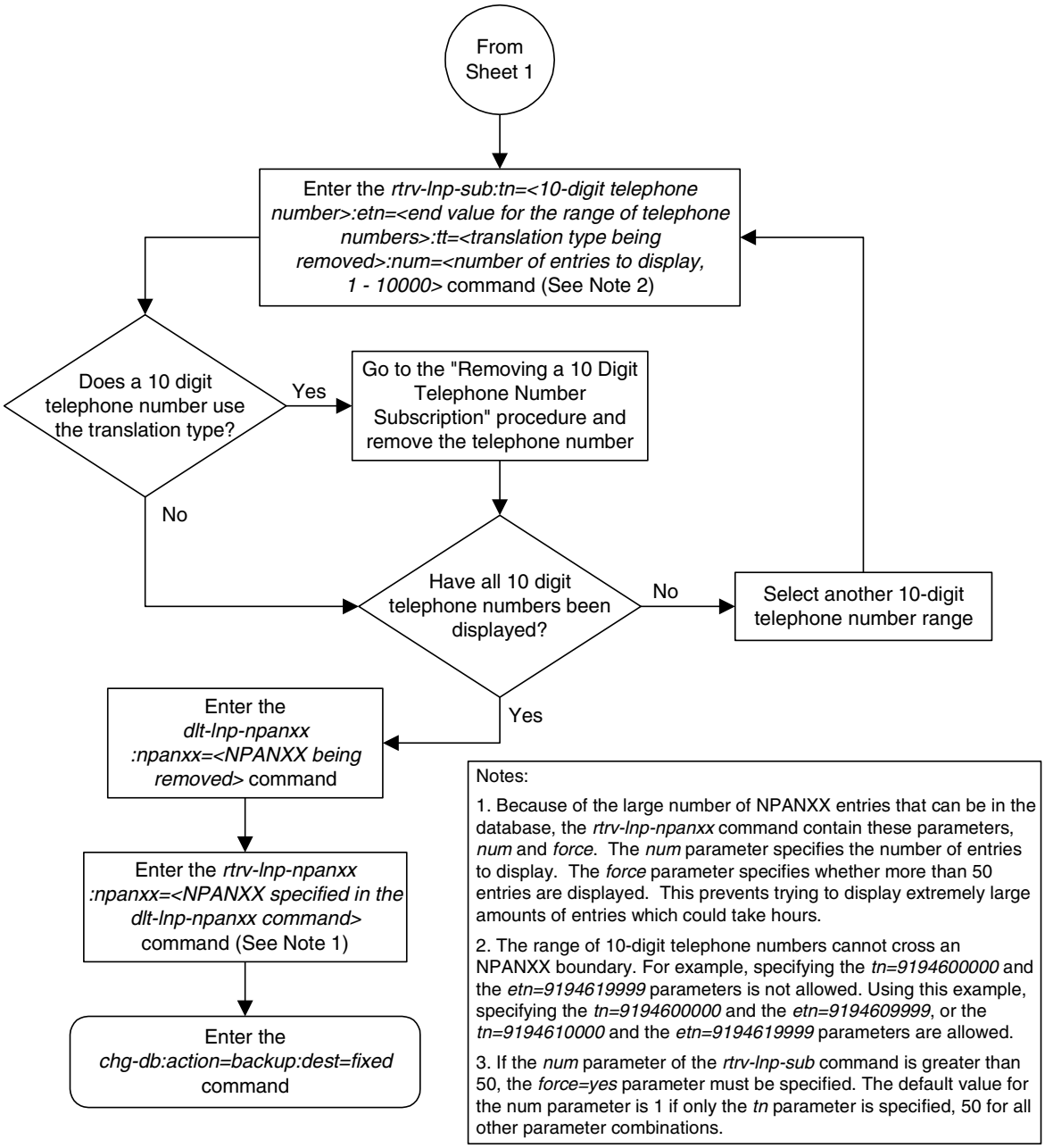
6. Backup the new changes using the **chg-db:action=backup:dest=fixed** command. The following messages should appear, the active Maintenance and Administration Subsystem Processor (MASP) appears first.

```
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.
```

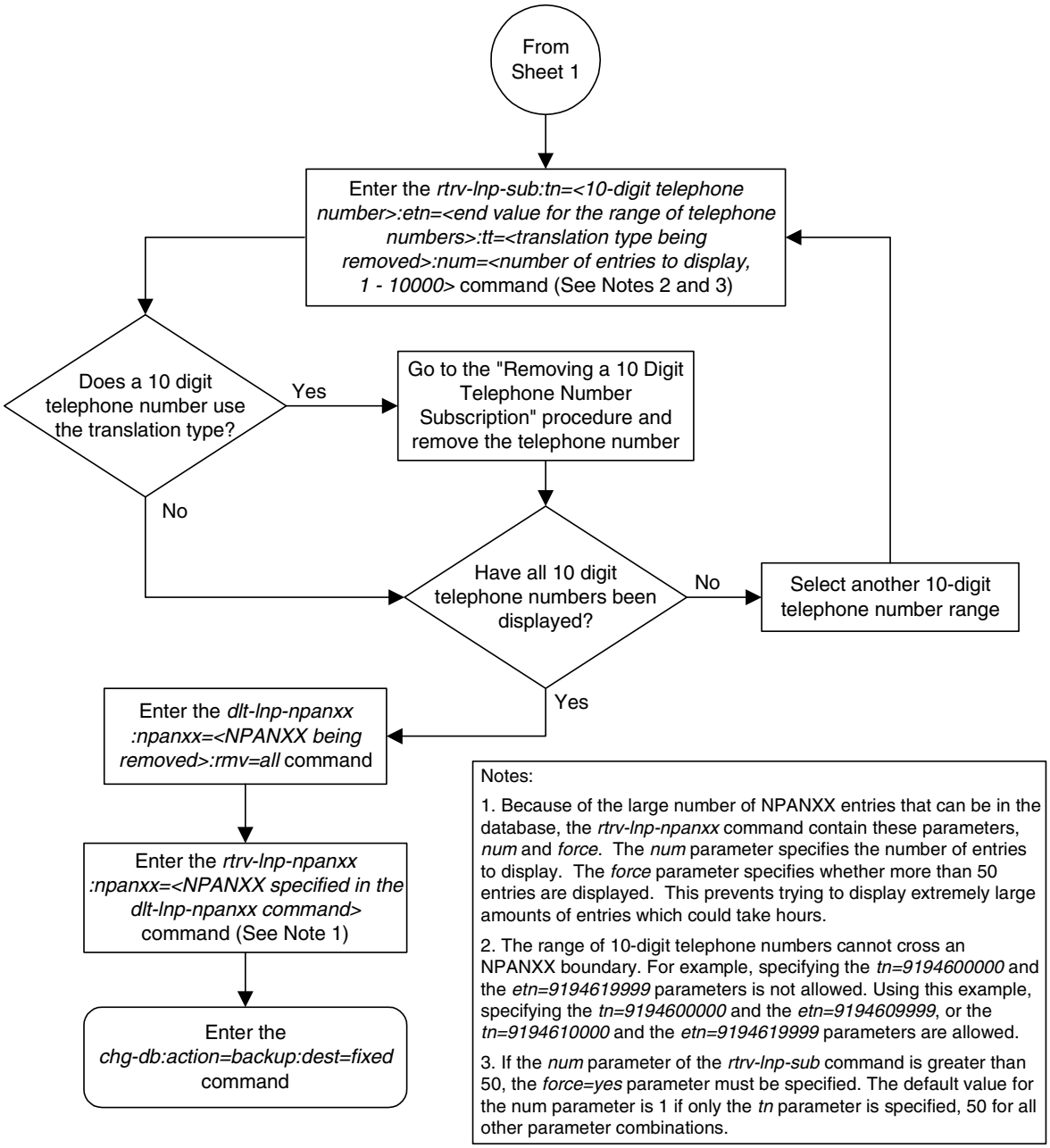
Flowchart 3-11. Removing an LNP NPANXX (Sheet 1 of 3)



Flowchart 3-11. Removing an LNP NPANXX (Sheet 2 of 3)



Flowchart 3-11. Removing an LNP NPANXX (Sheet 3 of 3)



Changing an LNP NPANXX

This procedure is used to change the attributes of an existing LNP NPANXX and its associated default global title translations in the database using the **chg-lnp-npanxx** command. The **chg-lnp-npanxx** command uses these parameters.

:npanxx – the LNP NPANXX

:nmr – the new message relay ported indicator. This parameter shows whether the NPANXX has been ported for message relay and applies only to message relay default global title translations.

:ngt1 – the new first default global title translation

:ngt2 – the new second default global title translation

The value of the **ngt1** and **ngt2** parameters uses these values.

- tt-pc-ssn-xlat-ri-ngt

  tt – the global title translation type

  pc – a full ANSI point code

  ssn – the global title translation subsystem number

  xlat – the global title translation translate indicator

  ri – the global title translation routing indicator

  ngt – the new global title translation type

  NOTE: The LNP Eagle stores the 6-digit default global title NGT (new global title) value on a per service, point code, and subsystem combination basis, not on an NPA-NXX basis. This design allows a user to always modify the NGT field for all NPA-NXXs assigned the same service, point code, and subsystem combination instantly with one command. Conversely, the LSMS stores the NGT field independently for each 6-digit default (NPA-NXX) global title translation entered.

  When an NGT field is modified or assigned to a particular LNP 6-digit global title translation (either via the LSMS interface or directly from an Eagle terminal), every existing NPA-NXX entry in the LNP Eagle with the same combination of service, point code, and subsystem will reflect that NGT. Because of this difference in how this information is stored on the LSMS versus how it is stored on the Eagle, a user could get into a situation where the NGT values in the LSMS are not reflective of those stored in the Eagle. The NGT value must be specified correctly every time a 6-digit default (NPA-NXX) global title translation is updated or the LNP service on the Eagle could be seriously impacted.

Make sure that the system meets the requirements shown in the "LNP System Requirements" section on page 3-5. If the system does not meet these requirements, the LNP commands will be rejected.

The specified NPANXX being changed must be in the database.

The global title translation type must be reserved for an LNP service, but cannot be assigned to either the wireless number portability service, the PCS 1900 number portability service, or the LNP query service. To verify this, enter the **rtrv-lnp-serv** command. If translation types are assigned to either of these services, the entries **WNP** (for the wireless number portability service), **PCS** (for the PCS 1900 number portability service), or **LNPQS** (for the LNP query service) are displayed 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. This point code must be a full point code and cannot be either a cluster point code or a network routing point code. If the default global title translation point code is not in the routing table, it must be added using either the "Adding a Route" or "Changing a Route" procedures in the *Database Administration Manual – SS7*.

The LNP query default global title translation point code must be in the routing table or must be the Eagle's true point code and LNP subsystem number (application). Enter the **rtrv-rte** command to verify if the point code is in the routing table. If the default global title translation point code is not in the routing table, but should be in the routing table, it must be added using either the "Adding a Route" or "Changing a Route" procedures in the *Database Administration Manual – SS7*. If you wish to use the Eagle's true point code and LNP subsystem number in the default global title translation, enter the **rtrv-sid** command to verify the Eagle's true point code and the **rtrv-ss-appl** command to verify the LNP subsystem number. If the LNP subsystem number is not in the database, add the LNP subsystem number with the "Adding a Subsystem Application" procedure on page 3-57.

More than one global title translation can be entered for an NPANXX. If an existing NPANXX is specified, at least one of the other parameters must be specified.

If the **mr** parameter is not specified, the value of the **mr** parameter defaults to **yes**.

The translation type value can only be used once for each NPANXX.

If the global title translation translate indicator is **dpcssn**, the value of the subsystem number cannot be 0.

If the global title translation translate indicator is either **dpcssn** or **dpc**, the value of the new global title translation type must be 0.

If the global title translation translate indicator is either **dpcngt** or **dpc**, the value of the subsystem number must be 0.

If the global title translation translate indicator is **dpcngt**, the value of the routing indicator must be **gt** and the value of the new global title translation type cannot be 0.

The examples in this procedure changes the attributes of the default global title translations and the NPANXXs shown in Table 3-9.

Table 3-9. Changing an NPANXX

NPANXX	MR	TT	XLAT	RI	PCA	SSN	NGT
909335	Y	18	DPC	GT	3-3-3	0	0
909336	Y	16	DPCNGT	GT	4-4-4	0	70
919460	Y	10	DPCSSN	SSN	5-5-5	254	0

The **rtrv-lnp-npanxx** command is used to display the NPANXXs in the database. Because of the large number of NPANXX entries that can be in the database, the **rtrv-lnp-npanxx** command contains these parameters, **num** and **force**. The **num** parameter specifies the maximum number of entries to display. The **force** parameter specifies whether more than 50 entries are displayed. This prevents trying to display extremely large amounts of entries which could take hours. The **rtrv-lnp-npanxx** command has two other parameters, **npanxx** and **enpanxx**. The **npanxx** parameter is used to display a specific NPANXX or to show the beginning of a range of NPANXXs. The **enpanxx** parameter shows the NPANXX that ends the range of NPANXXs. These two parameters can also be used to limit the amount of information displayed with the **rtrv-lnp-npanxx** command.

Procedure

1. Display the LNP NPANXXs in the database with the **rtrv-lnp-npanxx** command. This is an example of the possible output.

```
rlghncxa03w 05-03-28 14:42:38 GMT EAGLE5 32.0.0
NPANXX  MR   LRN  TT   XLAT    RI   PCA          SSN  NGT
423743  yes  yes  20   DPCNGT  GT   001-001-002  254  30

909335  yes  yes  16   DPC     GT   001-001-001  0    ---
                  18   DPCNGT  GT   002-002-002  0    10
                  19   DPCSSN  SSN  002-002-004  20   ---

909336  yes  yes  16   DPC     GT   001-001-001  0    ---

919460  yes  yes  10   DPCSSN  SSN  003-003-005  254  ---

NPANXX TABLE IS 1% FULL
```

NOTE: If the global title translation (GTT) being assigned to the NPANXX is not a message relay GTT, skip this step and step 3, and go to step 4.

2. Display the Eagle's true point code using the **rtrv-sid** command. The Eagle'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 05-03-10 11:43:04 GMT  EAGLE5 32.0.0
PCA              PCI              PCN           CLLI             PCTYPE
100-100-100      3-75-7           7-9-8-1       rlghncxa03w      OTHER

CPCA
002-002-002       002-002-003       002-002-004      002-002-005
002-002-006       002-002-007       002-002-008      002-002-009
004-002-001       004-003-003       050-060-070

CPCA (LNP)
005-005-002       005-005-004       005-005-005      006-006-006

CPCI
1-002-1           1-002-2           1-002-3          1-002-4
2-001-1           7-222-7

CPCN
2-0-10-3          2-0-11-0          2-0-11-2         2-0-12-1
2-2-3-3           2-2-4-0           10-14-10-1
```

NOTE: The point code of the GTT must be either the DPC of a route or the Eagle's true point code. If the point code of the GTT is shown in the rtrv-sid output in step 2, skip step 3 and go to step 4.

3. Display the routes in the database using the **rtrv-rte** command. This is an example of the possible output.

```
rlghncxa03w 05-03-28 11:43:04 GMT  EAGLE5 32.0.0
DPCA        ALIASI      ALIASN      CLLI        LSN      RC APCA
001-001-001 ----------- ----------- lsn4clli    lsn4     10 001-001-001
                                                ls04     20 001-002-003
001-001-002 ----------- ----------- lsn2clli    lsn2     10 001-001-002
001-002-003 ----------- ----------- ls04clli    ls04     10 001-002-003
002-002-002 ----------- ----------- ls01clli    ls01     10 002-002-002
                                                ls02     20 004-004-004
                                                ls03     30 003-003-003
002-002-004 ----------- ----------- lsn3clli    lsn3     10 002-002-004
002-007-008 ----------- ----------- ls06clli    ls06     10 002-007-008
003-003-003 ----------- ----------- ls03clli    ls03     10 003-003-003
                                                ls01     20 002-002-002
                                                ls02     30 004-004-004
003-003-005 ----------- ----------- lsn4clli    lsn4     10 003-003-005
004-004-004 ----------- ----------- ls02clli    ls02     10 004-004-004
                                                ls01     20 002-002-002
                                                ls03     30 003-003-003
005-005-005 ----------- ----------- lsn5clli    lsn5     10 005-005-005
006-006-006 ----------- ----------- lsn6clli    lsn6     10 006-006-006
007-007-007 ----------- ----------- lsn7clli    lsn7     10 007-007-007
010-010-010 ----------- ----------- lsn8clli    lsn8     10 010-010-010
100-100-100 ----------- ----------- lsn9clli    lsn9     10 100-100-100
100-100-110 ----------- ----------- lsn0clli    lsn0     10 100-100-110
                                                lsn9     20 100-100-100
150-175-000 ----------- ----------- lsn10clli   ls10     10 150-175-000
```

```
200-150-007 ----------- ----------- lsn11clli   ls11     10 200-150-007
                                                ls10     10 150-175-000
200-200-200 ----------- ----------- lsn12clli   ls12     10 200-200-200

DPCI        ALIASN      ALIASA      CLLI         LSN      RC APCI

DPCN        ALIASA      ALIASI      CLLI         LSN      RC APCN
```

If the point code is not shown in the **rtrv-rte** output, go to the *Database Administration Manual - SS7* and assign the point code of the GTT to a route.

---

4. 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 05-03-28 14:42:38 GMT EAGLE5 32.0.0
APPL       SSN       STAT
LNP        254       ONLINE

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

If the LNP subsystem number is not shown in the **rtrv-ss-appl** output, go to the "Adding a Subsystem Application" procedure on page 3-57 and add the LNP subystem number to the database.

---

5. Change the LNP NPANXXs using the **chg-lnp-npanxx** command. For this example, enter these commands.

```
chg-lnp-npanxx:npanxx=909335:mr=yes:gt1=18,003,003,003,0,dpc,
   gt,0

chg-lnp-npanxx:npanxx=909336:mr=yes:gt1=16,004,004,004,0,
   dpcngt,gt,70

chg-lnp-npanxx:npanxx=919460:mr=yes:gt1=10,005,005,005,254,
   dpcssn,ssn,0
```

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

```
rlghncxa03w 05-03-28 14:42:38 GMT EAGLE5 32.0.0
CHG-LNP-NPANXX: MASP A - COMPLTD
```

---

6. Verify the changes specifying the **rtrv-lnp-npanxx** command with the NPANXX value used in step 5. For this example, enter these commands.

   rtrv-lnp-npanxx:npanxx=909335

   This is an example of the possible output.

```
rlghncxa03w 05-03-28 14:42:38 GMT EAGLE5 32.0.0
NPANXX  MR   LRN  TT   XLAT    RI   PCA          SSN  NGT
909335  yes  yes  16   DPC     GT   001-001-001  0    ---
                  18   DPC     GT   003-003-003  0    ---
                  19   DPCSSN  SSN  002-002-004  20   ---

NPANXX TABLE IS 1% FULL
```

   rtrv-lnp-npanxx:npanxx=909336

   This is an example of the possible output.

```
rlghncxa03w 05-03-28 14:42:38 GMT EAGLE5 32.0.0
NPANXX  MR   LRN  TT   XLAT    RI   PCA          SSN  NGT
909336  yes  yes  16   DPC     GT   004-004-004  0    70

NPANXX TABLE IS 1% FULL
```

   rtrv-lnp-npanxx:npanxx=919460

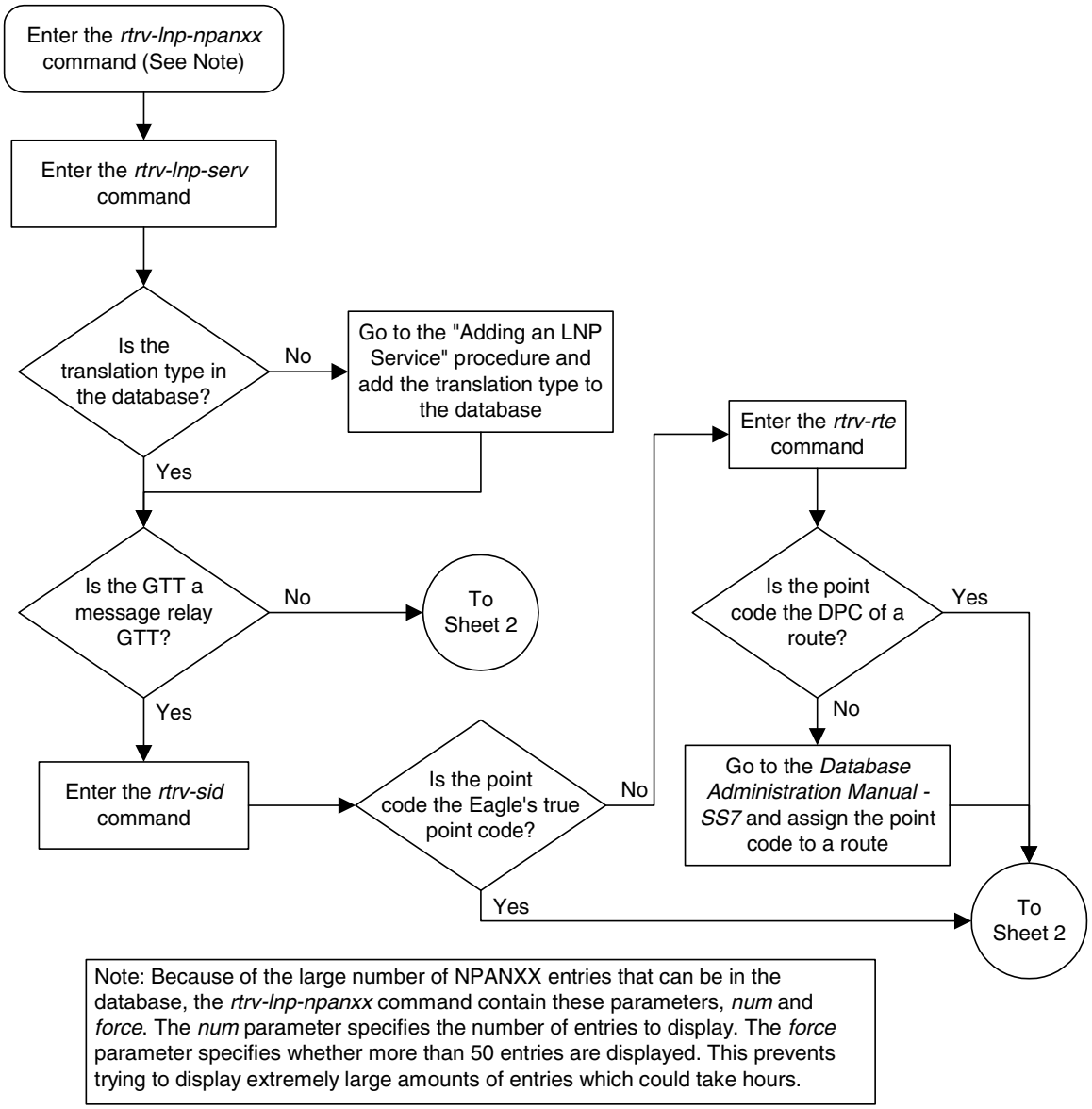
   This is an example of the possible output.

```
rlghncxa03w 05-03-28 14:42:38 GMT EAGLE5 32.0.0
NPANXX  MR   LRN  TT   XLAT    RI   PCA          SSN  NGT
919460  yes  yes  10   DPCSSN  SSN  005-005-005  254  ---

NPANXX TABLE IS 1% 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.

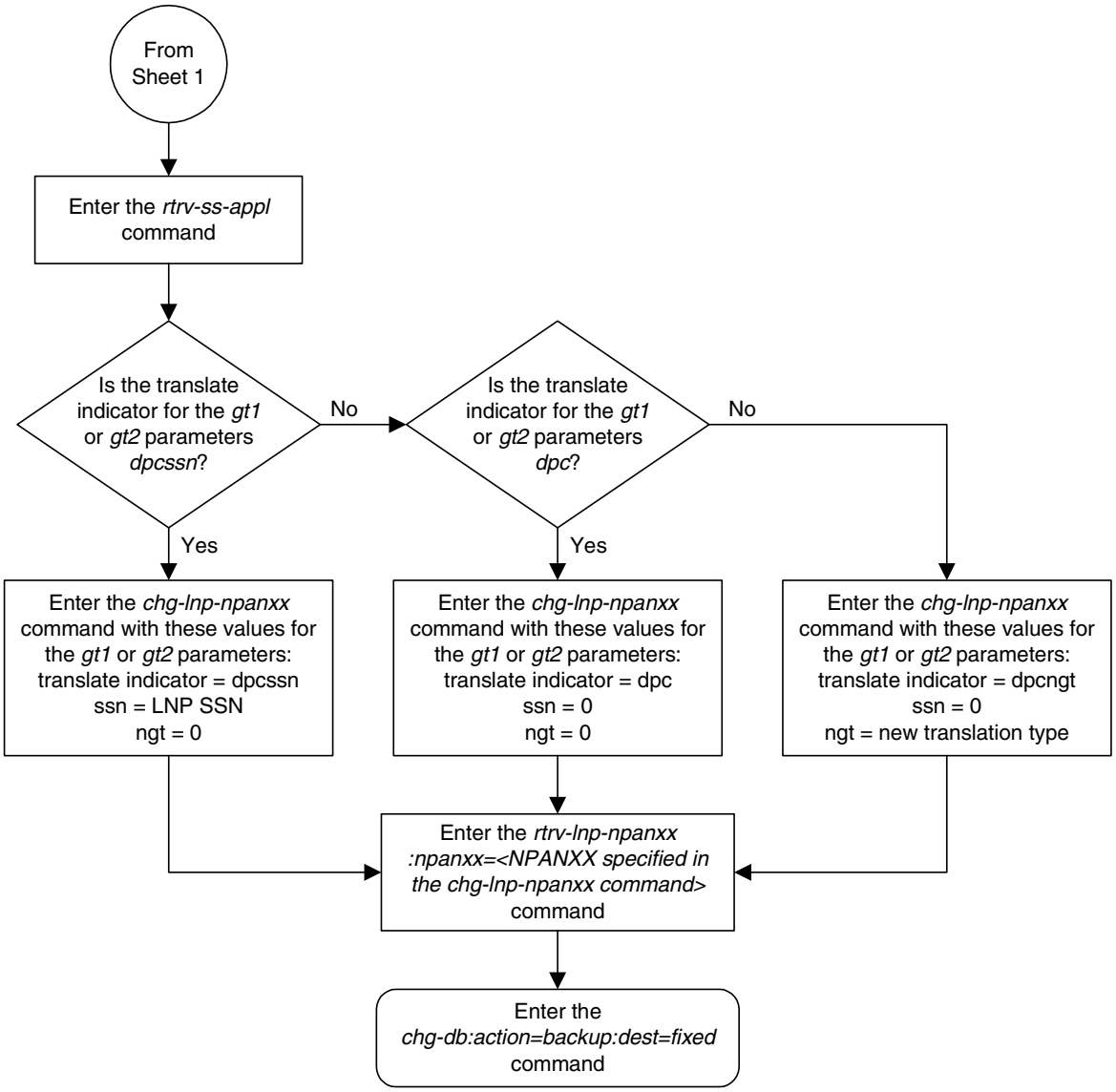
```
BACKUP (FIXED): MASP A - Backup starts on active MASP.
BACKUP (FIXED): MASP A - Backup on active MASP to fixed disk complete.
BACKUP (FIXED): MASP A - Backup starts on standby MASP.
BACKUP (FIXED): MASP A - Backup on standby MASP to fixed disk complete.
```

Flowchart 3-12. Changing an LNP NPANXX (Sheet 1 of 2)



Note: Because of the large number of NPANXX entries that can be in the database, the *rtrv-lnp-npanxx* command contain these parameters, *num* and *force*. The *num* parameter specifies the number of entries to display. The *force* parameter specifies whether more than 50 entries are displayed. This prevents trying to display extremely large amounts of entries which could take hours.

Flowchart 3-12. Changing an LNP NPANXX (Sheet 2 of 2)



Adding a Split NPANXX

This procedure is used to add a split NPANXX to the database using the **ent-split-npa** command. The **ent-split-npa** command uses these parameters.

:npanxx – the LNP NPANXX

:nnpanxx – the new LNP NPANXX

By splitting the NPANXX, the user can force 2 different NPANXXs to reference the same last 4 digits of a LNP telephone number in the database. When either NPANXX is updated, the LNP telephone numbers in each NPANXX with the same last 4 digits are updated. When the NPANXX is split, all existing NPANXX data for the NPANXX being split is copied to the new NPANXX.

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, go to the "Enabling the LNP Feature for 2 to 12 Million Numbers" procedure on page 2-16 and enable the LNP feature.

Make sure that the system meets the requirements shown in the "LNP System Requirements" section on page 3-5. If the system does not meet these requirements, the LNP commands will be rejected.

The new NPANXX specified with the **nnpanxx** parameter cannot be in the database.

The database can contain a maximum of 150,000 NPANXX entries, whether these entries are configured with the **ent-lnp-npanxx**, **ent-split-npa**, or **ent-lnp-sub** commands.

The **rtrv-split-npa** command is used to display the split NPANXXs in the database. Because of the large number of NPANXX entries that can be in the database, the **rtrv-split-npa** command contains these parameters, **num** and **force**. The **num** parameter specifies the maximum number of entries to display. The **force** parameter specifies whether more than 50 entries are displayed. This prevents trying to display extremely large amounts of entries which could take hours. The **rtrv-split-npa** command has two other parameters, **npanxx** and **enpanxx**. The **npanxx** parameter is used to display a specific NPANXX or to show the beginning of a range of NPANXXs. The **enpanxx** parameter shows the NPANXX that ends the range of NPANXXs. These two parameters can also be used to limit the amount of information displayed with the **rtrv-split-npa** command.

The examples in this procedure splits the NPANXX 423743 to 615929 and NPANXX 910584 to 704427.

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 05-03-30 21:15:37 GMT EAGLE5 32.0.0
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

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, go to the "Enabling the LNP Feature for 2 to 12 Million Numbers" procedure on page 2-16 and enable the LNP feature. Go to step 2.

   If the LNP feature is enabled, go to step 2.

2. Display the LNP NPANXXs in the database with the **rtrv-lnp-npanxx** command. This is an example of the possible output.

```
rlghncxa03w 05-03-28 14:42:38 GMT EAGLE5 32.0.0
NPANXX  MR   LRN  TT   XLAT    RI   PCA          SSN  NGT
423743  yes  yes  15   DPC     GT   100-100-110  0    ---
                  20   DPCNGT  GT   001-001-002  0    30
                  201  DPCSSN  SSN  200-150-007  254  ---

909335  yes  yes  16   DPC     GT   001-001-001  0    ---
                  18   DPCNGT  GT   002-002-002  0    10
                  19   DPCSSN  SSN  002-002-004  20   ---
                  100  DPC     GT   007-007-007  0    ---

909336  yes  yes  16   DPC     GT   001-001-001  0    ---
                  201  DPCSSN  SSN  200-150-007  254  ---

910584  yes  yes  50   DPCNGT  GT   003-003-003  0    60

919321  yes  yes  30   DPCNGT  GT   003-003-003  0    60
```

```
919460  yes  yes  10   DPCSSN  SSN  003-003-005  254  ---
                  25   DPC     GT   010-010-010  0    ---
                  30   DPCNGT  GT   150-175-000  0    150

919461  yes  yes  10   DPCSSN  SSN  003-003-005  254  ---
                  25   DPC     GT   010-010-010  0    ---
                  30   DPCNGT  GT   150-175-000  0    150

NPANXX TABLE IS 1% FULL
```

3. Display the split NPANXXs in the database with the **rtrv-split-npa** command. This is an example of the possible output.

```
rlghncxa03w 05-03-28 14:23:37 GMT EAGLE5 32.0.0
NPANXX  NNPANXX
909335  919336
919321  920461
```

4. Add the split NPANXXs using the **ent-split-npa** command. For this example, enter these commands.

ent-split-npa:npanxx=423743:nnpanxx=615929

ent-split-npa:npanxx=910584:nnpanxx=704427

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

```
rlghncxa03w 05-03-28 14:42:38 GMT EAGLE5 32.0.0
ENT-SPLIT-NPA: MASP A - COMPLTD
```

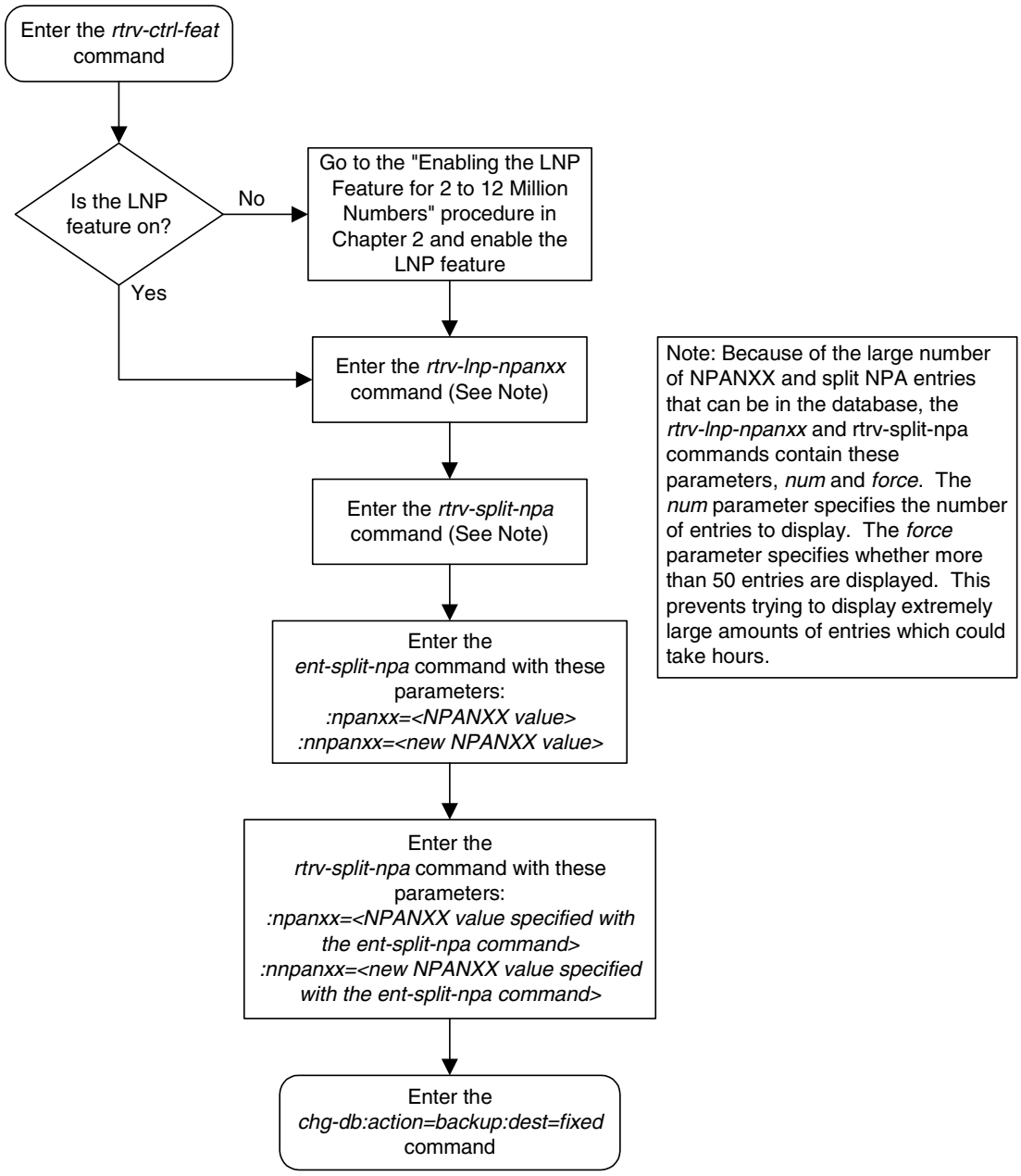
5. Verify the changes with the **rtrv-split-npa** command. This is an example of the possible output.

```
rlghncxa03w 05-03-28 14:23:37 GMT EAGLE5 32.0.0
NPANXX  NNPANXX
423743  615929
909335  919336
909336  919460
910584  704427
```

6. 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.
```

Flowchart 3-13. Adding a Split NPANXX



Removing a Split NPANXX

This procedure is used to remove a split NPANXX from the database using the **dlt-split-npa** command. The **dlt-split-npa** command uses only one parameter, **npanxx** – the split NPANXX, the value in either the **NPANXX** or **NEW NPANXX** fields of the **rtrv-split-npa** command output.

Make sure that the system meets the requirements shown in the "LNP System Requirements" section on page 3-5. If the system does not meet these requirements, the LNP commands will be rejected.

The split NPANXX specified with the **npanxx** parameter must be in the database.

The **rtrv-split-npa** command is used to display the NPANXXs in the database. Because of the large number of NPANXX entries that can be in the database, the **rtrv-split-npa** command contains these parameters, **num** and **force**. The **num** parameter specifies the number of entries to display. The **force** parameter specifies whether more than 50 entries are displayed. This prevents trying to display extremely large amounts of entries which could take hours. The **rtrv-split-npa** command has two other parameters, **npanxx** and **enpanxx**. The **npanxx** parameter is used to display a specific NPANXX or to show the beginning of a range of NPANXXs. The **enpanxx** parameter shows the NPANXX that ends the range of NPANXXs. These two parameters can also be used to limit the amount of information displayed with the **rtrv-split-npa** command.

The examples in this procedure remove split NPANXX 910584 from the database.

Procedure

1. Display the split NPANXXs in the database with the **rtrv-split-npa** command. This is an example of the possible output.

```
rlghncxa03w 05-03-28 14:23:37 GMT EAGLE5 32.0.0
NPANXX  NNPANXX
423743  615929
909335  919336
909336  919460
910584  704427
```

2. Remove the split NPANXX using the **dlt-split-npa** command. For this example, enter these commands.

```
dlt-lnp-npanxx:npanxx=910584
```

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

```
rlghncxa03w 05-03-28 14:42:38 GMT EAGLE5 32.0.0
DLT-SPLIT-NPA: MASP A - COMPLTD
```

3. Verify the changes by entering the **rtrv-split-npa** command with the NPANXX value specified in step 2. For this example, enter this command.

   rtrv-split-npa:npanxx=910584

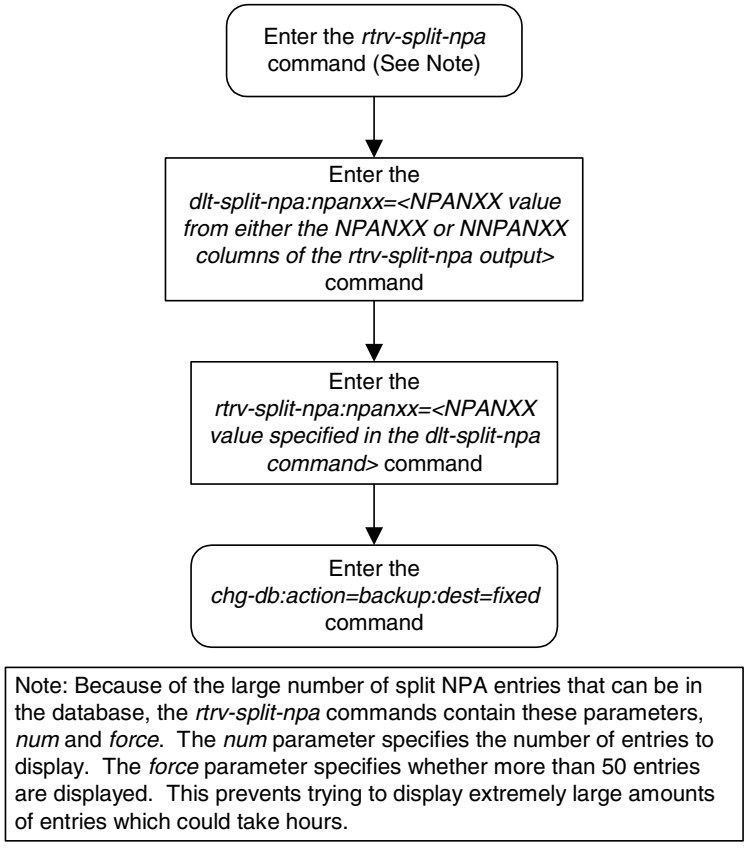
   This is an example of the possible output.

```
rlghncxa03w 05-03-28 14:23:37 GMT EAGLE5 32.0.0
NPANXX  NNPANXX

NPANXX does not exist
```

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.
```

Flowchart 3-14. Removing a Split NPANXX



Adding an LNP Location Routing Number

This procedure is used to add an LNP location routing number (LRN) and its corresponding overriding message relay global title translations (MRGT) to the database using the **ent-lnp-lrn** command. The **ent-lnp-lrn** command uses these parameters.

:lrn – the location routing number

:sp – the service provider ID

:mrgt1 – the first overriding message relay global title translation

:mrgt2 – the second overriding message relay global title translation

The value of the **mrgt1** and **mrgt2** parameters uses these values.

- tt-pc-ssn-xlat-ri-ngt-rgta

  tt – the global title translation type

  pc – a full ANSI point code

  ssn – the global title translation subsystem number

  xlat – the global title translation translate indicator

  ri – the global title translation routing indicator

  ngt – the new global title translation type

  rgta – shows whether the global title address is replaced by the location routing number

  NOTE: The LNP Eagle stores the 6-digit default global title NGT (new global title) value on a per service, point code, and subsystem combination basis, not on an NPA-NXX basis. This design allows a user to always modify the NGT field for all NPA-NXXs assigned the same service, point code, and subsystem combination instantly with one command. Conversely, the LSMS stores the NGT field independently for each 6-digit default (NPA-NXX) global title translation entered.

  When an NGT field is modified or assigned to a particular LNP 6-digit global title translation (either via the LSMS interface or directly from an Eagle terminal), every existing NPA-NXX entry in the LNP Eagle with the same combination of service, point code, and subsystem will reflect that NGT. Because of this difference in how this information is stored on the LSMS versus how it is stored on the Eagle, a user could get into a situation where the NGT values in the LSMS are not reflective of those stored in the Eagle. The NGT value must be specified correctly every time a 6-digit default (NPA-NXX) global title translation is updated or the LNP service on the Eagle could be seriously impacted.

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, go to the "Enabling the LNP Feature for 2 to 12 Million Numbers" procedure on page 2-16 and enable the LNP feature.

Make sure that the system meets the requirements shown in the "LNP System Requirements" section on page 3-5. If the system does not meet these requirements, the LNP commands will be rejected.

A maximum of 100,000 LRNs can be configured in the database.

The database can contain a maximum of 150,000 NPANXX entries, whether these entries are configured with the **ent-lnp-npanxx**, **ent-split-npa**, or **ent-lnp-sub** commands.

The global title translation type must be reserved for an LNP service. To verify this, enter the **rtrv-lnp-serv** command.

The Message Relay default global title translation point code must be in the routing table. This can be verified with the **rtrv-rte** command. This point code must be a full point code and cannot be either a cluster point code or a network routing point code. If the default global title translation point code is not in the routing table, it must be added using either the "Adding a Route" or "Changing a Route" procedures in the *Database Administration Manual – SS7*.

The translation type value can only be used once for each LRN and cannot be defined in the database as an alias translation type. To verify that the translation type value is not an alias translation type, enter the **rtrv-lnp-serv** command.

If the global title translation translate indicator is **dpcssn**, the value of the subsystem number cannot be 0.

If the global title translation translate indicator is either **dpcssn** or **dpc**, the value of the new global title translation type must be 0.

If the global title translation translate indicator is either **dpcngt** or **dpc**, the value of the subsystem number must be 0.

If the global title translation translate indicator is **dpcngt**, the value of the routing indicator must be **gt** and the value of the new global title translation type cannot be 0.

The message relay global title translation type cannot be assigned to either the AIN, IN, wireless number portability, PCS 1900 number portability, or the LNP query services. This can be verified with the **rtrv-lnp-serv** command. If translation types are assigned to any of these services, the entries **AIN** (for the AIN service), **IN** (for the IN service), **WNP** (for the wireless number portability service), **PCS** (for the PCS 1900 number portability service), or **LNPQS** (for the LNP query service) are displayed in the **SERV** field of the **rtrv-lnp-serv** command output.

The service provider ID specified with the **sp** parameter must be defined in the database. This can be verified with the **rtrv-lnp-sp** command. The value of the **sp** parameter can contain from 1 to 4 alphanumeric characters.

The examples in this procedure adds the overriding message relay global title translations and the LRNs shown in Table 3-10.

Table 3-10. Example Location Routing Number Configuration

LRN	SP	TT	XLAT	RI	PCA	SSN	NGT	RGTA
9093350000	----	30	DPC	GT	101-101-101	0	0	Yes
9093350099	----	25	DPCNGT	GT	200-150-175	0	100	Yes
9093360000	12BB	20	DPCSSN	SSN	006-006-006	250	0	Yes
9093360000	----	125	DPCNGT	GT	020-020-020	0	110	Yes
9105840000	99ZY	50	DPCSSN	SSN	005-005-005	250	0	Yes
9105840000	----	175	DPC	GT	010-101-010	0	0	Yes
9193370000	----	201	DPCNGT	GT	135-145-155	0	75	Yes

The **rtrv-lnp-lrn** command is used to display the LRNs in the database. Because of the large number of LRN entries that can be in the database, the **rtrv-lnp-lrn** command contains these parameters, **num** and **force**. The **num** parameter specifies the maximum number of entries to display. The **force** parameter specifies whether more than 50 entries are displayed. This prevents trying to display extremely large amounts of entries which could take hours. The **rtrv-lnp-lrn** command has three other parameters, **lrn**, **elrn**, and **sp**. The **lrn** parameter is used to display a specific LRN or to show the beginning of a range of LRNs. The **elrn** parameter shows the LRN that ends the range of LRNs.

The **sp** parameter is used to display all entries assigned to a specific service provider. The value of the **sp** parameter can contain from 1 to 4 alphanumeric characters. These three parameters can also be used to limit the amount of information displayed with the **rtrv-lnp-lrn** command.

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 05-03-30 21:15:37 GMT EAGLE5 32.0.0
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

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, go to the "Enabling the LNP Feature for 2 to 12 Million Numbers" procedure on page 2-16 and enable the LNP feature. Go to step 2.

   If the LNP feature is enabled, go to step 2.

2. Display the LRNs in the database with the **rtrv-lnp-lrn** command. This is an example of the possible output.

```
rlghncxa03w 05-03-28 14:23:37 GMT EAGLE5 32.0.0
LRN         SP    TT   XLAT    RI   PCA          SSN  NGT  RGTA
9093350000  12ab  16   DPCSSN  SSN  001-001-001  20   ---  yes
                  18   DPCSSN  SSN  002-002-002  30   ---  yes
                  19   DPCSSN  SSN  002-002-004  20   ---  yes
9093350099  50hi  15   DPCSSN  SSN  003-003-003  254  ---  yes
9193370000  67mi  30   DPCSSN  SSN  004-004-004  254  ---  yes

LRN TABLE IS 1% FULL
```

3. Display the LNP services in the database using the **rtrv-lnp-serv** command. This is an example of the possible output.

```
rlghncxa03w 05-03-28 14:42:38 GMT EAGLE5 32.0.0
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
```

If the desired translation type is not in the database, go to the "Adding an LNP Service" procedure on page 3-30 and add the translation type.

---

4. Display the routes in the database using the **rtrv-rte** command. This is an example of the possible output.

```
rlghncxa03w 05-03-28 11:43:04 GMT  EAGLE5 32.0.0
DPCA        ALIASI      ALIASN      CLLI        LSN      RC APCA
001-001-001 ----------- ----------- lsn4clli    lsn4     10 001-001-001
                                                ls04     20 001-002-003
001-001-002 ----------- ----------- lsn2clli    lsn2     10 001-001-002
001-002-003 ----------- ----------- ls04clli    ls04     10 001-002-003
002-002-002 ----------- ----------- ls01clli    ls01     10 002-002-002
                                                ls02     20 004-004-004
                                                ls03     30 003-003-003
002-002-004 ----------- ----------- lsn3clli    lsn3     10 002-002-004
002-007-008 ----------- ----------- ls06clli    ls06     10 002-007-008
003-003-003 ----------- ----------- ls03clli    ls03     10 003-003-003
                                                ls01     20 002-002-002
                                                ls02     30 004-004-004
003-003-005 ----------- ----------- lsn4clli    lsn4     10 003-003-005
004-004-004 ----------- ----------- ls02clli    ls02     10 004-004-004
                                                ls01     20 002-002-002
                                                ls03     30 003-003-003
005-005-005 ----------- ----------- lsn5clli    lsn5     10 005-005-005
006-006-006 ----------- ----------- lsn6clli    lsn6     10 006-006-006
007-007-007 ----------- ----------- lsn7clli    lsn7     10 007-007-007
010-010-010 ----------- ----------- lsn8clli    lsn8     10 010-010-010
100-100-100 ----------- ----------- lsn9clli    lsn9     10 100-100-100
100-100-110 ----------- ----------- lsn0clli    lsn0     10 100-100-110
                                                lsn9     20 100-100-100
150-175-000 ----------- ----------- lsn10clli   ls10     10 150-175-000
200-150-007 ----------- ----------- lsn11clli   ls11     10 200-150-007
                                                ls10     10 150-175-000
200-200-200 ----------- ----------- lsn12clli   ls12     10 200-200-200

DPCI        ALIASN      ALIASA      CLLI         LSN      RC APCI

DPCN        ALIASA      ALIASI      CLLI         LSN      RC APCN
```

If the point code is not shown in the **rtrv-rte** output, go to the *Database Administration Manual - SS7* and assign the point code of the GTT to a route.

---

5. 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 05-03-28 14:42:38 GMT EAGLE5 32.0.0
APPL       SSN       STAT
LNP        254       ONLINE

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

If the LNP subsystem number is not shown in the **rtrv-ss-appl** output, go to the "Adding a Subsystem Application" procedure on page 3-57 and add the LNP subystem number to the database.

---

6. Add the LRNs using the **ent-lnp-lrn** command. For this example, enter these commands.

```
ent-lnp-lrn:lrn=9105840000:sp=99ZY:mrgt1=50,005,005,005,250,
   dpcssn,ssn,0,yes:mrgt2=175,010,101,101,0,dpc,gt,0,yes

ent-lnp-lrn:lrn=9093360000:sp=12BB:mrgt1=20,006,006,006,250,
   dpcssn,ssn,0,yes:mrgt2=125,020,020,020,0,dpcngt,gt,110,yes

ent-lnp-lrn:lrn=9093350000:mrgt1=30,101,101,101,0,dpc,gt,0,yes

ent-lnp-lrn:lrn=9093350099:mrgt1=25,200,150,175,0,dpcngt,gt,
   100,yes

ent-lnp-lrn:lrn=9193370000:mrgt1=201,135,145,155,0,dpcngt,gt,
   75,yes
```

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

```
rlghncxa03w 05-03-28 14:42:38 GMT EAGLE5 32.0.0
ENT-LNP-LRN: MASP A - COMPLTD
```

---

7. Verify the changes with the **rtrv-lnp-lrn** command, specifying the LRN value used in step 6. For this example, enter these commands.

rtrv-lnp-lrn:lrn=9105840000

This is an example of the possible output.

```
rlghncxa03w 05-03-28 14:23:37 GMT EAGLE5 32.0.0
LRN         SP    TT   XLAT    RI   PCA          SSN  NGT  RGTA
9105840000  99zy  50   DPCSSN  SSN  005-005-005  250  ---  yes
                  175  DPC     GT   010-101-010  ---  ---  yes

LRN TABLE IS 1% FULL
```

rtrv-lnp-lrn:lrn=9093360000

This is an example of the possible output.

```
rlghncxa03w 05-03-28 14:23:37 GMT EAGLE5 32.0.0
LRN         SP    TT   XLAT    RI   PCA          SSN  NGT  RGTA
9093360000  12bb  20   DPCSSN  SSN  006-006-006  250  ---  yes
                  125  DPCNGT  GT   020-020-020  ---  ---  yes

LRN TABLE IS 1% FULL
```

rtrv-lnp-lrn:lrn=9093350000

This is an example of the possible output.

```
rlghncxa03w 05-03-28 14:23:37 GMT EAGLE5 32.0.0
LRN         SP    TT   XLAT    RI   PCA          SSN  NGT  RGTA
9093350000  12ab  16   DPCSSN  SSN  001-001-001  20   ---  yes
                  18   DPCSSN  SSN  002-002-002  30   ---  yes
                  19   DPCSSN  SSN  002-002-004  20   ---  yes
                  30   DPC     GT   101-101-101  ---  ---  yes

LRN TABLE IS 1% FULL
```

rtrv-lnp-lrn:lrn=9093350099

This is an example of the possible output.

```
rlghncxa03w 05-03-28 14:23:37 GMT EAGLE5 32.0.0
LRN         SP    TT   XLAT    RI   PCA          SSN  NGT  RGTA
9093350099  50hi  15   DPCSSN  SSN  003-003-003  254  ---  yes
                  25   DPCNGT  GT   200-150-175  ---  ---  yes

LRN TABLE IS 1% FULL
```

rtrv-lnp-lrn:lrn=9193370000

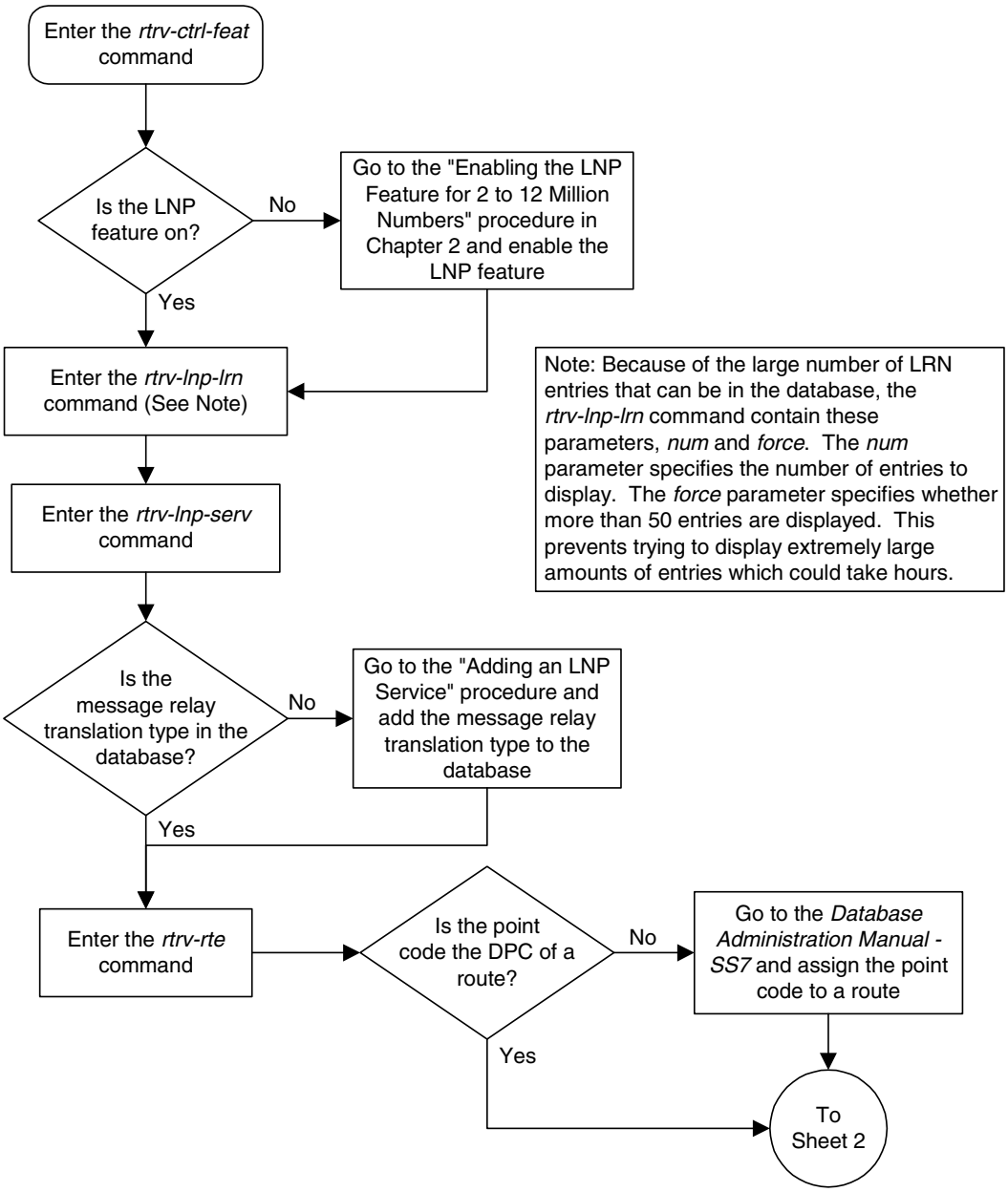
This is an example of the possible output.

```
rlghncxa03w 05-03-28 14:23:37 GMT EAGLE5 32.0.0
LRN         SP    TT   XLAT    RI   PCA          SSN  NGT  RGTA
9193370000  67mi  30   DPCSSN  SSN  004-004-004  254  ---  yes
                  201  DPCNGT  GT   135-145-155  ---  ---  yes

LRN TABLE IS 1% FULL
```

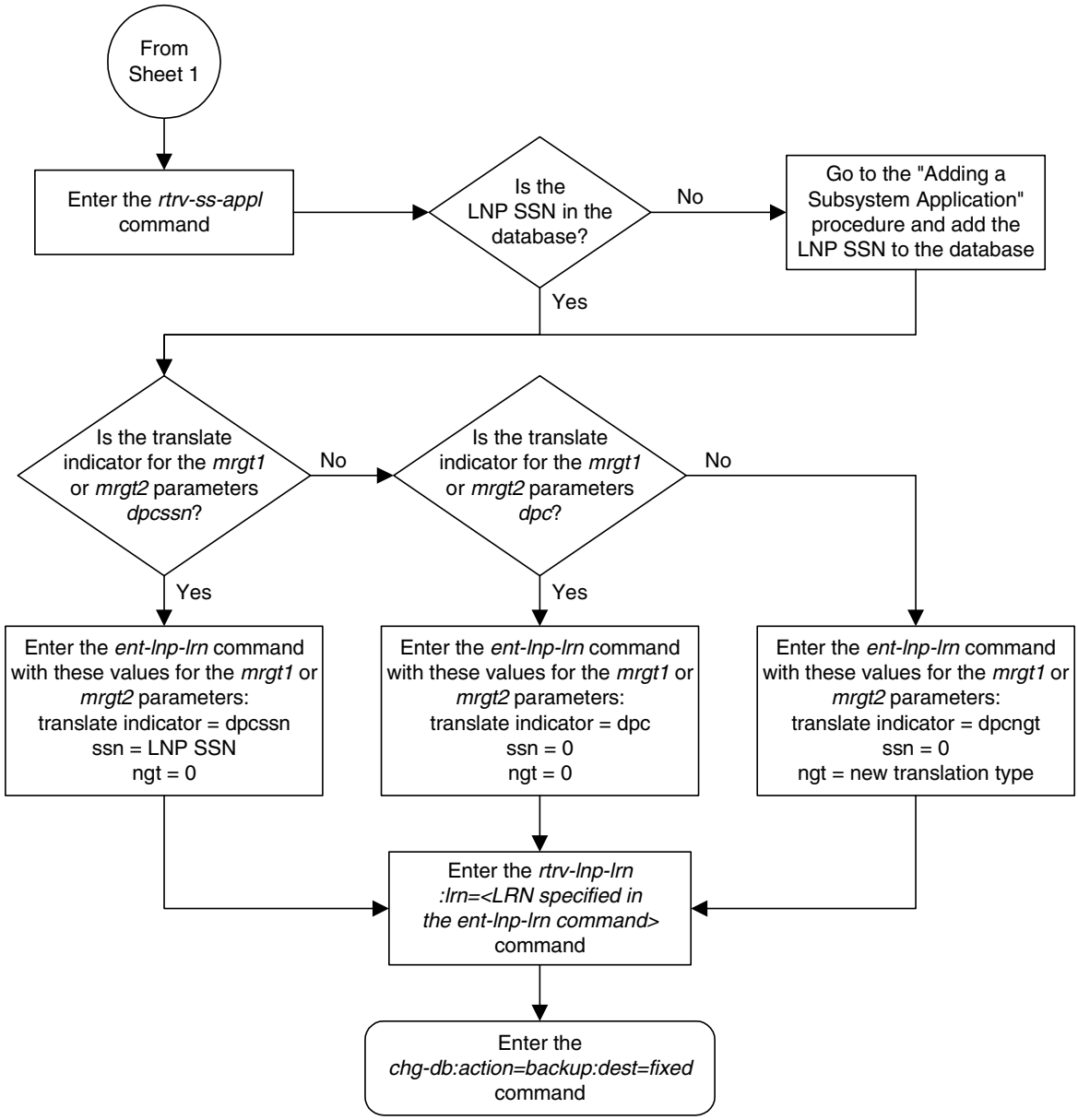
8. Backup the new changes using the **chg-db:action=backup:dest=fixed** command. The following messages should appear, the active Maintenance and Administration Subsystem Processor (MASP) appears first.

```
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.
```

Flowchart 3-15. Adding a Location Routing Number (Sheet 1 of 2)



Flowchart 3-15. Adding a Location Routing Number (Sheet 2 of 2)



Removing an LNP Location Routing Number

This procedure is used to remove a location routing number or its corresponding overriding message relay global title translations from the database using the **dlt-lnp-lrn** command. The **dlt-lnp-lrn** command uses these parameters.

:lrn – the location routing number

:tt – the global title translation type

Make sure that the system meets the requirements shown in the "LNP System Requirements" section on page 3-5. If the system does not meet these requirements, the LNP commands will be rejected.

The location routing number being removed must be in the database and cannot have any telephone numbers (LNP telephone numbers) assigned to it. This can be verified with the **rtrv-lnp-sub** command. If the output of the **rtrv-lnp-sub** command shows references to the location routing number being removed, go to the "Removing an LNP Telephone Number Subscription" procedure on page 3-149 and remove the reference to the location routing number.

The specified translation type must be assigned to the location routing number.

If the **tt** parameter is not specified, then all translation types assigned to the location routing number are removed from the database.

The value of the **tt** parameter cannot be defined in the database as an alias translation type. To verify this, enter the **rtrv-lnp-serv** command.

If the last translation type assigned to an LRN is removed from the database, then the LRN is removed from the database.

The **rtrv-lnp-lrn** command is used to display the LRNs in the database. Because of the large number of LRN entries that can be in the database, the **rtrv-lnp-lrn** command contains these parameters, **num** and **force**. The **num** parameter specifies the maximum number of entries to display. The **force** parameter specifies whether more than 50 entries are displayed. This prevents trying to display extremely large amounts of entries which could take hours. The **rtrv-lnp-lrn** command has three other parameters, **lrn**, **elrn**, and **sp**. The **lrn** parameter is used to display a specific LRN or to show the beginning of a range of LRNs. The **elrn** parameter shows the LRN that ends the range of LRNs. The **sp** parameter is used to display all entries assigned to a specific service provider. The value of the **sp** parameter can contain from 1 to 4 alphanumeric characters. These three parameters can also be used to limit the amount of information displayed with the **rtrv-lnp-lrn** command.

The examples in this procedure remove LRN 9105840000 and translation type 19 assigned to LRN 9093350000 from the database.

Procedure

1. Display the LRNs in the database with the **rtrv-lnp-lrn** command. This is an example of the possible output.

```
rlghncxa03w 05-03-28 14:23:37 GMT EAGLE5 32.0.0
LRN         SP    TT   XLAT    RI   PCA          SSN  NGT  RGTA
9093350000  12ab  16   DPCSSN  SSN  001-001-001  20   ---  yes
                  18   DPCSSN  SSN  002-002-002  30   ---  yes
                  19   DPCSSN  SSN  002-002-004  20   ---  yes
                  30   DPC     GT   101-101-101  ---  ---  yes

9093350099  50hi  15   DPCSSN  SSN  003-003-003  254  ---  yes
                  25   DPCNGT  GT   200-150-175  ---  100  yes
9093360000  12bb  20   DPCSSN  SSN  006-006-006  250  ---  yes
                  125  DPCNGT  GT   020-020-020  ---  110  yes
9105840000  99zy  50   DPCSSN  SSN  005-005-005  250  ---  yes
                  175  DPC     GT   010-101-010  ---  ---  yes
9193370000  67mi  30   DPCSSN  SSN  004-004-004  254  ---  yes
                  201  DPCNGT  GT   135-145-155  ---  75   yes

LRN TABLE IS 1% FULL
```

2. Display the 10-digit telephone number subscriptions in the database using the **rtrv-lnp-sub** command, specifying a range of telephone numbers with the **tn** and **etn** parameters), the location routing number (LRN) being removed (with the **lrn** parameter), and the **num** parameter. If the **num** parameter value is greater than 50, the **force=yes** parameter must be specified. The range of values for the **num** parameter is 1 to 10,000. If the **num=100** and **force=yes** parameters are specified with the **rtrv-lnp-sub** command, up to 100 entries in the specified range of 10-digit telephone numbers that contain the specified LRN are displayed.

NOTE: The range of 10-digit telephone numbers cannot cross an NPANXX boundary. For example, specifying the tn=9194600000 and the etn=9194619999 parameters is not allowed. Using this example, specifying the tn=9194600000 and the etn=9194609999, or the tn=9194610000 and the etn=9194619999 parameters are allowed.

For this example, enter this command.

```
rtrv-lnp-sub:tn=312000000:etn=3129999999:lrn=9105840000
:num=100:force=yes
```

This is an example of the possible output.

```
rlghncxa03w 05-03-28 14:42:38 GMT EAGLE5 32.0.0
TN          SP    LRN         PTYPE
3125841***  ba90  9105840000  POOL

  TT   XLAT    RI   PCA          SSN  NGT  RGTA
  50   DPCSSN   SSN 005-005-005  250  ---  yes

Service provider table is 1% full
LRN table is  1% full
MESSAGE relay table is  1% full
NPANXX table is  1% full
PORTED TN table is  1% full
SCCP cards configured to support a maximum of  500000 ported TNs
```

rtrv-lnp-sub:tn=9093350000:etn=9093359999:lrn=9093350000 :num=100:force=yes

This is an example of the possible output.

```
rlghncxa03w 05-03-28 14:42:38 GMT EAGLE5 32.0.0
TN          SP    LRN         PTYPE
9093351111  12ab  9093350000  none

  TT   XLAT    RI   PCA          SSN  NGT  RGTA
  19   DPCSSN  SSN  002-002-004  20   ---  yes

Service provider table is 1% full
LRN table is  1% full
MESSAGE relay table is  1% full
NPANXX table is  1% full
PORTED TN table is  1% full
SCCP cards configured to support a maximum of  500000 ported TNs
```

If any 10-digit telephone number subscriptions use the translation type contained in the NPANXX being removed in this procedure, these 10-digit telephone number subscriptions must be removed from the database. Go to the "Removing an LNP Telephone Number Subscription" procedure on page 3-149 to remove these 10-digit telephone number subscriptions.

---

3. Remove the LNP NPANXXs using the **dlt-lnp-lrn** command. For this example, enter these commands.

dlt-lnp-lrn:lrn=9105840000

dlt-lnp-lrn:lrn=9093350000:tt=19

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

```
rlghncxa03w 05-03-28 14:42:38 GMT EAGLE5 32.0.0
DLT-LNP-LRN: MASP A - COMPLTD
```

---

4. Verify the changes with the **rtrv-lnp-lrn** command. This is an example of the possible output.

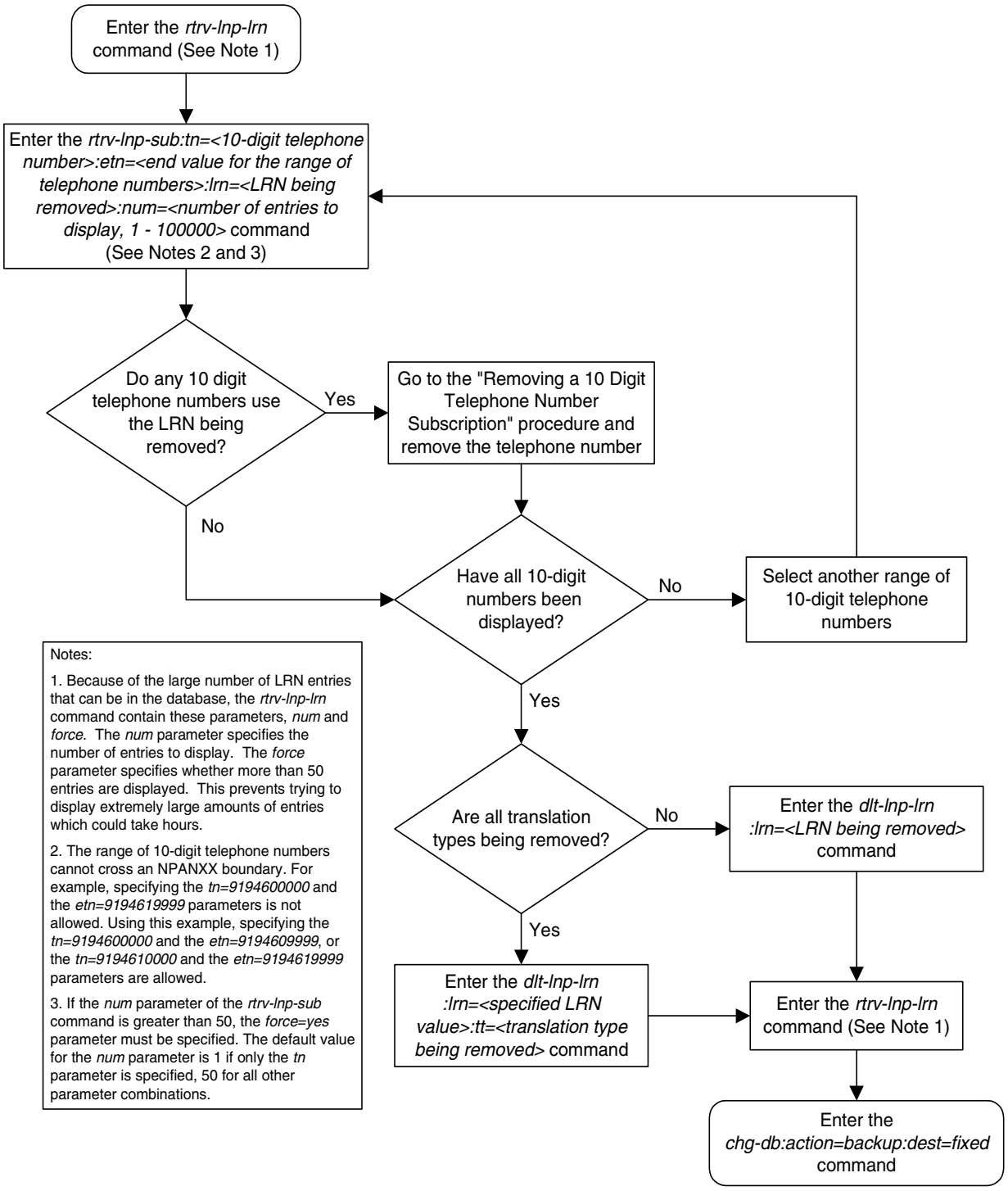
```
rlghncxa03w 05-03-28 14:23:37 GMT EAGLE5 32.0.0
LRN         SP    TT   XLAT    RI   PCA          SSN  NGT  RGTA
9093350000  12ab  16   DPCSSN  SSN  001-001-001  20   ---  yes
                  18   DPCSSN  SSN  002-002-002  30   ---  yes
                  30   DPC     GT   101-101-101  ---  ---  yes

9093350099  50hi  15   DPCSSN  SSN  003-003-003  254  ---  yes
                  25   DPCNGT  GT   200-150-175  ---  100  yes
9093360000  12bb  20   DPCSSN  SSN  006-006-006  250  ---  yes
                  125  DPCNGT  GT   020-020-020  ---  110  yes
9193370000  67mi  30   DPCSSN  SSN  004-004-004  254  ---  yes
                  201  DPCNGT  GT   135-145-155  ---  75   yes

LRN TABLE IS 1% 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.
```

Flowchart 3-16. Removing a Location Routing Number



Changing an LNP Location Routing Number

This procedure is used to change the attributes of an existing LRN and its corresponding overriding message relay global title translations in the database using the **chg-lnp-lrn** command. The **chg-lnp-lrn** command uses these parameters.

:lrn – the location routing number

:nmrgt1 – the first overriding message relay global title translation

:nmrgt2 – the second overriding message relay global title translation

The value of the **mrgt1** and **mrgt2** parameters uses these values.

- tt-pc-ssn-xlat-ri-ngt-rgta

  tt – the global title translation type

  pc – a full ANSI point code

  ssn – the global title translation subsystem number

  xlat – the global title translation translate indicator

  ri – the global title translation routing indicator

  ngt – the new global title translation type

  rgta – is the global title address to be replaced by the location routing number?

  NOTE: The LNP Eagle stores the 6-digit default global title NGT (new global title) value on a per service, point code, and subsystem combination basis, not on an NPA-NXX basis. This design allows a user to always modify the NGT field for all NPA-NXXs assigned the same service, point code, and subsystem combination instantly with one command. Conversely, the LSMS stores the NGT field independently for each 6-digit default (NPA-NXX) global title translation entered.

  When an NGT field is modified or assigned to a particular LNP 6-digit global title translation (either via the LSMS interface or directly from an Eagle terminal), every existing NPA-NXX entry in the LNP Eagle with the same combination of service, point code, and subsystem will reflect that NGT. Because of this difference in how this information is stored on the LSMS versus how it is stored on the Eagle, a user could get into a situation where the NGT values in the LSMS are not reflective of those stored in the Eagle. The NGT value must be specified correctly every time a 6-digit default (NPA-NXX) global title translation is updated or the LNP service on the Eagle could be seriously impacted.

Make sure that the system meets the requirements shown in the "LNP System Requirements" section on page 3-5. If the system does not meet these requirements, the LNP commands will be rejected.

The LRN being changed must be in the database.

The global title translation type must be reserved for the LNP feature.

The Message Relay default global title translation point code must be in the routing table. This can be verified with the **rtrv-rte** command. This point code must be a full point code and cannot be either a cluster point code or a network routing point code. If the default global title translation point code is not in the routing table, it must be added using either the "Adding a Route" or "Changing a Route" procedures in the *Database Administration Manual – SS7*.

The translation type value can only be used once for each LRN.

If the global title translation translate indicator is **dpcssn**, the value of the subsystem number cannot be 0.

If the global title translation translate indicator is either **dpcssn** or **dpc**, the value of the new global title translation type must be 0.

If the global title translation translate indicator is either **dpcngt** or **dpc**, the value of the subsystem number must be 0.

If the global title translation translate indicator is **dpcngt**, the value of the routing indicator must be **gt** and the value of the new global title translation type cannot be 0.

The message relay global title translation type value must be in the database, but cannot be assigned to either the AIN, IN, wireless number portability, PCS 1900 number portability service, or LNP query services and cannot be defined as an alias translation type. This can be verified with the **rtrv-lnp-serv** command. If translation types are assigned to any of these services, the entries **AIN** (for the AIN service), **IN** (for the IN service), **WNP** (for the wireless number portability service), **PCS** (for the PCS 1900 number portability service), or **LNPQS** (for the LNP query service) are displayed in the SERV field of the **rtrv-lnp-serv** command output. Alias translation types are shown in the **ALIAS** field of the **rtrv-lnp-serv** command output.

The **rtrv-lnp-lrn** command is used to display the LRNs in the database. Because of the large number of LRN entries that can be in the database, the **rtrv-lnp-lrn** command contains these parameters, **num** and **force**. The **num** parameter specifies the maximum number of entries to display. The **force** parameter specifies whether more than 50 entries are displayed. This prevents trying to display extremely large amounts of entries which could take hours. The **rtrv-lnp-lrn** command has three other parameters, **lrn**, **elrn**, and **sp**. The **lrn** parameter is used to display a specific LRN or to show the beginning of a range of LRNs. The **elrn** parameter shows the LRN that ends the range of LRNs. The **sp** parameter is used to display all entries assigned to a specific service provider. The value of the **sp** parameter can contain from 1 to 4 alphanumeric characters. These three parameters can also be used to limit the amount of information displayed with the **rtrv-lnp-lrn** command.

The example in this procedure changes the overriding message relay global title translation type 20 for LRN 9093360000 in the database.

Procedure

1. Display the LRNs in the database with the **rtrv-lnp-lrn** command. This is an example of the possible output.

```
rlghncxa03w 05-03-28 14:23:37 GMT EAGLE5 32.0.0
LRN         SP    TT   XLAT    RI   PCA          SSN  NGT  RGTA
9093350000  12ab  16   DPCSSN  SSN  001-001-001  20   ---  yes
                  18   DPCSSN  SSN  002-002-002  30   ---  yes
                  19   DPCSSN  SSN  002-002-004  20   ---  yes
                  30   DPC     GT   101-101-101  ---  ---  yes

9093350099  50hi  15   DPCSSN  SSN  003-003-003  254  ---  yes
                  25   DPCNGT  GT   200-150-175  ---  100  yes
9093360000  12bb  20   DPCSSN  SSN  006-006-006  250  ---  yes
                  125  DPCNGT  GT   020-020-020  ---  110  yes
9105840000  99zy  50   DPCSSN  SSN  005-005-005  250  ---  yes
                  175  DPC     GT   010-101-010  ---  ---  yes
9193370000  67mi  30   DPCSSN  SSN  004-004-004  254  ---  yes
                  201  DPCNGT  GT   135-145-155  ---  75   yes

LRN TABLE IS 1% FULL
```

2. Display the LNP services in the database using the **rtrv-lnp-serv** command. This is an example of the possible output.

```
rlghncxa03w 05-03-28 14:42:38 GMT EAGLE5 32.0.0
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
```

If the desired translation type is not in the database, go to the "Adding an LNP Service" procedure on page 3-30 and add the translation type.

3. Display the routes in the database using the **rtrv-rte** command. This is an example of the possible output.

```
rlghncxa03w 05-03-28 11:43:04 GMT  EAGLE5 32.0.0
DPCA        ALIASI      ALIASN      CLLI        LSN      RC APCA
001-001-001 ----------- ----------- lsn4clli    lsn4     10 001-001-001
                                                ls04     20 001-002-003
001-001-002 ----------- ----------- lsn2clli    lsn2     10 001-001-002
001-002-003 ----------- ----------- ls04clli    ls04     10 001-002-003
002-002-002 ----------- ----------- ls01clli    ls01     10 002-002-002
                                                ls02     20 004-004-004
                                                ls03     30 003-003-003
002-002-004 ----------- ----------- lsn3clli    lsn3     10 002-002-004
002-007-008 ----------- ----------- ls06clli    ls06     10 002-007-008
003-003-003 ----------- ----------- ls03clli    ls03     10 003-003-003
                                                ls01     20 002-002-002
                                                ls02     30 004-004-004
003-003-005 ----------- ----------- lsn4clli    lsn4     10 003-003-005
004-004-004 ----------- ----------- ls02clli    ls02     10 004-004-004
                                                ls01     20 002-002-002
                                                ls03     30 003-003-003
005-005-005 ----------- ----------- lsn5clli    lsn5     10 005-005-005
006-006-006 ----------- ----------- lsn6clli    lsn6     10 006-006-006
007-007-007 ----------- ----------- lsn7clli    lsn7     10 007-007-007
010-010-010 ----------- ----------- lsn8clli    lsn8     10 010-010-010
100-100-100 ----------- ----------- lsn9clli    lsn9     10 100-100-100
100-100-110 ----------- ----------- lsn0clli    lsn0     10 100-100-110
                                                lsn9     20 100-100-100
150-175-000 ----------- ----------- lsn10clli   ls10     10 150-175-000
200-150-007 ----------- ----------- lsn11clli   ls11     10 200-150-007
                                                ls10     10 150-175-000
200-200-200 ----------- ----------- lsn12clli   ls12     10 200-200-200

DPCI        ALIASN      ALIASA      CLLI         LSN      RC APCI

DPCN        ALIASA      ALIASI      CLLI         LSN      RC APCN
```

If the point code is not shown in the **rtrv-rte** output, go to the *Database Administration Manual - SS7* and assign the point code of the GTT to a route.

---

4. 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 05-03-28 14:42:38 GMT EAGLE5 32.0.0
APPL       SSN       STAT
LNP        254       ONLINE

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

If the LNP subsystem number is not shown in the **rtrv-ss-appl** output, go to the "Adding a Subsystem Application" procedure on page 3-57 and add the LNP subystem number to the database.

---

5. Change the LRNs using the **chg-lnp-lrn** command. For this example, enter this commands.

   chg-lnp-lrn:lrn=9093360000:nmrgt1=20,007,007,007,0,dpc,gt, 0,yes

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

```
rlghncxa03w 05-03-28 14:42:38 GMT EAGLE5 32.0.0
CHG-LNP-NPANXX: MASP A - COMPLTD
```

6. Verify the changes by entering the **rtrv-lnp-lrn** command with the LRN value specified in step 5. For this example, enter this command.

   rtrv-lnp-lrn:lrn=9093360000

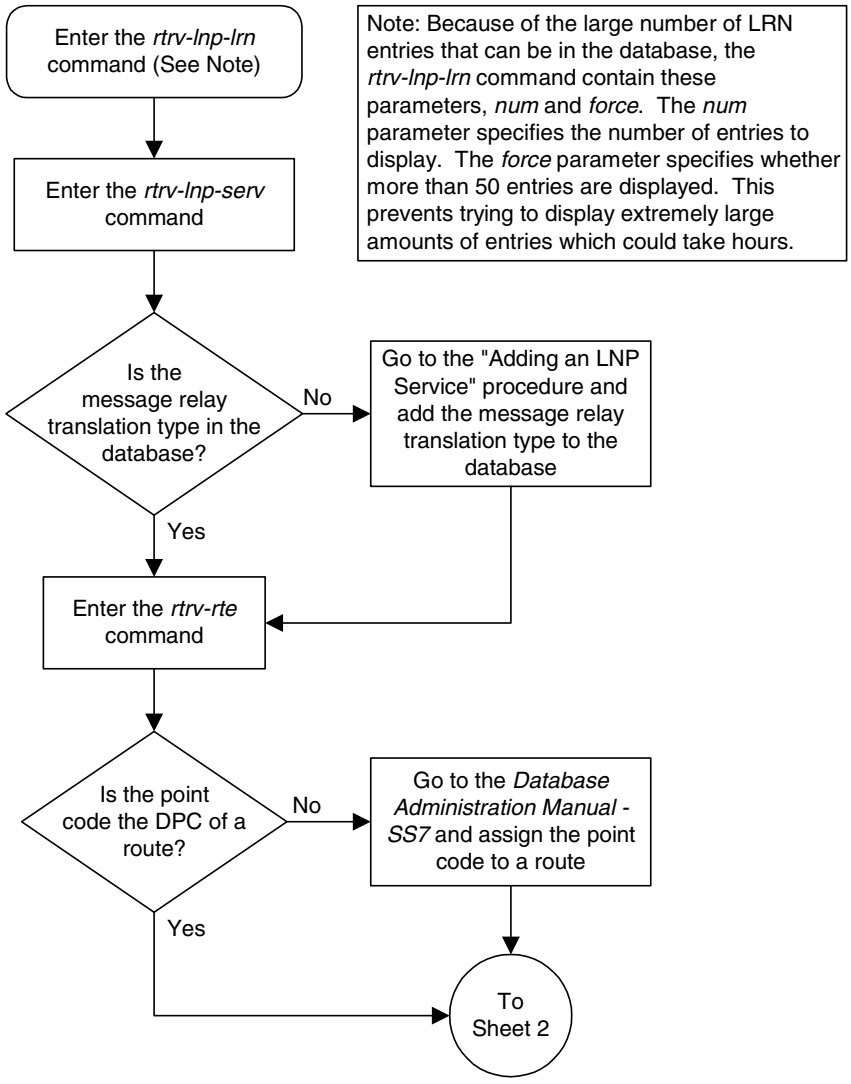
   This is an example of the possible output.

```
rlghncxa03w 05-03-28 14:23:37 GMT EAGLE5 32.0.0
LRN         SP    TT   XLAT    RI   PCA          SSN  NGT  RGTA
9093360000  12bb  20   DPC     GT   007-007-007  ---  ---  yes
                  125  DPCNGT  GT   020-020-020  ---  110  yes

LRN TABLE IS 1% FULL
```

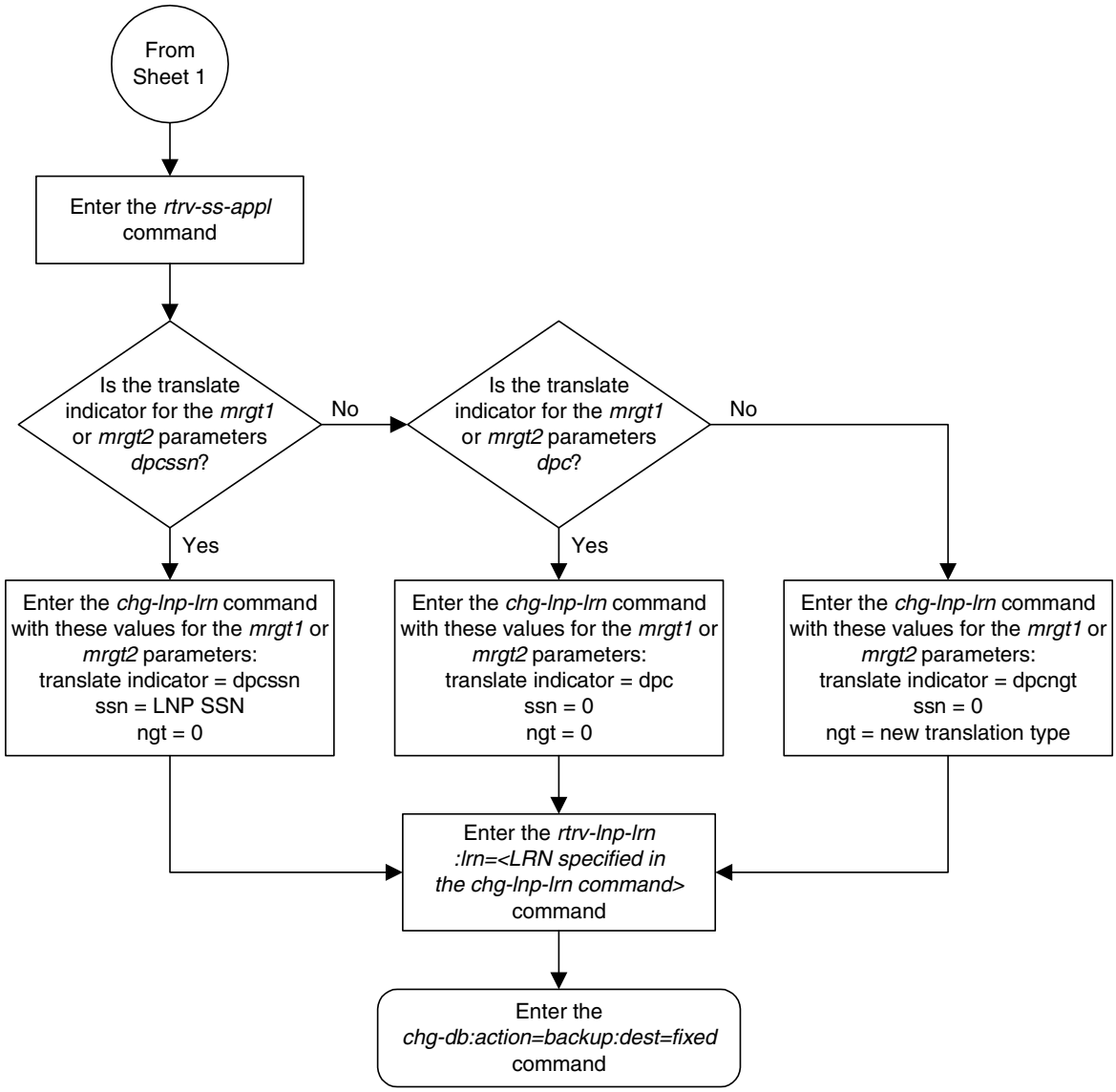
7. Backup the new changes using the **chg-db:action=backup:dest=fixed** command. The following messages should appear, the active Maintenance and Administration Subsystem Processor (MASP) appears first.

```
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.
```

Flowchart 3-17. Changing a Location Routing Number (Sheet 1 of 2)



Flowchart 3-17. Changing a Location Routing Number (Sheet 2 of 2)



Adding an LNP Telephone Number Subscription

This procedure is used to add an LNP 10 digit ported telephone number or a single Pooled Block of 1000 telephone numbers using 7 digits and 3 asterisks (*) and its LNP Query LRN or message relay global title information to the database using the **ent-lnp-sub** command. Pooled telephone numbers are allocated on an even 1000-block boundary and cannot cross NPA-NXX-X's. The **ent-lnp-sub** command uses these parameters.

:tn – the LNP 10 digit or 7 digit and 3 asterisks (*) (for pooled) ported telephone number

:sp – the ID of the LNP service provider

:lrn – the location routing number (LRN)

:mrgt1 – the first message relay default global title translation

:mrgt2 – the second message relay default global title translation

The value of the **mrgt1** and **mrgt2** parameters uses these values.

- tt-pc-ssn-xlat-ri-ngt-rgta

  tt – the global title translation type

  pc – a full ANSI point code

  ssn – the global title translation subsystem number

  xlat – the global title translation translate indicator

  ri – the global title translation routing indicator

  ngt – the new global title translation type

  rgta – is the global title address replaced by the location routing number?

  NOTE: The LNP Eagle stores the 6-digit default global title NGT (new global title) value on a per service, point code, and subsystem combination basis, not on an NPA-NXX basis. This design allows a user to always modify the NGT field for all NPA-NXXs assigned the same service, point code, and subsystem combination instantly with one command. Conversely, the LSMS stores the NGT field independently for each 6-digit default (NPA-NXX) global title translation entered.

  When an NGT field is modified or assigned to a particular LNP 6-digit global title translation (either via the LSMS interface or directly from an Eagle terminal), every existing NPA-NXX entry in the LNP Eagle with the same combination of service, point code, and subsystem will reflect that NGT. Because of this difference in how this information is stored on the LSMS versus how it is stored on the Eagle, a user could get into a situation where the NGT values in the LSMS are not reflective of those stored in the Eagle. The NGT value must be specified correctly every time a 6-digit default (NPA-NXX) global title translation is updated or the LNP service on the Eagle could be seriously impacted.

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, go to the "Enabling the LNP Feature for 2 to 12 Million Numbers" procedure on page 2-16 and enable the LNP feature.

Make sure that the system meets the requirements shown in the "LNP System Requirements" section on page 3-5. If the system does not meet these requirements, the LNP commands will be rejected.

The global title translation type must be reserved for the LNP feature, but must not be already assigned to the specified telephone number and cannot be an alias translation type. To verify this, enter the **rtrv-lnp-serv** command.

The message relay global title translation type cannot be assigned to either the AIN, IN, wireless number portability, PCS 1900 number portability service, or LNP query services. To verify this, enter the **rtrv-lnp-serv** command. If translation types are assigned to any of these services, the entries **AIN** (for the AIN service), **IN** for the IN service), **WNP** (for the wireless number portability service), **PCS** (for the PCS 1900 number portability service), or **LNPQS** (for the LNP query service) are displayed in the **SERV** field of the **rtrv-lnp-serv** command output.

If the LNP telephone number being added to the database does not have a service provider ID assigned to it, then the service provider ID must be specified with the **sp** parameter. If the service provider ID is not in the database, one is created. The service provider IDs can be displayed with the **rtrv-lnp-sp** command.

The value of the **sp** parameter can contain from 1 to 4 alphanumeric characters.

If the **lrn** parameter is specified, the service provider ID specified for the LNP telephone number must be the same as the service provider ID assigned to the specified location routing number. Enter the **rtrv-lnp-lrn** command to show the service provider IDs assigned to the location routing numbers.

Each time the **ent-lnp-sub** command is entered, two LNP services can be assigned to the LNP telephone number, either an LNP query and a message relay global title translation, or 2 message relay global title translations.

If the **mrgt1** or **mrgt2** parameters are specified, then an NPANXX is required for the telephone number-location routing number entry in the database. If the NPANXX does not exist, one is created.

The database can contain a maximum of 150,000 NPANXX entries, whether these entries are configured with the **ent-lnp-npanxx**, **ent-split-npa**, or **ent-lnp-sub** commands.

A maximum of 6 message relay global title translations can be assigned for each telephone number.

The Message Relay default global title translation point code must be in the routing table. This can be verified with the **rtrv-rte** command. This point code must be a full point code and cannot be either a cluster point code or a network routing point code. If the default global title translation point code is not in the routing table, it must be added using either the "Adding a Route" or "Changing a Route" procedures in the *Database Administration Manual – SS7*.

If the global title translation translate indicator is **dpcssn**, the value of the subsystem number cannot be 0.

If the global title translation translate indicator is either **dpcssn** or **dpc**, the value of the new global title translation type must be 0.

If the global title translation translate indicator is either **dpcngt** or **dpc**, the value of the subsystem number must be 0.

If the global title translation translate indicator is **dpcngt**, the value of the routing indicator must be gt and the value of the new global title translation type cannot be 0.

If the **rgta** portion of the global title translation parameter is set to **yes**, then the location routing number (**lrn**) must be specified.

The value of the **lrn** parameter cannot already be assigned to the telephone number.

Either the **lrn**, **mrgt1** or **mrgt2** parameters must be specified.

The examples in this procedure adds the LNP telephone numbers and the message relay global title information shown in Table 3-11.

Table 3-11. Example LNP Telephone Number Configuration

TN	LRN	SP	TT	XLAT	RI	PCA	SSN	NGT	RGTA	PTYPE
3125841***	9105840000	BA90	50	DPCSSN	SSN	5-5-5	250	---	Yes	POOL
7088129***	9093360000	TNV8	20	DPCSSN	SSN	6-6-6	250	---	Yes	POOL

Parameters of the rtrv-lnp-sub Command

The **rtrv-lnp-sub** command is used to display the 10 digit or 7 digits and 3 asterisks (*) (for pooled) ported telephone numbers in the database. Because of the large number of telephone numbers that can be in the database, the **rtrv-lnp-sub** command contains these parameters, **num** and **force**. The **num** parameter specifies the maximum number of entries to display and is only valid when displaying a range of telephone number subscriptions with the **tn** and **etn** parameters. The **force** parameter specifies whether more than 50 entries are displayed. This prevents trying to display extremely large amounts of entries which could take hours. The **rtrv-lnp-sub** command has six other parameters, **tn**, **etn**, **tt**, **lrn**, **sp**, and **ptype**. The value of the **sp** parameter can contain from 1 to 4 alphanumeric characters. The **tn** parameter is used to display a specific

telephone number, or to specify the beginning telephone number in a range of telephone numbers. The **etn** parameter is used to the telephone number ending a range of telephone numbers. The **tt** parameter shows the entries with a particular translation type. The **lrn** parameter shows the entries with a particular location routing number. The **sp** parameter shows the entries with a particular service provider ID. The **ptype** parameter shows the entries with a particular LNP type assigned to them. These parameters can also be used to limit the amount of information displayed with the **rtrv-lnp-sub** command.

While the **rtrv-lnp-sub** command can be used to display the subscription data for a range of telephone numbers (using the **tn** and **etn** parameters), or the telephone numbers assigned to a particular LNP type (using the **ptype** parameter), using the **rtrv-lnp-sub** command this way can impact the updating of the LNP data in the Eagle at the 2 telephone number per second rate. To eliminate the impact on LNP updates when performing these type of retrievals, use the **rtrv-lnp-tnrpt** command, instead of the **rtrv-lnp-sub** command. For more information on the **rtrv-lnp-tnrpt** 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 05-03-30 21:15:37 GMT EAGLE5 32.0.0
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

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, go to the "Enabling the LNP Feature for 2 to 12 Million Numbers" procedure on page 2-16 and enable the LNP feature. Go to step 2.

If the LNP feature is enabled, go to step 2.

2. Display the ported telephone numbers in the database with the **rtrv-lnp-sub** command specifying the telephone number record you wish to enter. For this example, enter these commands.

   rtrv-lnp-sub:tn=3125841*

   If the specified telephone number (**tn** parameter value) is not in the database, the **rtrv-lnp-sub** command responds with the message " No TN subscriptions found in range."

```
rlghncxa03w 05-03-11 09:44:34 GMT EAGLE5 32.0.0
TN          SP    LRN         PTYPE
No TN subscriptions found in range
```

   If the specified telephone number (**tn** parameter value) is in the database, the following is an example of the possible output.

```
rlghncxa03w 05-03-28 14:42:38 GMT EAGLE5 32.0.0
TN          SP    LRN         PTYPE
3125841***  ba90  9105840000  POOL

  TT   XLAT    RI   PCA          SSN  NGT  RGTA
  50   DPCSSN   SSN 005-005-005  250  ---  yes

Service provider table is 1% full
LRN table is  1% full
MESSAGE relay table is  1% full
NPANXX table is  1% full
PORTED TN table is  1% full
SCCP cards configured to support a maximum of  500000 ported TNs
```

   rtrv-lnp-sub:tn=7088129*

   If the specified telephone number (**tn** parameter value) is not in the database, the **rtrv-lnp-sub** command responds with the message " No TN subscriptions found in range."

```
rlghncxa03w 05-03-11 09:44:34 GMT EAGLE5 32.0.0
TN          SP    LRN         PTYPE
No TN subscriptions found in range
```

   If the specified telephone number (**tn** parameter value) is in the database, the following is an example of the possible output.

```
rlghncxa03w 05-03-28 14:42:38 GMT EAGLE5 32.0.0
TN          SP    LRN         PTYPE
7088129***  tnv8  9093360000  POOL

  TT   XLAT    RI   PCA          SSN  NGT  RGTA
  20   DPCSSN  SSN  006-006-006  250  ---  yes

Service provider table is 1% full
LRN table is  1% full
MESSAGE relay table is  1% full
NPANXX table is  1% full
PORTED TN table is  1% full
SCCP cards configured to support a maximum of  500000 ported TNs
```

3. Display the LNP services in the database using the **rtrv-lnp-serv** command. This is an example of the possible output.

```
rlghncxa03w 05-03-28 14:42:38 GMT EAGLE5 32.0.0
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
```

If the desired translation type is not in the database, go to the "Adding an LNP Service" procedure on page 3-30 and add the translation type.

---

4. Display the routes in the database using the **rtrv-rte** command. This is an example of the possible output.

```
rlghncxa03w 05-03-28 11:43:04 GMT  EAGLE5 32.0.0
DPCA        ALIASI      ALIASN      CLLI        LSN      RC APCA
001-001-001 ----------- ----------- lsn4clli    lsn4     10 001-001-001
                                                ls04     20 001-002-003
001-001-002 ----------- ----------- lsn2clli    lsn2     10 001-001-002
001-002-003 ----------- ----------- ls04clli    ls04     10 001-002-003
002-002-002 ----------- ----------- ls01clli    ls01     10 002-002-002
                                                ls02     20 004-004-004
                                                ls03     30 003-003-003
002-002-004 ----------- ----------- lsn3clli    lsn3     10 002-002-004
002-007-008 ----------- ----------- ls06clli    ls06     10 002-007-008
003-003-003 ----------- ----------- ls03clli    ls03     10 003-003-003
                                                ls01     20 002-002-002
                                                ls02     30 004-004-004
003-003-005 ----------- ----------- lsn4clli    lsn4     10 003-003-005
004-004-004 ----------- ----------- ls02clli    ls02     10 004-004-004
                                                ls01     20 002-002-002
                                                ls03     30 003-003-003
005-005-005 ----------- ----------- lsn5clli    lsn5     10 005-005-005
006-006-006 ----------- ----------- lsn6clli    lsn6     10 006-006-006
007-007-007 ----------- ----------- lsn7clli    lsn7     10 007-007-007
010-010-010 ----------- ----------- lsn8clli    lsn8     10 010-010-010
100-100-100 ----------- ----------- lsn9clli    lsn9     10 100-100-100
100-100-110 ----------- ----------- lsn0clli    lsn0     10 100-100-110
                                                lsn9     20 100-100-100
150-175-000 ----------- ----------- lsn10clli   ls10     10 150-175-000
200-150-007 ----------- ----------- lsn11clli   ls11     10 200-150-007
                                                ls10     10 150-175-000
200-200-200 ----------- ----------- lsn12clli   ls12     10 200-200-200

DPCI        ALIASN      ALIASA      CLLI         LSN      RC APCI

DPCN        ALIASA      ALIASI      CLLI         LSN      RC APCN
```

If the point code is not shown in the **rtrv-rte** output, go to the *Database Administration Manual - SS7* and assign the point code of the GTT to a route.

---

5. Display the LNP service providers in the database with the **rtrv-lnp-sp** command. This is an example of the possible output.

```
rlghncxa03w 05-03-28 14:42:38 GMT EAGLE5 32.0.0
SP
12ab
12bb
5512
99zy

SP TABLE IS (4 of 10000) 1% FULL
```

NOTE: If the global title address (GTA) will not be replaced by the location routing number (LRN) by specifying the lrn parameter with the ent-lnp-sub command, skip this step and go to step 7.

6. Display the LRNs in the database using the **rtrv-lnp-lrn** command.

   NOTE: Because of the large number of LRN entries that can be in the database, the rtrv-lnp-lrn command contains these parameters, num and force. The num parameter specifies the maximum number of entries to display. The force parameter specifies whether more than 50 entries are displayed. This prevents trying to display extremely large amounts of entries which could take hours.

   This is an example of the possible output.

```
rlghncxa03w 05-03-28 14:23:37 GMT EAGLE5 32.0.0
LRN         SP    TT   XLAT    RI   PCA          SSN  NGT  RGTA
9093350000  12ab  16   DPCSSN  SSN  001-001-001  20   ---  yes
                  18   DPCSSN  SSN  002-002-002  30   ---  yes
                  19   DPCSSN  SSN  002-002-004  20   ---  yes
                  30   DPC     GT   101-101-101  ---  ---  yes

9093350099  50hi  15   DPCSSN  SSN  003-003-003  254  ---  yes
                  25   DPCNGT  GT   200-150-175  ---  100  yes
9093360000  12bb  20   DPCSSN  SSN  006-006-006  250  ---  yes
                  125  DPCNGT  GT   020-020-020  ---  110  yes
9105840000  99zy  50   DPCSSN  SSN  005-005-005  250  ---  yes
                  175  DPC     GT   010-101-010  ---  ---  yes
9193370000  67mi  30   DPCSSN  SSN  004-004-004  254  ---  yes
                  201  DPCNGT  GT   135-145-155  ---  75   yes

LRN TABLE IS 1% FULL
```

CAUTION: If the GTA is to be replaced by the LRN in the ent-lnp-sub command, and the LRN is not in the database when the ent-lnp-sub command is executed, the specified will be placed in the database with the specified service provider ID, but all other fields in the LRN will be blank. For example, the LRN 3360000000 is specified with the ent-lnp-sub command, but LRN 3360000000 is not in the database. When the ent-lnp-sub command is executed, LRN 3360000000 and the service provider ID (ba90 in this example) is placed in the database with the other fields in the LRN are blank as shown in the following example.

```
rlghncxa03w 05-03-11 09:26:17 GMT EAGLE5 32.0.0

LRN         SP    TT   XLAT    RI   PCA          SSN  NGT  RGTA
3360000000  ba90  ---  ------  ---  -----------  ---  ---  ----
3365840000  ba90  20   DPCSSN  SSN  002-002-002  254  ---  yes

LRN table is    1 % full
```

It is recommended that if the desired LRN is not in the database, go to the "Adding an LNP Location Routing Number" procedure on page 3-116 and add the LRN data to the database.

NOTE: If the "Adding an LNP Location Routing Number" procedure on page 3-116 was performed in step 6, skip this step and go to step 8.

7. 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 05-03-28 14:42:38 GMT EAGLE5 32.0.0
APPL       SSN       STAT
LNP        254       ONLINE

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

If the LNP subsystem number is not shown in the **rtrv-ss-appl** output, go to the "Adding a Subsystem Application" procedure on page 3-57 and add the LNP subystem number to the database.

---

8. Add the LNP ported telephone numbers using the **ent-lnp-sub** command. For this example, enter these commands.

```
ent-lnp-sub:tn=3125841***:lrn=9105840000:sp=ba90
   :mrgt1=50,005,005,005,250,dpcssn,ssn,0,yes

ent-lnp-sub:tn=7088129***:lrn=9093360000:sp=tnv8
   :mrgt1=20,006,006,006,250,dpcssn,ssn,0,yes
```

NOTE: If you are adding telephone subscription data to an existing telehone number record, the sp and lrn parameters do have to be specified.

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

```
rlghncxa03w 05-03-28 14:42:38 GMT EAGLE5 32.0.0
ENT-LNP-SUB: MASP A - COMPLTD
```

---

9. Verify the changes with the **rtrv-lnp-sub** command with the 10-digit telephone number specified with the **tn** parameter in step 8. For this example, enter these commands.

rtrv-lnp-sub:tn=3125841*

This is an example of the possible output.

```
rlghncxa03w 05-03-28 14:42:38 GMT EAGLE5 32.0.0
TN          SP    LRN         PTYPE
3125841***  ba90  9105840000  POOL

  TT   XLAT    RI   PCA          SSN  NGT  RGTA
  50   DPCSSN   SSN 005-005-005  250  ---  yes

Service provider table is 1% full
LRN table is  1% full
MESSAGE relay table is  1% full
NPANXX table is  1% full
PORTED TN table is  1% full
SCCP cards configured to support a maximum of  500000 ported TNs
```

rtrv-lnp-sub:tn=7088129*

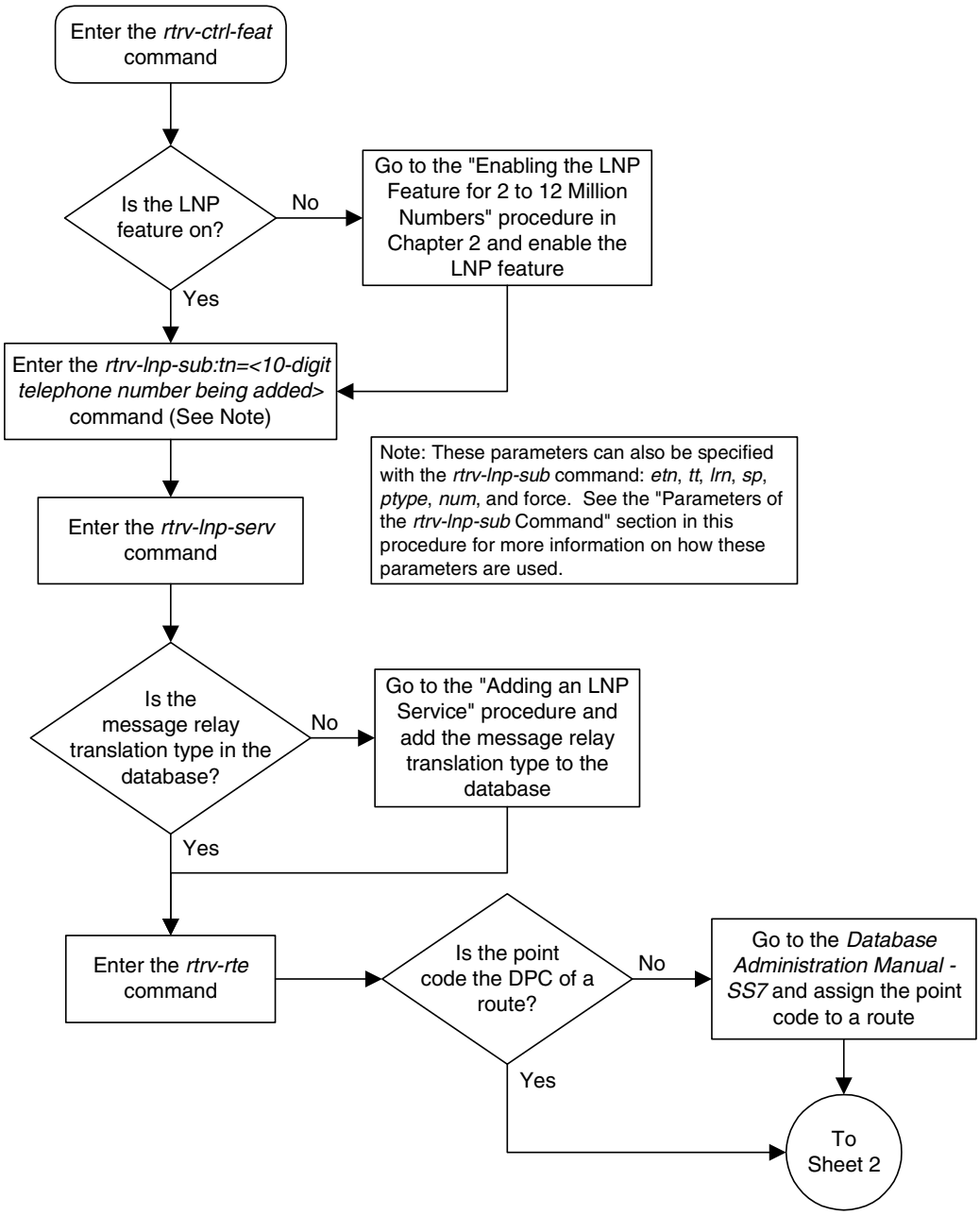
This is an example of the possible output.

```
rlghncxa03w 05-03-28 14:42:38 GMT EAGLE5 32.0.0
TN          SP    LRN         PTYPE
7088129***  tnv8  9093360000  POOL

  TT   XLAT    RI   PCA          SSN  NGT  RGTA
  20   DPCSSN  SSN  006-006-006  250  ---  yes

Service provider table is 1% full
LRN table is  1% full
MESSAGE relay table is  1% full
NPANXX table is  1% full
PORTED TN table is  1% full
SCCP cards configured to support a maximum of  500000 ported TNs
```

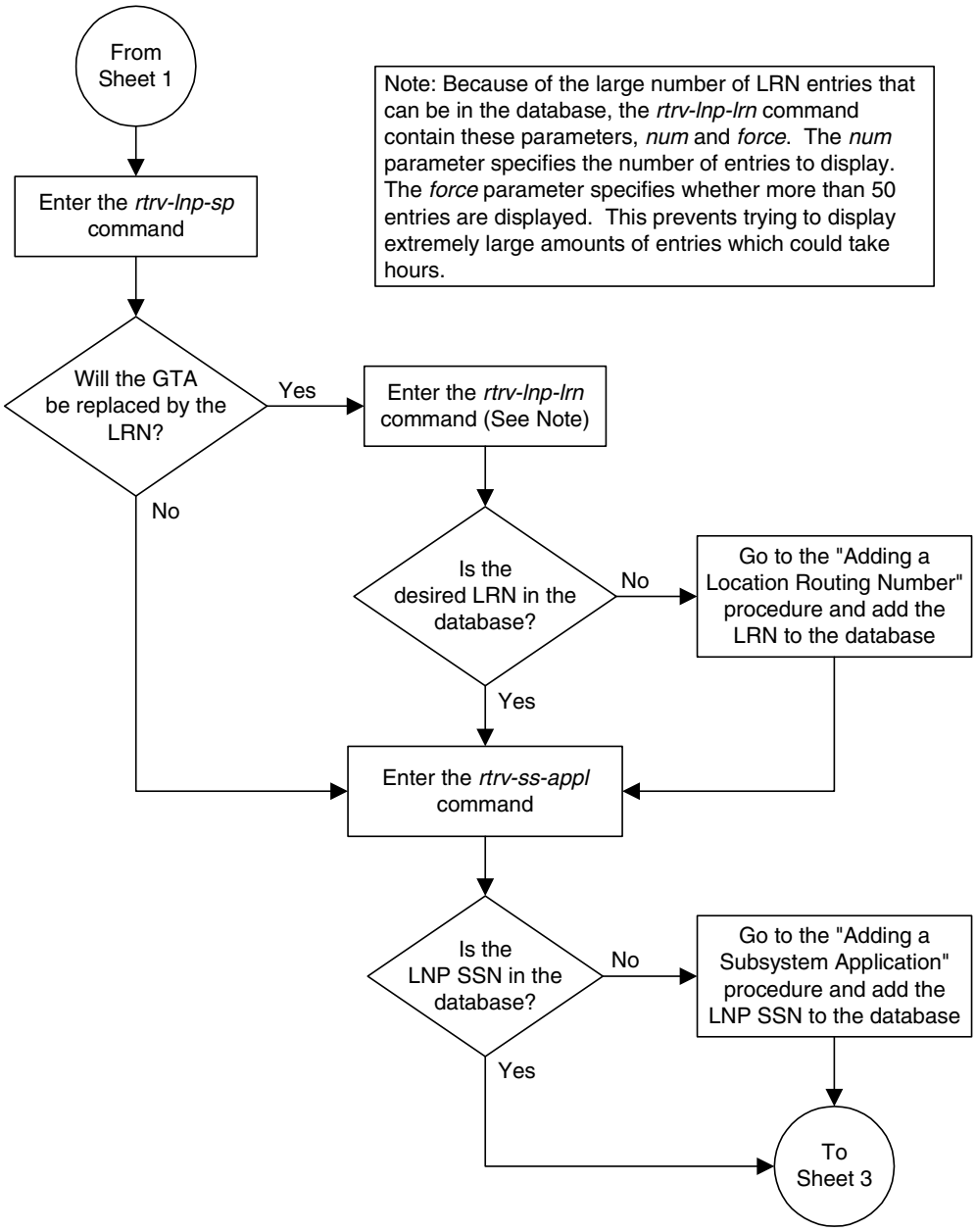
10. Backup the new changes using the **chg-db:action=backup:dest=fixed** command. The following messages should appear, the active Maintenance and Administration Subsystem Processor (MASP) appears first.

```
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.
```

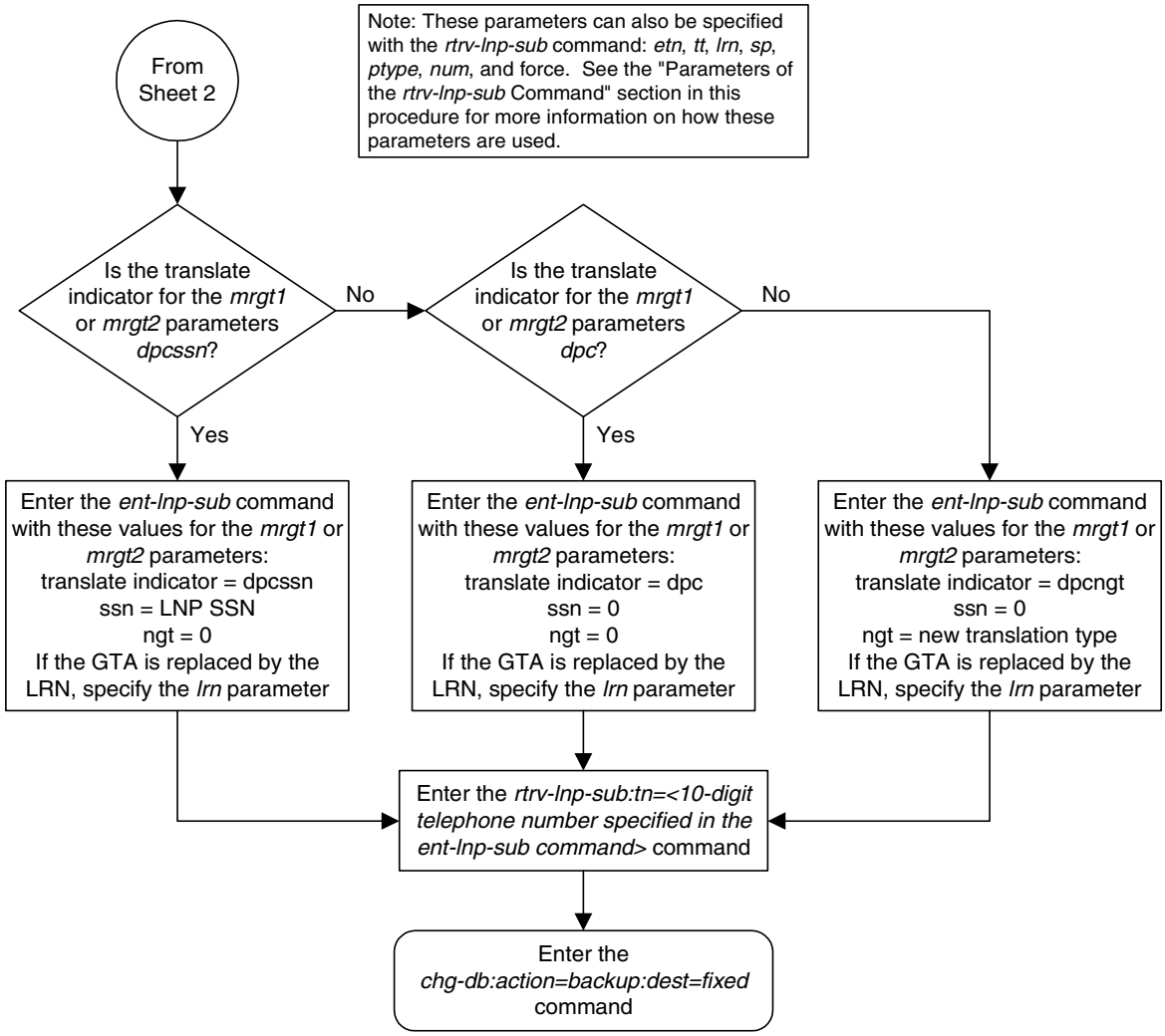
Flowchart 3-18. Adding a LNP Telephone Number Subscription (Sheet 1 of 3)



Flowchart 3-18. Adding a LNP Telephone Number Subscription (Sheet 2 of 3)



Flowchart 3-18. Adding a LNP Telephone Number Subscription (Sheet 3 of 3)



Removing an LNP Telephone Number Subscription

This procedure is used to remove an LNP 10 digit ported telephone number or Pooled telephone number message relay service, LRN, or the entire telephone number subscription from the database using the **dlt-lnp-sub** command. The **dlt-lnp-sub** command uses these parameters.

:tn – the LNP 10 digit or 7 digit and 3 asterisks (*) (for pooled) ported telephone number

:tt – the global title translation type

:rmv – the deletion type

Make sure that the system meets the requirements shown in the "LNP System Requirements" section on page 3-5. If the system does not meet these requirements, the LNP commands will be rejected.

The specified 10 digit ported or pooled telephone number must be in the database.

Either the **tt** or **rmv** parameters must be specified with the **dlt-lnp-sub** command but not both.

The value of the **tt** parameter cannot be defined in the database as an alias translation type. To verify this, enter the **rtrv-lnp-serv** command.

If the last message relay service or location routing number assigned to the telephone number is removed, the entire telephone number subscription is removed from the database.

If the **rmv=alltt** parameter is specified, all message relay global title translations assigned to the telephone number are removed from the database. If no location routing number is assigned to the telephone number, the entire telephone number subscription is removed from the database.

If the **rmv=lrn** parameter is specified, the location routing number assigned to the telephone number is removed from the database. If no message relay global title translations are assigned to the telephone number, the entire telephone number subscription is removed from the database.

If the **RGTA** field is set to **yes**, the **rmv=lrn** parameter cannot be specified and the location routing number assigned to the telephone number cannot be removed from the database. The translation types assigned to the telephone number must be removed from the database first.

If the **rmv=all** parameter is specified, the telephone number subscription is removed from the database including any location routing numbers and message relay global title translations assigned to the telephone number.

If the **rmv** or **tt** parameters are not specified, the entire telephone number subscription is removed from the database.

The examples in this procedure remove the LNP telephone number 9093351111, and translation type 60 assigned to telephone number 3125841243 from the database.

Parameters of the `rtrv-lnp-sub` Command

The **`rtrv-lnp-sub`** command is used to display all LNP telephone numbers and assigned services in the LNP database. Because of the large number of telephone numbers that can be in the database, the **`rtrv-lnp-sub`** command contains these parameters, **`num`** and **`force`**. The **`num`** parameter specifies the maximum number of entries to display and is only valid when displaying a range of telephone number subscriptions with the **`tn`** and **`etn`** parameters. The **`force`** parameter specifies whether more than 50 entries are displayed. This prevents trying to display extremely large amounts of entries which could take hours. The **`rtrv-lnp-sub`** command has six other parameters, **`tn`**, **`etn`**, **`tt`**, **`lrn`**, **`sp`**, and **`ptype`**. The value of the **`sp`** parameter can contain from 1 to 4 alphanumeric characters. The **`tn`** parameter is used to display a specific telephone number, or to specify the beginning telephone number in a range of telephone numbers. The e**`tn`** parameter is used to the telephone number ending a range of telephone numbers. The **`tt`** parameter shows the entries with a particular translation type. The **`lrn`** parameter shows the entries with a particular location routing number. The **`sp`** parameter shows the entries with a particular service provider ID. The **`ptype`** parameter shows the entries with a particular LNP type assigned to them. These parameters can also be used to limit the amount of information displayed with the **`rtrv-lnp-sub`** command.

While the **`rtrv-lnp-sub`** command can be used to display the subscription data for a range of telephone numbers (using the **`tn`** and **`etn`** parameters), or the telephone numbers assigned to a particular LNP type (using the **`ptype`** parameter), using the **`rtrv-lnp-sub`** command this way can impact the updating of the LNP data in the Eagle at the 2 telephone number per second rate. To eliminate the impact on LNP updates when performing these type of retrievals, use the **`rtrv-lnp-tnrpt`** command, instead of the **`rtrv-lnp-sub`** command. For more information on the **`rtrv-lnp-tnrpt`** command, go to the *Commands Manual*.

Procedure

1. Display the ported telephone number records in the database you wish to remove by entering the **rtrv-lnp-sub** command with the **tn**, **tt**, **lrn**, **sp**, and **ptype** parameter values as necessary to display the telephone number being removed. For this example, enter these commands.

   rtrv-lnp-sub:tn=3125841*:tt=60**

   This is an example of the possible output.

```
rlghncxa03w 05-03-28 14:42:38 GMT EAGLE5 32.0.0
TN          SP    LRN         PTYPE
3125841***  ba90  9105840000  POOL

  TT   XLAT    RI   PCA          SSN  NGT  RGTA
  60   DPCSSN  SSN  010-010-010  250  ---  yes

Service provider table is 1% full
LRN table is  1% full
MESSAGE relay table is  1% full
NPANXX table is  1% full
PORTED TN table is  1% full
SCCP cards configured to support a maximum of  500000 ported TNs
```

   rtrv-lnp-sub:tn=9093351111

   This is an example of the possible output.

```
rlghncxa03w 05-03-28 14:42:38 GMT EAGLE5 32.0.0
TN          SP    LRN         PTYPE
9093351111  22cd  1234567890  none

  TT   XLAT    RI   PCA          SSN  NGT  RGTA
  16   DPC     GT   001-001-001  0    0    yes
  18   DPCNGT  GT   002-002-002  0    10   no

Service provider table is 1% full
LRN table is  1% full
MESSAGE relay table is  1% full
NPANXX table is  1% full
PORTED TN table is  1% full
SCCP cards configured to support a maximum of  500000 ported TNs
```

   NOTE: If the specified telephone number (tn parameter value) is not in the database, the rtrv-lnp-sub command responds with the message " No TN subscriptions found in range."

```
rlghncxa03w 05-03-11 09:44:34 GMT EAGLE5 32.0.0
TN          SP    LRN         PTYPE
No TN subscriptions found in range
```

   If the specified telephone number is not in the database, this procedure cannot be performed. If you wish to perform this procedure, repeat this procedure with another telephone number.

2. Remove the telephone numbers using the **dlt-lnp-sub** command. For this example, enter these commands.

   dlt-lnp-sub:tn=9093351111

   dlt-lnp-sub:tn=3125841*:tt=60**

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

```
rlghncxa03w 05-03-28 14:42:38 GMT EAGLE5 32.0.0
DLT-LNP-SUB: MASP A - COMPLTD
```

3. Verify the changes by entering the **rtrv-lnp-sub** command with the parameter values specified in step 2. For this example, enter these commands.

   rtrv-lnp-sub:tn=3125841*:tt=60**

   This is an example of the possible output.

```
rlghncxa03w 05-03-11 09:44:34 GMT EAGLE5 32.0.0
TN          SP    LRN         PTYPE
No TN subscriptions found in range
```

   rtrv-lnp-sub:tn=9093351111

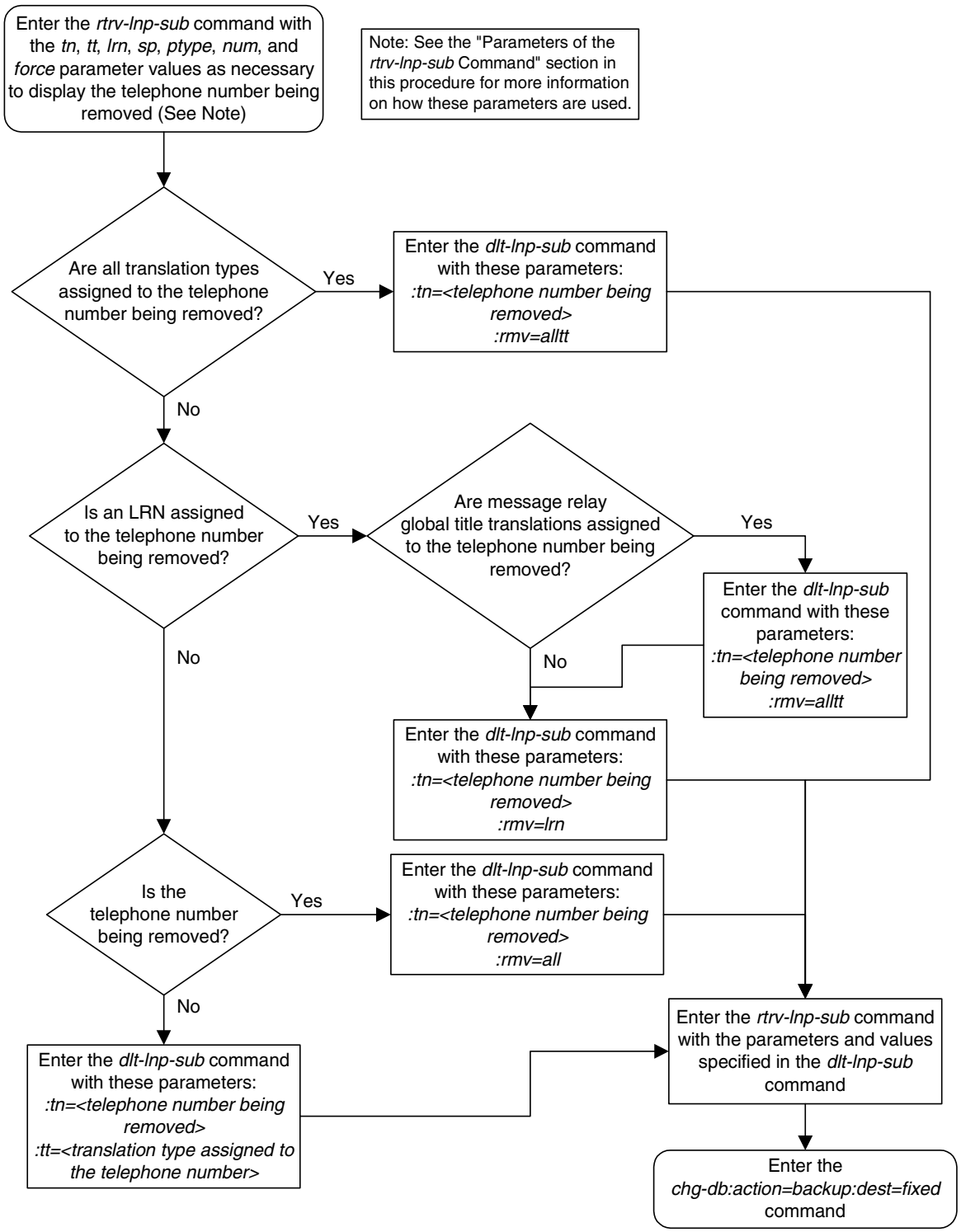
   This is an example of the possible output.

```
rlghncxa03w 05-03-11 09:44:34 GMT EAGLE5 32.0.0
TN          SP    LRN         PTYPE
No TN subscriptions found in range
```

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.
```

Flowchart 3-19. Removing a LNP Telephone Number Subscription



Changing an LNP Telephone Number Subscription

This procedure is used to change the attributes of an existing telephone number subscription using the **chg-lnp-sub** command. The **chg-lnp-sub** command uses these parameters.

:tn – the LNP 10 digit or 7 digit and 3 asterisks (*) (for pooled) ported telephone number

:nlrn – the new location routing number (LRN)

:nmrgt1 – the new first message relay default global title translation

:nmrgt2 – the new second message relay default global title translation

The value of the **nmrgt1** and **nmrgt2** parameters uses these values.

- tt-pc-ssn-xlat-ri-ngt-rgta

  tt – the global title translation type

  pc – a full ANSI point code

  ssn – the global title translation subsystem number

  xlat – the global title translation translate indicator

  ri – the global title translation routing indicator

  ngt – the new global title translation type

  rgta – is the global title address replaced by the location routing number?

  NOTE: The LNP Eagle stores the 6-digit default global title NGT (new global title) value on a per service, point code, and subsystem combination basis, not on an NPA-NXX basis. This design allows a user to always modify the NGT field for all NPA-NXXs assigned the same service, point code, and subsystem combination instantly with one command. Conversely, the LSMS stores the NGT field independently for each 6-digit default (NPA-NXX) global title translation entered.
  When an NGT field is modified or assigned to a particular LNP 6-digit global title translation (either via the LSMS interface or directly from an Eagle terminal), every existing NPA-NXX entry in the LNP Eagle with the same combination of service, point code, and subsystem will reflect that NGT. Because of this difference in how this information is stored on the LSMS versus how it is stored on the Eagle, a user could get into a situation where the NGT values in the LSMS are not reflective of those stored in the Eagle. The NGT value must be specified correctly every time a 6-digit default (NPA-NXX) global title translation is updated or the LNP service on the Eagle could be seriously impacted.

Make sure that the system meets the requirements shown in the "LNP System Requirements" section on page 3-5. If the system does not meet these requirements, the LNP commands will be rejected.

The specified telephone number being changed must be in the database.

The global title translation type must be reserved for the LNP feature, and must be assigned to the specified telephone number.

The message relay global title translation type cannot be assigned to either the AIN, IN, wireless number portability, PCS 1900 number portability service, or LNP query services and cannot be defined in the database as an alias translation type. To verify this, enter the **rtrv-lnp-serv** command. If translation types are assigned to any of these services, the entries **AIN** (for the AIN service), **IN** (for the IN service), **WNP** (for the wireless number portability service), **PCS** (for the PCS 1900 number portability service), or **LNPQS** (for the LNP query service) are displayed in the **SERV** field of the **rtrv-lnp-serv** command output. Alias translation types are shown in the **ALIAS** field of the **rtrv-lnp-serv** command output.

If the **mrgt1** or **mrgt2** parameters are specified, then an NPANXX is required for the telephone number-location routing number entry in the database. If the NPANXX does not exist, one is created.

The Message Relay default global title translation point code must be in the routing table. This can be verified with the **rtrv-rte** command. This point code must be a full point code and cannot be either a cluster point code or a network routing point code. If the default global title translation point code is not in the routing table, it must be added using either the "Adding a Route" or "Changing a Route" procedures in the *Database Administration Manual – SS7*.

If the global title translation translate indicator is **dpcssn**, the value of the subsystem number cannot be 0.

If the global title translation translate indicator is either **dpcssn** or **dpc**, the value of the new global title translation type must be 0.

If the global title translation translate indicator is either **dpcngt** or **dpc**, the value of the subsystem number must be 0.

If the global title translation translate indicator is **dpcngt**, the value of the routing indicator must be **gt** and the value of the new global title translation type cannot be 0.

If the **rgta** portion of the global title translation parameter is set to **yes**, then the location routing number (**nlrn**) must be specified.

Either the **nlrn**, **nmrgt1** or **nmrgt2** parameters must be specified.

The examples in this procedure changes the values of these LNP telephone numbers to the values shown in Table 3-12.

Table 3-12. Changing an LNP Telephone Number Subscription

TN	LRN	TT	XLAT	RI	PCA	SSN	NGT	RGTA	PTYPE
3125841243	9194600000	40	DPCSSN	SSN	8-8-8	250	—	Yes	none
7088129***	7046750000	80	DPCSSN	SSN	9-9-9	250	—	Yes	POOL

Parameters of the `rtrv-lnp-sub` Command

The **`rtrv-lnp-sub`** command is used to display the LNP telephone numbers in the database. Because of the large number of telephone numbers that can be in the database, the **`rtrv-lnp-sub`** command contains these parameters, **`num`** and **`force`**. The **`num`** parameter specifies the maximum number of entries to display and is only valid when displaying a range of telephone number subscriptions with the **`tn`** and **`etn`** parameters. The **`force`** parameter specifies whether more than 50 entries are displayed. This prevents trying to display extremely large amounts of entries which could take hours. The **`rtrv-lnp-sub`** command has six other parameters, **`tn`**, **`etn`**, **`tt`**, **`lrn`**, **`sp`**, and **`ptype`**. The value of the **`sp`** parameter can contain from 1 to 4 alphanumeric characters. The **`tn`** parameter is used to display a specific telephone number, or to specify the beginning telephone number in a range of telephone numbers. The e**`tn`** parameter is used to the telephone number ending a range of telephone numbers. The **`tt`** parameter shows the entries with a particular translation type. The **`lrn`** parameter shows the entries with a particular location routing number. The **`sp`** parameter shows the entries with a particular service provider ID. The **`ptype`** parameter shows the entries with a particular LNP type assigned to them. These parameters can also be used to limit the amount of information displayed with the **`rtrv-lnp-sub`** command.

While the **`rtrv-lnp-sub`** command can be used to display the subscription data for a range of telephone numbers (using the **`tn`** and **`etn`** parameters), or the telephone numbers assigned to a particular LNP type (using the **`ptype`** parameter), using the **`rtrv-lnp-sub`** command this way can impact the updating of the LNP data in the Eagle at the 2 telephone number per second rate. To eliminate the impact on LNP updates when performing these type of retrievals, use the **`rtrv-lnp-tnrpt`** command, instead of the **`rtrv-lnp-sub`** command. For more information on the **`rtrv-lnp-tnrpt`** command, go to the *Commands Manual*.

Procedure

1. Display the ported telephone number record in the database you wish to change by entering the **rtrv-lnp-sub** command with the **tn** parameter equal to the telephone number being changed. For this example, enter these commands.

   rtrv-lnp-sub:tn=3125841*

   This is an example of the possible output.

```
rlghncxa03w 05-03-28 14:42:38 GMT EAGLE5 32.0.0
TN          SP    LRN         PTYPE
3125841***  ba90  9105840000  POOL

  TT   XLAT    RI   PCA          SSN  NGT  RGTA
  50   DPCSSN   SSN 005-005-005  250  ---  yes

Service provider table is 1% full
LRN table is  1% full
MESSAGE relay table is  1% full
NPANXX table is  1% full
PORTED TN table is  1% full
SCCP cards configured to support a maximum of  500000 ported TNs
```

   rtrv-lnp-sub:tn=7088129*

   This is an example of the possible output.

```
rlghncxa03w 05-03-28 14:42:38 GMT EAGLE5 32.0.0
TN          SP    LRN         PTYPE
7088129***  tnv8  9093360000  POOL

  TT   XLAT    RI   PCA          SSN  NGT  RGTA
  20   DPCSSN  SSN  006-006-006  250  ---  yes

Service provider table is 1% full
LRN table is  1% full
MESSAGE relay table is  1% full
NPANXX table is  1% full
PORTED TN table is  1% full
SCCP cards configured to support a maximum of  500000 ported TNs
```

   NOTE: If the specified telephone number (tn parameter value) is not in the database, the rtrv-lnp-sub command responds with the message " No TN subscriptions found in range."

```
rlghncxa03w 05-03-11 09:44:34 GMT EAGLE5 32.0.0
TN          SP    LRN         PTYPE
No TN subscriptions found in range
```

2. Display the LNP services in the database using the **rtrv-lnp-serv** command. This is an example of the possible output.

```
rlghncxa03w 05-03-28 14:42:38 GMT EAGLE5 32.0.0
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
```

If the desired translation type is not in the database, go to the "Adding an LNP Service" procedure on page 3-30 and add the translation type.

---

3. Display the routes in the database using the **rtrv-rte** command. This is an example of the possible output.

```
rlghncxa03w 05-03-28 11:43:04 GMT  EAGLE5 32.0.0
DPCA        ALIASI      ALIASN      CLLI        LSN      RC APCA
001-001-001 ----------- ----------- lsn4clli    lsn4     10 001-001-001
                                                ls04     20 001-002-003
001-001-002 ----------- ----------- lsn2clli    lsn2     10 001-001-002
001-002-003 ----------- ----------- ls04clli    ls04     10 001-002-003
002-002-002 ----------- ----------- ls01clli    ls01     10 002-002-002
                                                ls02     20 004-004-004
                                                ls03     30 003-003-003
002-002-004 ----------- ----------- lsn3clli    lsn3     10 002-002-004
002-007-008 ----------- ----------- ls06clli    ls06     10 002-007-008
003-003-003 ----------- ----------- ls03clli    ls03     10 003-003-003
                                                ls01     20 002-002-002
                                                ls02     30 004-004-004
003-003-005 ----------- ----------- lsn4clli    lsn4     10 003-003-005
004-004-004 ----------- ----------- ls02clli    ls02     10 004-004-004
                                                ls01     20 002-002-002
                                                ls03     30 003-003-003
005-005-005 ----------- ----------- lsn5clli    lsn5     10 005-005-005
006-006-006 ----------- ----------- lsn6clli    lsn6     10 006-006-006
007-007-007 ----------- ----------- lsn7clli    lsn7     10 007-007-007
010-010-010 ----------- ----------- lsn8clli    lsn8     10 010-010-010
100-100-100 ----------- ----------- lsn9clli    lsn9     10 100-100-100
100-100-110 ----------- ----------- lsn0clli    lsn0     10 100-100-110
                                                lsn9     20 100-100-100
150-175-000 ----------- ----------- lsn10clli   ls10     10 150-175-000
200-150-007 ----------- ----------- lsn11clli   ls11     10 200-150-007
                                                ls10     10 150-175-000
200-200-200 ----------- ----------- lsn12clli   ls12     10 200-200-200

DPCI        ALIASN      ALIASA      CLLI         LSN      RC APCI

DPCN        ALIASA      ALIASI      CLLI         LSN      RC APCN
```

If the point code is not shown in the **rtrv-rte** output, go to the *Database Administration Manual - SS7* and assign the point code of the GTT to a route.

---

4. Display the LNP service providers in the database with the **rtrv-lnp-sp** command. This is an example of the possible output.

```
rlghncxa03w 05-03-28 14:42:38 GMT EAGLE5 32.0.0
SP
12ab
12bb
5512
99zy

SP TABLE IS (4 of 10000) 1% FULL
```

NOTE: If the global title address (GTA) will not be replaced by the location routing number (LRN) by specifying the lrn parameter with the chg-lnp-sub command, skip this step and go to step 6.

5. Display the LRNs in the database using the **rtrv-lnp-lrn** command.

NOTE: Because of the large number of LRN entries that can be in the database, the rtrv-lnp-lrn command contains these parameters, num and force. The num parameter specifies the maximum number of entries to display. The force parameter specifies whether more than 50 entries are displayed. This prevents trying to display extremely large amounts of entries which could take hours.

This is an example of the possible output.

```
rlghncxa03w 05-03-28 14:23:37 GMT EAGLE5 32.0.0
LRN         SP    TT   XLAT    RI   PCA          SSN  NGT  RGTA
9093350000  12ab  16   DPCSSN  SSN  001-001-001  20   ---  yes
                  18   DPCSSN  SSN  002-002-002  30   ---  yes
                  19   DPCSSN  SSN  002-002-004  20   ---  yes
                  30   DPC     GT   101-101-101  ---  ---  yes

9093350099  50hi  15   DPCSSN  SSN  003-003-003  254  ---  yes
                  25   DPCNGT  GT   200-150-175  ---  100  yes
9093360000  12bb  20   DPCSSN  SSN  006-006-006  250  ---  yes
                  125  DPCNGT  GT   020-020-020  ---  110  yes
9105840000  99zy  50   DPCSSN  SSN  005-005-005  250  ---  yes
                  175  DPC     GT   010-101-010  ---  ---  yes
9193370000  67mi  30   DPCSSN  SSN  004-004-004  254  ---  yes
                  201  DPCNGT  GT   135-145-155  ---  75   yes

LRN TABLE IS 1% FULL
```

CAUTION: If the GTA is to be replaced by the LRN in the chg-lnp-sub command, and the LRN is not in the database when the chg-lnp-sub command is executed, the specified will be placed in the database with the specified service provider ID, but all other fields in the LRN will be blank. For example, the LRN 3360000000 is specified with the chg-lnp-sub command, but LRN 3360000000 is not in the database. When the chg-lnp-sub command is executed, LRN 3360000000 and the service provider ID (ba90 in this example) is placed in the database with the other fields in the LRN are blank as shown in the following example.

```
rlghncxa03w 05-03-11 09:26:17 GMT EAGLE5 32.0.0

LRN         SP    TT   XLAT    RI   PCA          SSN  NGT  RGTA
3360000000  ba90  ---  ------  ---  -----------  ---  ---  ----
3365840000  ba90  20   DPCSSN  SSN  002-002-002  254  ---  yes

LRN table is    1 % full
```

It is recommended that if the desired LRN is not in the database, go to the "Adding an LNP Location Routing Number" procedure on page 3-116 and add the LRN data to the database.

NOTE: If the "Adding an LNP Location Routing Number" procedure on page 3-116 was performed in step 5, skip this step and go to step 7

6. 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 05-03-28 14:42:38 GMT EAGLE5 32.0.0
APPL       SSN       STAT
LNP        254       ONLINE

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

If the LNP subsystem number is not shown in the **rtrv-ss-appl** output, go to the "Adding a Subsystem Application" procedure on page 3-57 and add the LNP subystem number to the database.

---

7. Change the telephone numbers using the **chg-lnp-sub** command. For this example, enter these commands.

```
chg-lnp-sub:tn=3125841***:nlrn=9194600000
   :nmrgt1=40,008,008,008,250,dpcssn,ssn,0,yes

chg-lnp-sub:tn=7088129***:nlrn=7046750000
   :nmrgt1=80,009,009,009,250,dpcssn,ssn,0,yes
```

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

```
rlghncxa03w 05-03-28 14:42:38 GMT EAGLE5 32.0.0
CHG-LNP-SUB: MASP A - COMPLTD
```

---

8. Verify the changes with the **rtrv-lnp-sub** command with the **tn** parameter values specified in step 7. For this example, enter these commands.

   rtrv-lnp-sub:tn=3125841*

   This is an example of the possible output.

```
rlghncxa03w 05-03-28 14:42:38 GMT EAGLE5 32.0.0
TN          SP    LRN         PTYPE
3125841***  ba90  9104600000  POOL

  TT   XLAT    RI   PCA          SSN  NGT  RGTA
  40   DPCSSN  SSN  008-008-008  250  ---  yes

Service provider table is 1% full
LRN table is  1% full
MESSAGE relay table is  1% full
NPANXX table is  1% full
PORTED TN table is  1% full
SCCP cards configured to support a maximum of  500000 ported TNs
```

   rtrv-lnp-sub:tn=7088129*

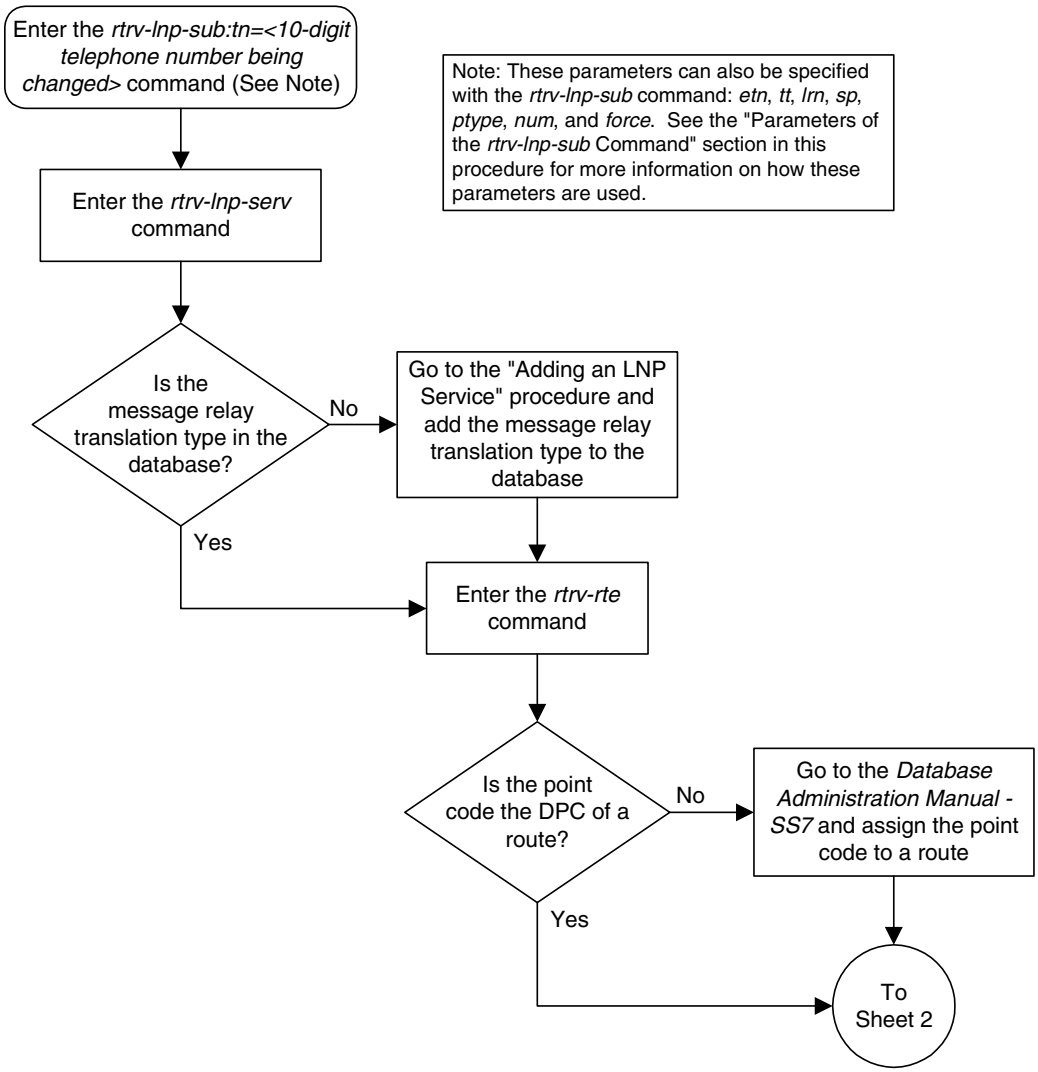
   This is an example of the possible output.

```
rlghncxa03w 05-03-28 14:42:38 GMT EAGLE5 32.0.0
TN          SP    LRN         PTYPE
7088129***  tnv8  7046750000  POOL

  TT   XLAT    RI   PCA          SSN  NGT  RGTA
  80   DPCSSN  SSN  009-009-009  250  ---  yes

Service provider table is 1% full
LRN table is  1% full
MESSAGE relay table is  1% full
NPANXX table is  1% full
PORTED TN table is  1% full
SCCP cards configured to support a maximum of  500000 ported TNs
```

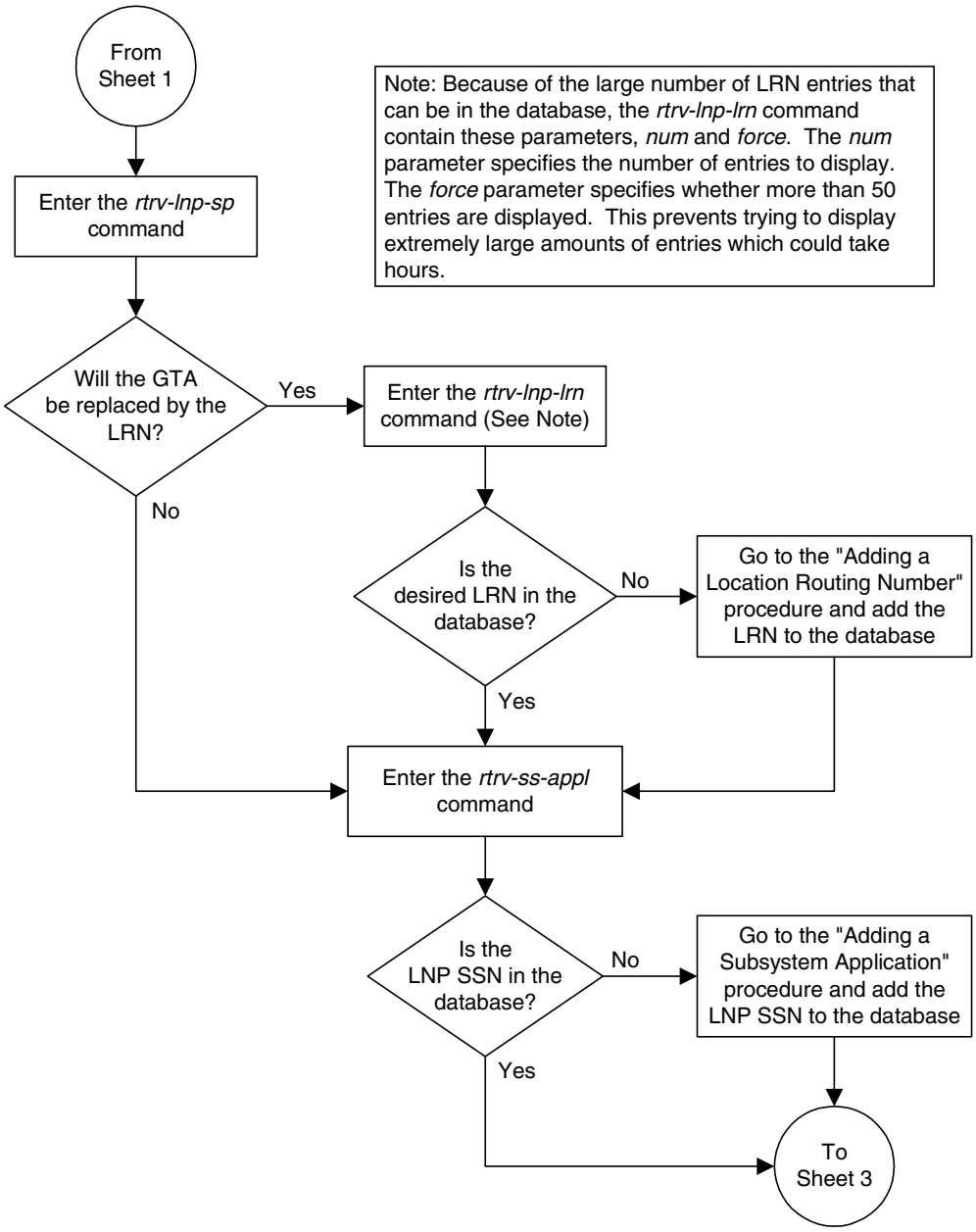
9. Backup the new changes using the **chg-db:action=backup:dest=fixed** command. The following messages should appear, the active Maintenance and Administration Subsystem Processor (MASP) appears first.

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

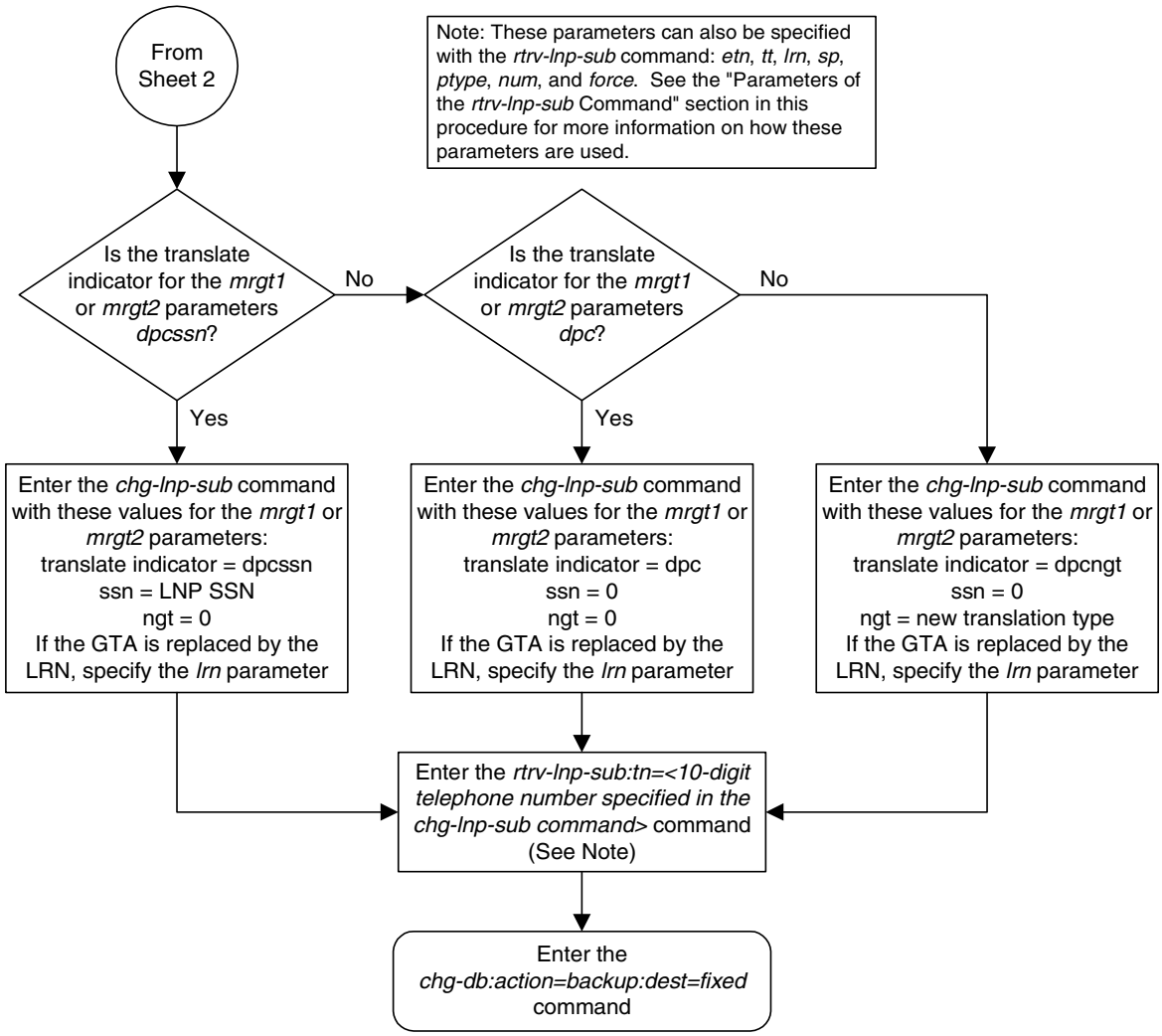
Flowchart 3-20. Changing a LNP Telephone Number Subscription (Sheet 1 of 3)



Flowchart 3-20. Changing a LNP Telephone Number Subscription (Sheet 2 of 3)



Flowchart 3-20. Changing a LNP Telephone Number Subscription (Sheet 3 of 3)



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 – theAMA 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 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 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 system 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.

:gtwystp – The values for this parameter are either **yes** or **no**. If the value is **yes**, the Eagle 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 database. Normally if the Eagle receives these LNP subscriptions, UIM 1176 is generated.

```
rlghncxa03w 05-03-28 14:42:38 GMT EAGLE5 32.0.0
0113.1176    SYSTEM    INFO   LNP subscription ref's DPC with 0 routes
             TN=9194605500  LRN=1234567890
             DPC(s)=009-009-009   015-001-001
```

For more information on UIM 1176, go to the *Maintenance Manual*.

Specifying the **gtwystp=yes** parameter prevents the Eagle from generating UIM 1176.

If the value for the **gtwystp** is **no**, the Eagle is not configured as a gateway STP. UIM 1176 will be generated for any LNP subscriptions received by the Eagle that contain capability point codes that do not have routes assigned to them in the Eagle database.

:ccp – The values for this parameter are either **yes** or **no**. When this parameter is enabled (**ccp=yes**), the Eagle 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 craftsperson update LRN overrides for message relay services that are to be supported in the network. The Eagle will then fallback to the TN gateway point code 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 system 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 system 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 system 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 system 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, go to either the "Enabling the LNP Feature for 2 to 12 Million Numbers" procedure on page 2-16 (for LNP telephone number quantities of 2 to 12 million numbers), or the procedures in the *LNP Feature Activation Guide* (for LNP telephone number quantities of 24 to 96 million numbers) and 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, go to the "Activating the LNP Short Message Service (SMS) Feature" procedure in the *LNP Feature Activation Guide*.

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 05-03-30 21:15:37 GMT EAGLE5 32.0.0
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

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, go to either the "Enabling the LNP Feature for 2 to 12 Million Numbers" procedure on page 2-16, or the procedures in the *LNP Feature Activation Guide* (for LNP telephone quantities of 24 to 96 million numbers) and 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 05-03-28 14:42:38 GMT EAGLE5 32.0.0
AMASLPID    = 123456789
INCSLP      = yes
AMACTYPE    = 003
AMAFEATID   = 010
CIC         = 1369
AUD         = on
SP          = 5678
FRCSMPLX    = yes
ADMHIPRI    = yes
GTWYSTP     = yes
JIPPROV     = yes
JIPDIGITS   = 910460
CCP         = no
SERVPORT    = no
WQREDRCT    = off
WSMSC10DIG  = yes
```

NOTE: The JIPPROV and JIPDIGITS fields are only displayed if the Triggerless LNP feature is on. This can be verified by the TLNP = on field of the rtrv-feat command output (step 3).

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 05-03-10 11:43:04 GMT EAGLE5 32.0.0
   CHG-FEAT: MASP A - COMPLTD
   ```

NOTE: If the wsmsc10dig parameter is not being specified in this procedure, skip this step and go to step 5.

5. If **rtrv-ctrl-feat** output in step 1 shows that the LNP SMS feature is not enabled or is off, go to the "Activating the LNP Short Message Service (SMS) Feature" procedure in the *LNP Feature Activation Guide* 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 05-03-28 14:42:38 GMT EAGLE5 32.0.0
CHG-LNPOPTS: MASP A - COMPLTD
```

7. Verify the changes with the **rtrv-lnpopts** command. This is an example of the possible output.

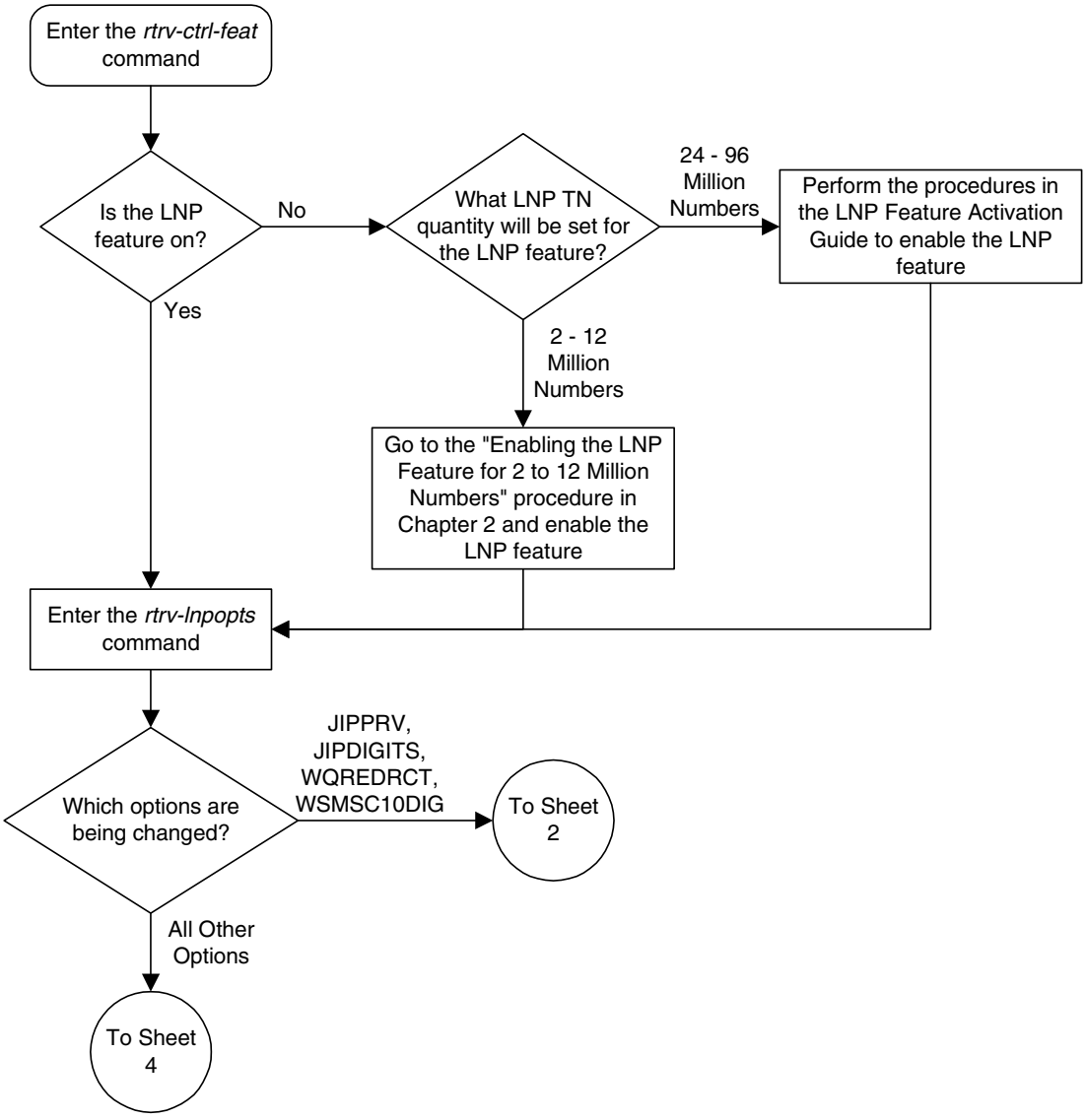
```
rlghncxa03w 05-03-28 14:42:38 GMT EAGLE5 32.0.0
AMASLPID    = 909873583
INCSLP      = yes
AMACTYPE    = 181
AMAFEATID   = 250
CIC         = 1254
AUD         = on
SP          = 1234
FRCSMPLX    = yes
ADMHIPRI    = yes
GTWYSTP     = yes
JIPPROV     = yes
JIPDIGITS   = 910460
CCP         = no
SERVPORT    = no
WQREDRCT    = off
WSMSC10DIG  = yes
```

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

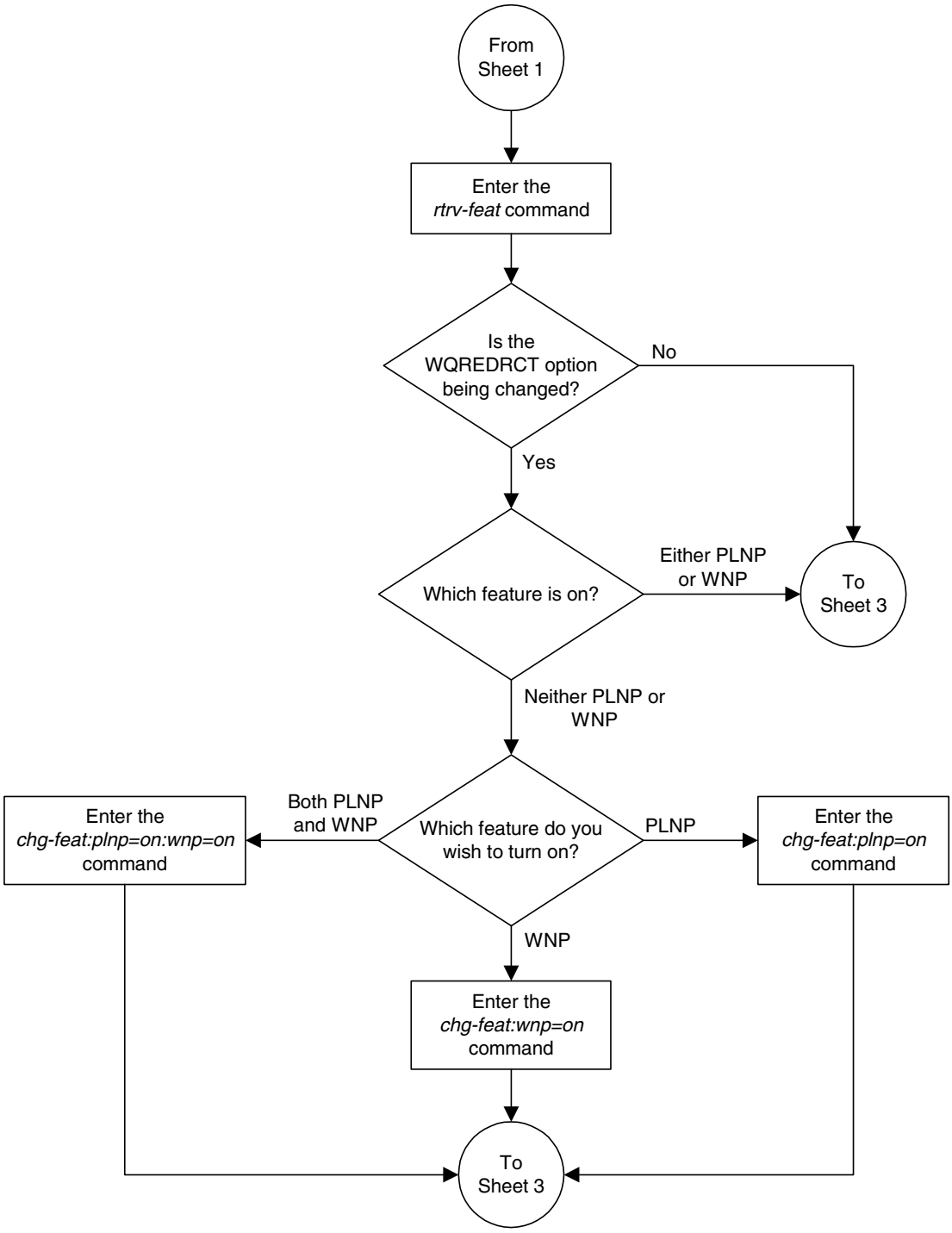
```
BACKUP (FIXED): MASP A - Backup starts on active MASP.
BACKUP (FIXED): MASP A - Backup on active MASP to fixed disk complete.
BACKUP (FIXED): MASP A - Backup starts on standby MASP.
BACKUP (FIXED): MASP A - Backup on standby MASP to fixed disk complete.
```

Flowchart 3-21. Changing LNP Options (Sheet 1 of 4)

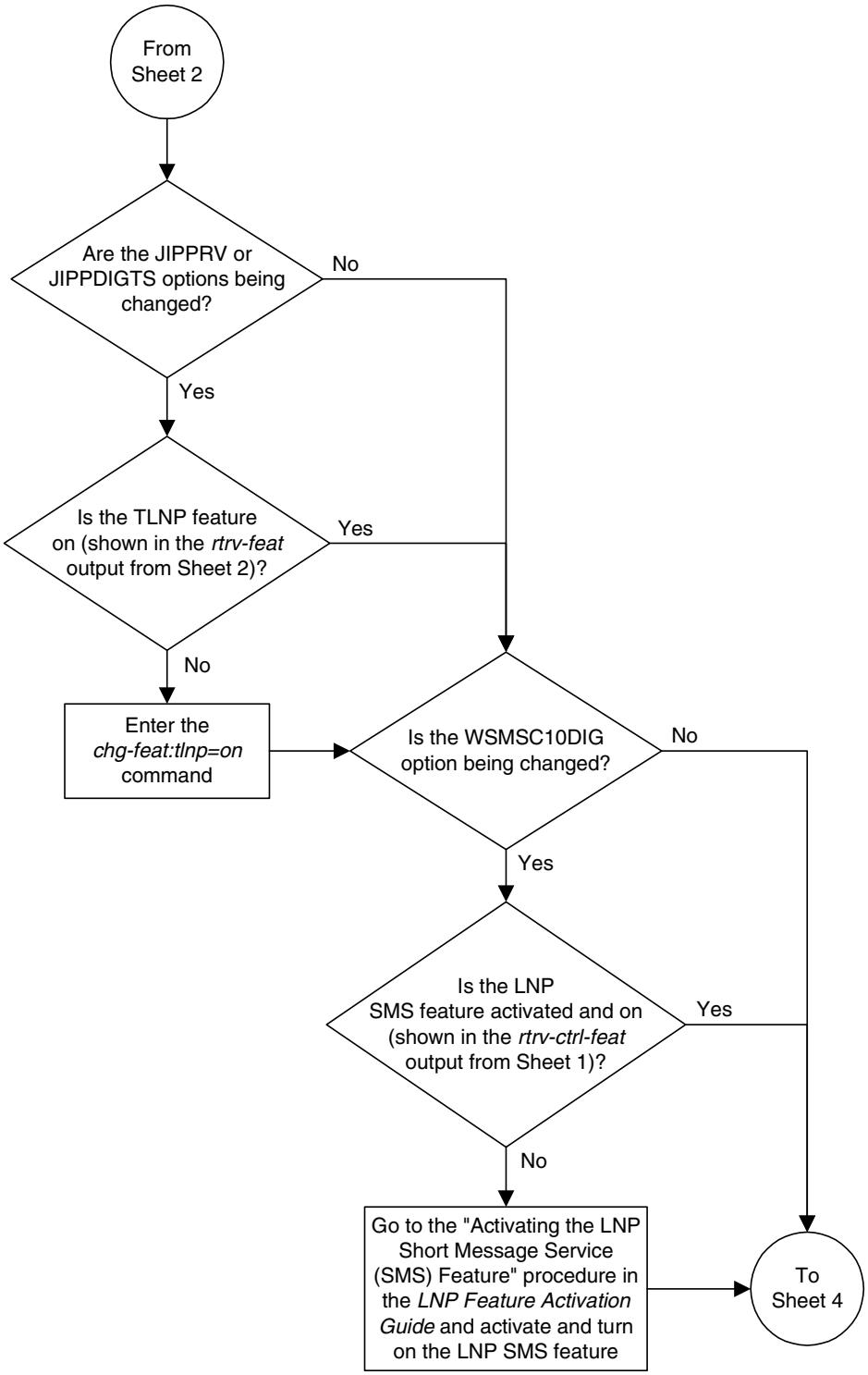
NOTE: Before executing this procedure, make sure you have purchased the LNP, wireless number portability (WNP), PCS 1900 number portability (PLNP), or Triggerless LNP (TLNP) features. If you are not sure if you have purchased the LNP, wireless number portability, PCS 1900 number portability, or Triggerless LNP features, contact your Tekelec Sales Representative or Account Representative.



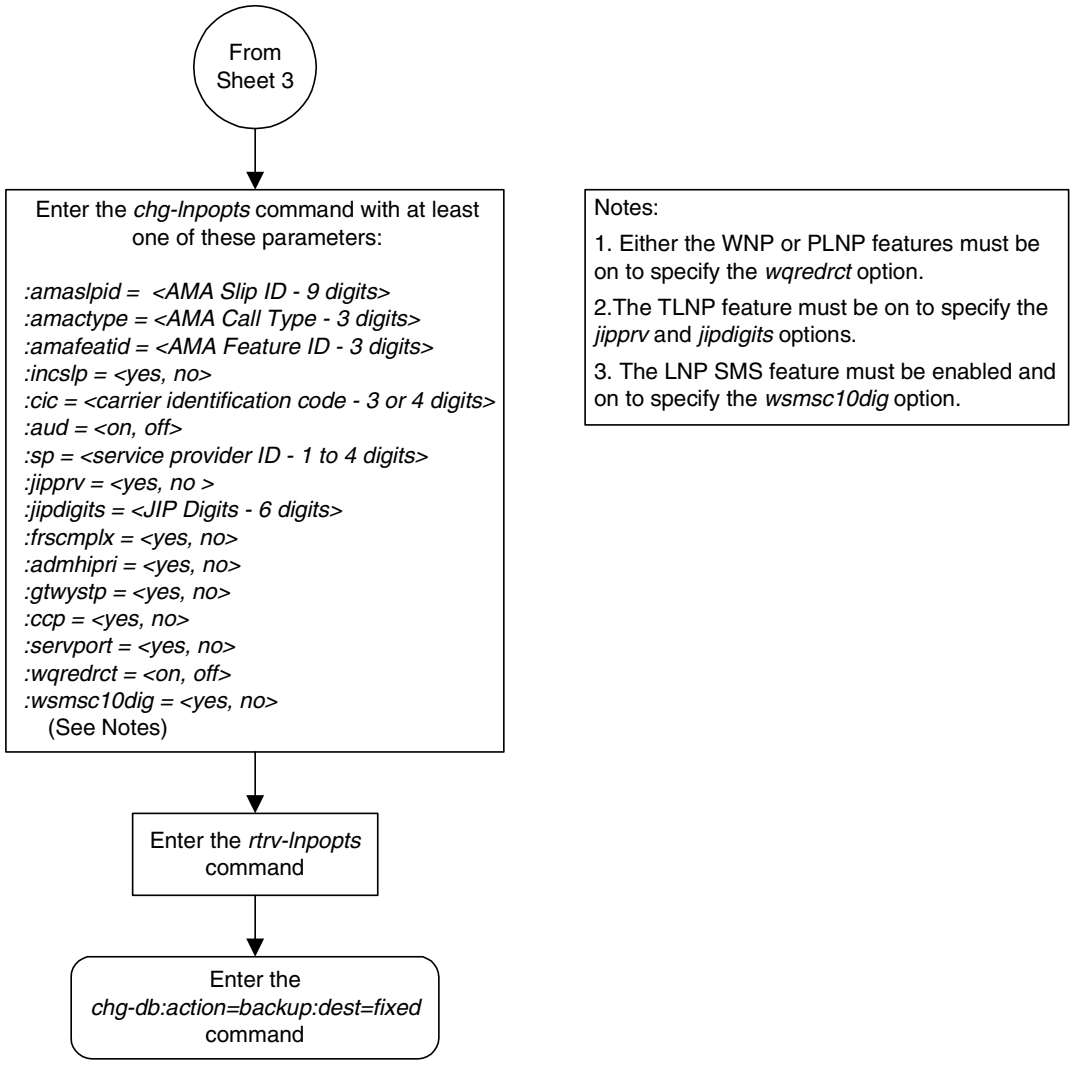
Flowchart 3-21. Changing LNP Options (Sheet 2 of 4)



Flowchart 3-21. Changing LNP Options (Sheet 3 of 4)



Flowchart 3-21. Changing LNP Options (Sheet 4 of 4)



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, go to the "Enabling the LNP Feature for 2 to 12 Million Numbers" procedure on page 2-16 and enable the LNP feature.

Make sure that the system meets the requirements shown in the "LNP System Requirements" section on page 3-5. If the system does not meet these requirements, the LNP commands will be rejected.

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 either the "Adding a Route" or "Changing a Route" procedures 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 by either the **ent-lnp-sub** or **ent-lnp-npanxx** commands 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 with the **rtrv-lnp-npanxx** and **rtrv-lnp-sub** commands. With the **rtrv-lnp-npanxx** command, the location routing number association is shown with the entry **yes** in the **LRN** field. With the **rtrv-lnp-sub** command, the location routing number association is shown with the location routing number in the **LRN** field.

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 05-03-30 21:15:37 GMT EAGLE5 32.0.0
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

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, go to either the "Enabling the LNP Feature for 2 to 12 Million Numbers" procedure on page 2-16, or the procedures in the *LNP Feature Activation Guide* (for LNP telephone quantities of 24 to 96 million numbers) 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 05-03-28 14:42:38 GMT EAGLE5 32.0.0
TT   PCA          NGT  RGTA
16   001-001-001  0    yes
16   100-100-100  28   yes
18   002-002-002  10    no
20   006-006-006  80    no
25   010-010-010  40   yes

Message Relay Table is 1% full
```

NOTE: If the `nrgta=yes` parameter will not be specified with the `chg-lnp-ttmap` command, skip steps 3 and 4, and go to step 5.

3. If the **`nrgta=yes`** parameter is to be specified with the **`chg-lnp-ttmap`** command, enter the **`rtrv-lnp-npanxx`** command to verify which NPANXXs have LRNs associated with them. The LRN association is shown with the entry **`yes`** in the **`LRN`** field. This is an example of the possible output.

```
rlghncxa03w 05-03-28 14:42:38 GMT EAGLE5 32.0.0
NPANXX  MR   LRN  TT   XLAT    RI   PCA          SSN  NGT
423743  yes  yes  15   DPC     GT   100-100-110  0    ---
                  20   DPCNGT  GT   006-006-006  0    30
                  201  DPCSSN  SSN  200-150-007  254  ---

909335  yes  yes  16   DPC     GT   001-001-001  0    ---
                  18   DPCNGT  GT   002-002-002  0    10
                  19   DPCSSN  SSN  002-002-004  20   ---
                  100  DPC     GT   007-007-007  0    ---

909336  yes  yes  16   DPC     GT   001-001-001  0    ---
                  201  DPCSSN  SSN  200-150-007  254  ---

919460  yes  yes  10   DPCSSN  SSN  003-003-005  254  ---
                  25   DPC     GT   010-010-010  0    ---
                  30   DPCNGT  GT   150-175-000  0    150

NPANXX TABLE IS 1% FULL
```

4. Display the 10-digit telephone number subscriptions in the database using the **`rtrv-lnp-sub`** command, specifying a range of telephone numbers with the **`tn`** and **`etn`** parameters), the translation type (with the **`tt`** parameter) that will be specified in step 7, and the **`num`** parameter. The LRN association is shown with the location routing number in the **`LRN`** field. If the **`num`** parameter value is greater than 50, the **`force=yes`** parameter must be specified. The range of values for the **`num`** parameter is 1 to 10,000. If the **`num=100`** and **`force=yes`** parameters are specified with the **`rtrv-lnp-sub`** command, up to 100 entries in the specified range of 10-digit telephone numbers that contain the specified translation type are displayed.

NOTE: The range of 10-digit telephone numbers cannot cross an NPANXX boundary. For example, specifying the `tn=9194600000` and the `etn=9194619999` parameters is not allowed. Using this example, specifying the `tn=9194600000` and the `etn=9194609999`, or the `tn=9194610000` and the `etn=9194619999` parameters are allowed.

For this example, enter these commands.

```
rtrv-lnp-sub:tn=312000000:etn=3129999999:tt=50:num=100
:force=yes
```

This is an example of the possible output.

```
rlghncxa03w 05-03-28 14:42:38 GMT EAGLE5 32.0.0
TN          SP    LRN         PTYPE
3125841***  ba90  9105840000  none
  TT   XLAT    RI   PCA          SSN  NGT  RGTA
  50   DPCSSN   SSN 005-005-005  250  ---  no
```

```
Service provider table is 1% full
LRN table is  1% full
MESSAGE relay table is  1% full
NPANXX table is  1% full
PORTED TN table is  1% full
SCCP cards configured to support a maximum of  500000 ported TNs
```

rtrv-lnp-sub:tn=9093350000:etn=9093359999:tt=18:num=100 :force=yes

This is an example of the possible output.

```
rlghncxa03w 05-03-28 14:42:38 GMT EAGLE5 32.0.0
TN          SP    LRN          PTYPE
9093351***  22cd  1234567890   POOL
  TT   XLAT    RI   PCA          SSN  NGT  RGTA
  18   DPCNGT  GT   002-002-002  0    10   no

Service provider table is 1% full
LRN table is  1% full
MESSAGE relay table is  1% full
NPANXX table is  1% full
PORTED TN table is  1% full
SCCP cards configured to support a maximum of  500000 ported TNs
```

NOTE: If the `nrgta=yes` parameter will be specified with the `chg-lnp-ttmap` command and steps 3 and 4 were performed, skip steps 5 and 6, and go to step 7.

5. Display the LNP translation types in the database with the **`rtrv-lnp-serv`** command. This is an example of the possible output.

```
rlghncxa03w 05-03-28 14:42:38 GMT EAGLE5 32.0.0
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
```

6. Display the routes in the database using the **rtrv-rte** command. The following is an example of the possible output.

```
rlghncxa03w 05-03-28 11:43:04 GMT  EAGLE5 32.0.0
DPCA        ALIASI      ALIASN      CLLI        LSN      RC APCA
001-001-001 ----------- ----------- lsn4clli    lsn4     10 001-001-001
                                                ls04     20 001-002-003
001-001-002 ----------- ----------- lsn2clli    lsn2     10 001-001-002
001-002-003 ----------- ----------- ls04clli    ls04     10 001-002-003
002-002-002 ----------- ----------- ls01clli    ls01     10 002-002-002
                                                ls02     20 004-004-004
                                                ls03     30 003-003-003
002-002-004 ----------- ----------- lsn3clli    lsn3     10 002-002-004
002-007-008 ----------- ----------- ls06clli    ls06     10 002-007-008
003-003-003 ----------- ----------- ls03clli    ls03     10 003-003-003
                                                ls01     20 002-002-002
                                                ls02     30 004-004-004
003-003-005 ----------- ----------- lsn4clli    lsn4     10 003-003-005
004-004-004 ----------- ----------- ls02clli    ls02     10 004-004-004
                                                ls01     20 002-002-002
                                                ls03     30 003-003-003
005-005-005 ----------- ----------- lsn5clli    lsn5     10 005-005-005
006-006-006 ----------- ----------- lsn6clli    lsn6     10 006-006-006
007-007-007 ----------- ----------- lsn7clli    lsn7     10 007-007-007
010-010-010 ----------- ----------- lsn8clli    lsn8     10 010-010-010
100-100-100 ----------- ----------- lsn9clli    lsn9     10 100-100-100
100-100-110 ----------- ----------- lsn0clli    lsn0     10 100-100-110
                                                lsn9     20 100-100-100
150-175-000 ----------- ----------- lsn10clli   ls10     10 150-175-000
200-150-007 ----------- ----------- lsn11clli   ls11     10 200-150-007
                                                ls10     10 150-175-000
200-200-200 ----------- ----------- lsn12clli   ls12     10 200-200-200

DPCI        ALIASN      ALIASA      CLLI         LSN      RC APCI

DPCN        ALIASA      ALIASI      CLLI         LSN      RC APCN
```

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

   If steps 3 and 4 were performed, select a translation type and point code combination from either the **rtrv-lnp-npanxx** (step 3) or **rtrv-lnp-sub** (step 4) outputs that have an LRN associated with it.

   If steps 5 and 6 were performed, select a translation type from the **rtrv-lnp-serv** output (step 5) that is not assigned to the AIN or IN LNP services and a point code from the **rtrv-rte** output (step 6).

   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 05-03-28 08:50:30 GMT EAGLE5 32.0.0
CHG-LNP-TTMAP: MASP A - COMPLTD
```

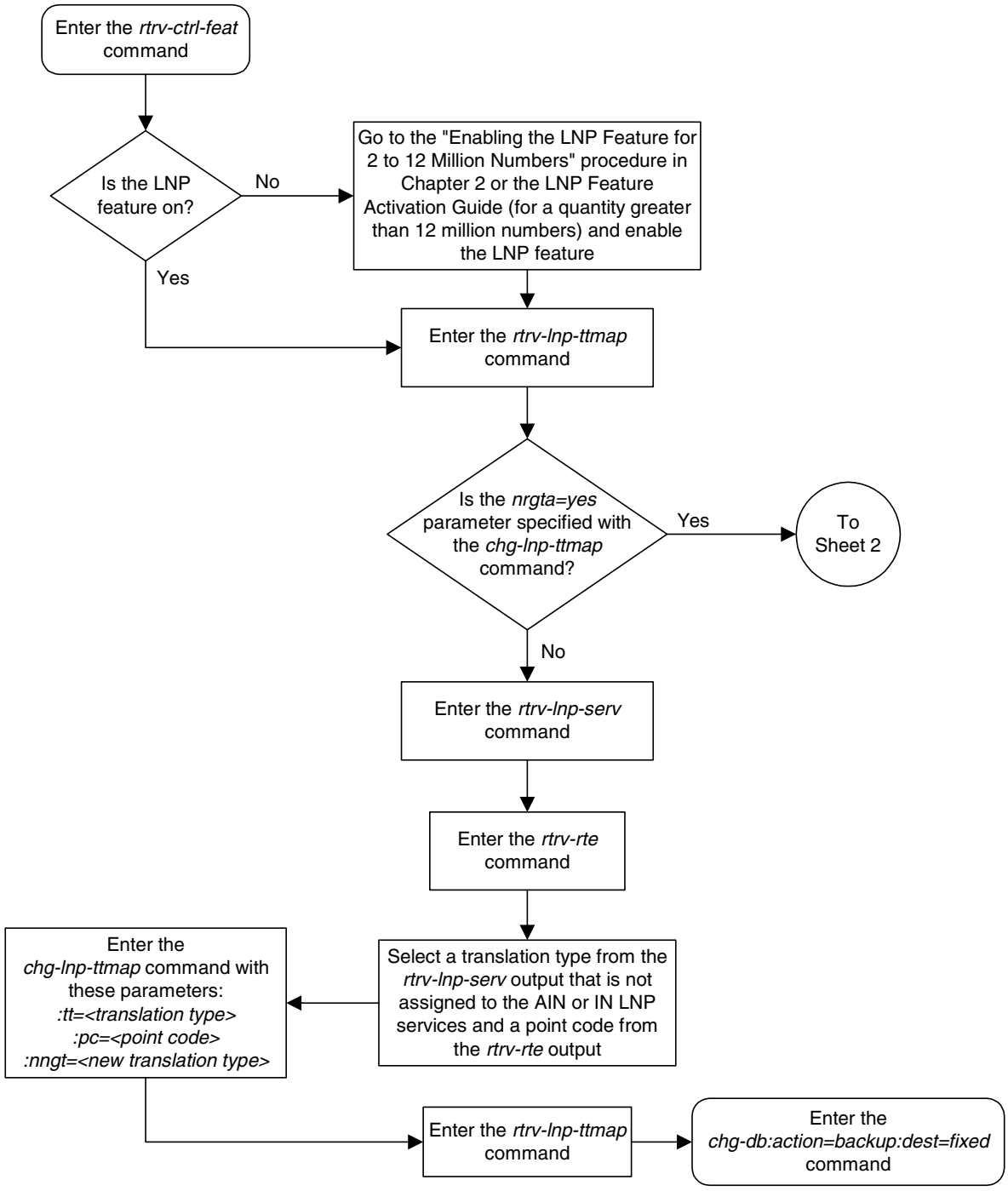
8. Verify the changes with the **rtrv-lnp-ttmap** command. This is an example of the possible output.

```
rlghncxa03w 05-03-28 14:42:38 GMT EAGLE5 32.0.0
TT   PCA          NGT  RGTA
10   003-003-005  60   yes
16   001-001-001  0    yes
16   100-100-100  28   yes
18   002-002-002  10    no
18   200-200-200  0    yes
25   003-003-003  40   yes
35   005-005-005  80    no
50   005-005-005  70   yes

Message Relay Table is 1% full
```

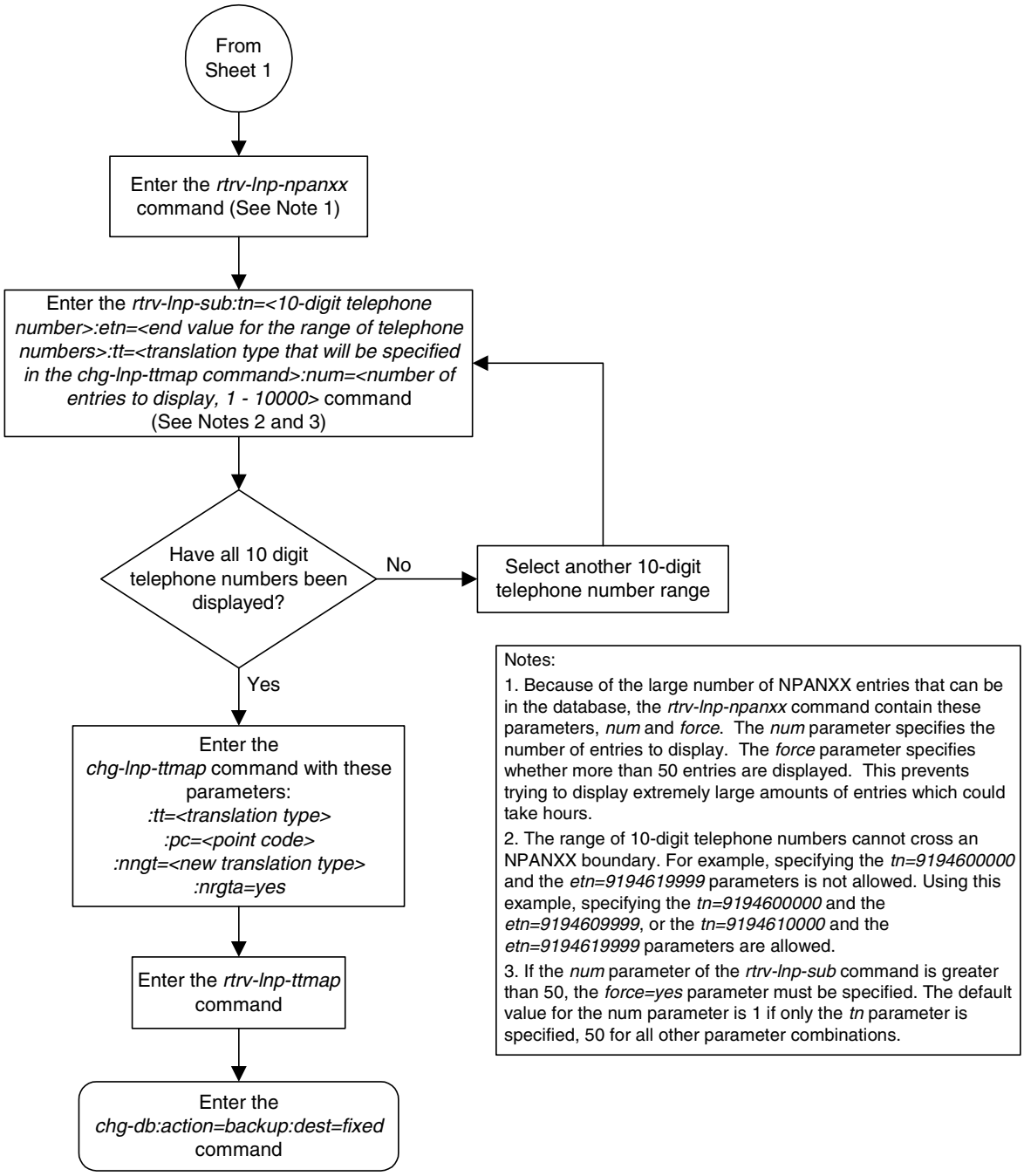
9. Backup the new changes using the **chg-db:action=backup:dest=fixed** command. The following messages should appear, the active Maintenance and Administration Subsystem Processor (MASP) appears first.

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

Flowchart 3-22. Mapping LNP Translation Types (Sheet 1 of 2)



Flowchart 3-22. Mapping LNP Translation Types (Sheet 2 of 2)



4

Automatic Call Gapping (ACG) Configuration

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Adding an ACG Node Overload Control Level 4–13

Removing an ACG Node Overload Control Level 4–17

Changing an ACG Node Overload Control Level 4–19

Adding ACG Manual Initiated Controls 4–21

Removing ACG Manual Initiated Controls 4–28

Changing ACG Manual Initiated Controls 4–31

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 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 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 to control the rate that queries are processed.

2. If no overload control is sent, the Eagle 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. 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 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 does not maintain overload levels for individual subsystems, but maintains an overload level for the entire Eagle, the node. There are 10 overload levels that are defined for the Eagle. 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. 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 receives an AIN query for the called party address 919-461-1017.

5. The Eagle sends an ACG for 919-461. The control entered in item 3 is the only one that applies.

6. The Eagle receives an AIN query for called party 919-460-2132.

7. The Eagle 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 receives an AIN query for called party 919-460-5500.

9. The Eagle 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 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.

S = the total SCCP system 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 system 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 System Traffic Capacity

The total system traffic capacity is determined from the number of SCCP cards installed in the Eagle (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 system. To determine the total SCCP system 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 System Traffic Capacity

The LNP query portion of the SCCP traffic (Q) is a percentage of the total SCCP system traffic (P) as determined from the traffic studies. Once the LNP query percentage is determined, multiply the total SCCP system 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.

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 system 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 system 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.

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 system 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 system 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.

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 system 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 system 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, go one of these procedures:

- The "Enabling the LNP Feature for 2 to 12 Million Numbers" procedure on page 2-16 to enable the LNP feature with LNP telephone number quantities of 2 million to 12 million numbers.
- The procedures in the *LNP Feature Activation Guide* to enable the LNP feature with LNP telephone number quantities of 24 million to 96 million numbers.

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 4-19.

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 05-03-30 21:15:37 GMT EAGLE5 32.0.0
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

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, go one of these procedures:

- The "Enabling the LNP Feature for 2 to 12 Million Numbers" procedure on page 2-16 to enable the LNP feature with LNP telephone number quantities of 2 million to 12 million numbers.
- The procedures in the *LNP Feature Activation Guide* to enable the LNP feature with LNP telephone number quantities of 24 million to 96 million numbers.

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 05-03-28 08:50:12 GMT EAGLE5 32.0.0
LVL  QR          AND  IND  INTVL  DRTN
3    600000      10   6    3      6
4    750000      6    6    5      7
10   2147483647  10   10   15     13

RTRV-ACG-NOC: MASP A - COMPLTD
```

3. Add the ACG node overload control level to the database using the **ent-acg-noc** command. For this example, enter this command.

ent-acg-noc:lvl=7:qr=35000000:and=10:ind=10:intvl=7:drtn=8

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

```
rlghncxa03w 05-03-28 08:50:12 GMT EAGLE5 32.0.0
ENT-ACG-NOC: MASP A - COMPLTD
```

4. Verify the changes using the **rtrv-acg-noc** command. The following is an example of the possible output.

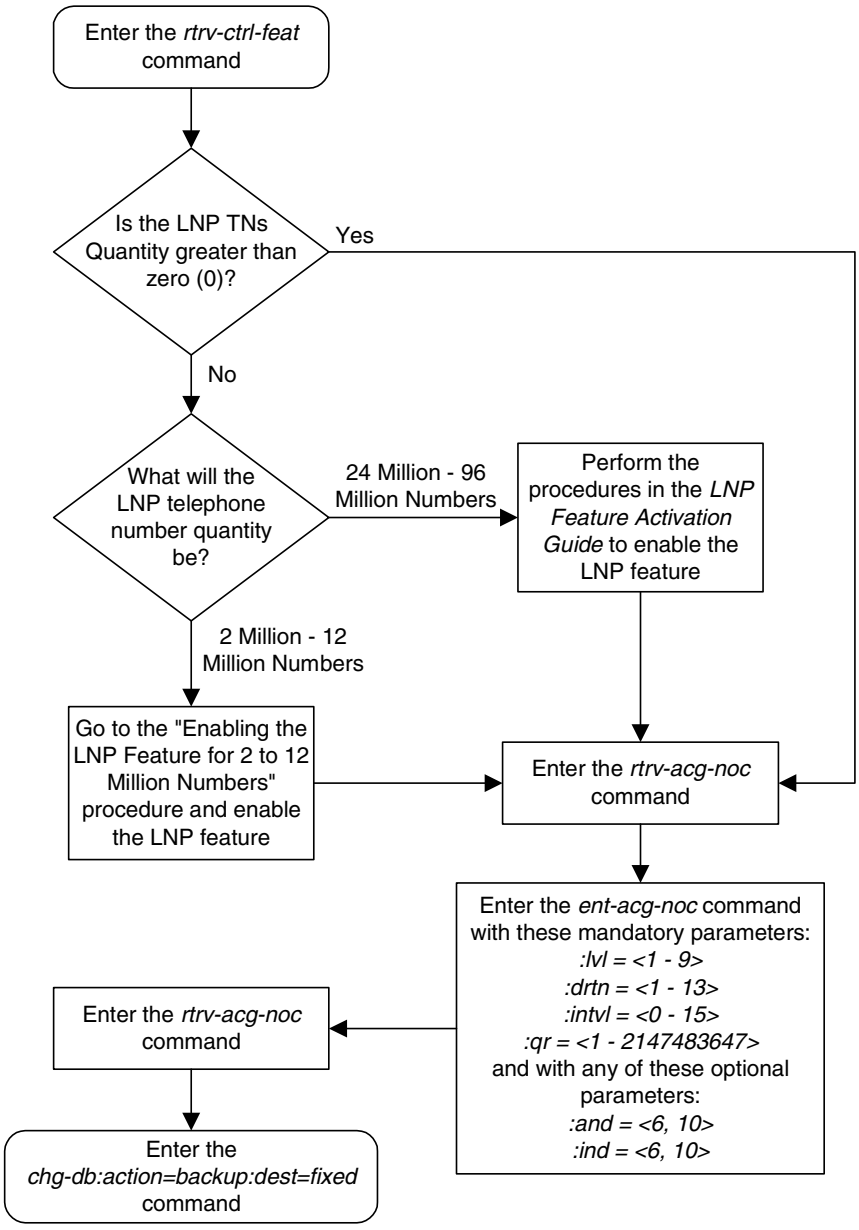
```
rlghncxa03w 05-03-28 08:50:12 GMT EAGLE5 32.0.0
LVL  QR          AND  IND  INTVL  DRTN
3    600000      10   6    3      6
4    750000      6    6    5      7
7    35000000    10   10   7      8
10   2147483647  10   10   15     13

RTRV-ACG-NOC: MASP A - COMPLTD
```

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

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

Flowchart 4-1. Adding an ACG Node Overload Control Level



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 4-19.

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 05-03-28 08:50:12 GMT EAGLE5 32.0.0
LVL  QR          AND  IND  INTVL  DRTN
3    600000      10   6    3      6
4    750000      6    6    5      7
7    35000000    10   10   7      8
10   2147483647  10   10   15     13

RTRV-ACG-NOC: MASP A - COMPLTD
```

2. Remove the ACG node overload control level from the database using the **dlt-acg-noc** command. For this example, enter this command.

   dlt-acg-noc:lvl=3

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

```
rlghncxa03w 05-03-28 08:50:12 GMT EAGLE5 32.0.0
DLT-ACG-NOC: MASP A - COMPLTD
```

3. Verify the changes using the **rtrv-acg-noc** command. The following is an example of the possible output.

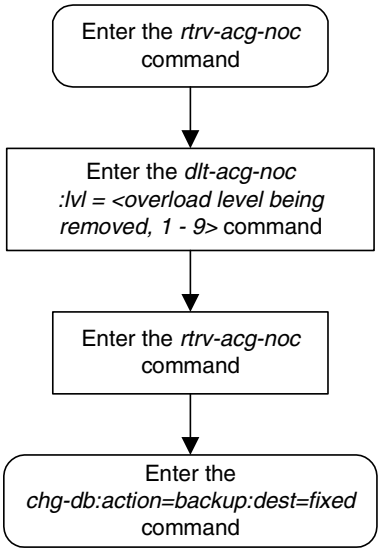
```
rlghncxa03w 05-03-28 08:50:12 GMT EAGLE5 32.0.0
LVL  QR          AND  IND  INTVL  DRTN
4    750000      6    6    5      7
7    35000000    10   10   7      8
10   2147483647  10   10   15     13

RTRV-ACG-NOC: MASP A - COMPLTD
```

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

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

Flowchart 4-2. Removing an ACG Node Overload Control Level



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 05-03-28 08:50:12 GMT EAGLE5 32.0.0
LVL  QR          AND  IND  INTVL  DRTN
3    600000      10   6    3      6
4    750000      6    6    5      7
7    35000000    10   10   7      8
10   2147483647  10   10   15     13

RTRV-ACG-NOC: MASP A - COMPLTD
```

2. Change the ACG node overload control level values in the database using the **chg-acg-noc** command. For this example, enter this command.

chg-acg-noc:lvl=10:qr=70000000:and=6:ind=6:intvl=11:drtn=8

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

```
rlghncxa03w 05-03-28 08:50:12 GMT EAGLE5 32.0.0
CHG-ACG-NOC: MASP A - COMPLTD
```

3. Verify the changes using the **rtrv-acg-noc** command. The following is an example of the possible output.

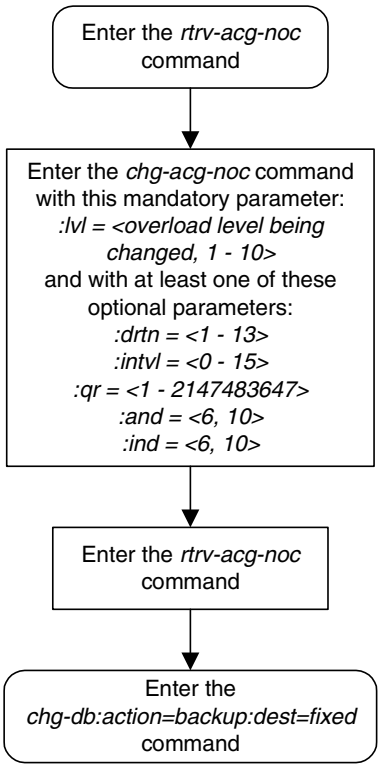
```
rlghncxa03w 05-03-28 08:50:12 GMT EAGLE5 32.0.0
LVL   QR          AND   IND   INTVL   DRTN
3     600000      10    6     3       6
4     750000      6     6     5       7
7     35000000    10    10    7       8
10    70000000    6     6     11      8

RTRV-ACG-NOC: MASP A - COMPLTD
```

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

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

Flowchart 4-3. Changing an ACG Node Overload Control Level



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 query service receives a query to which a control applies, then the Eagle 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, go one of these procedures:

- The "Enabling the LNP Feature for 2 to 12 Million Numbers" procedure on page 2-16 to enable the LNP feature with LNP telephone number quantities of 2 million to 12 million numbers.
- The procedures in the *LNP Feature Activation Guide* to enable the LNP feature with LNP telephone number quantities of 24 million to 96 million numbers.

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 05-03-28 08:50:12 GMT EAGLE5 32.0.0
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 05-03-30 21:15:37 GMT EAGLE5 32.0.0
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

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, go one of these procedures:

   - The "Enabling the LNP Feature for 2 to 12 Million Numbers" procedure on page 2-16 to enable the LNP feature with LNP telephone number quantities of 2 million to 12 million numbers.
   - The procedures in the *LNP Feature Activation Guide* to enable the LNP feature with LNP telephone number quantities of 24 million to 96 million numbers.

   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 05-03-28 08:50:12 GMT EAGLE5 32.0.0
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 05-03-28 08:50:12 GMT EAGLE5 32.0.0
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 05-03-28 08:50:12 GMT EAGLE5 32.0.0
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 05-03-28 08:50:12 GMT EAGLE5 32.0.0
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 05-03-28 08:50:12 GMT EAGLE5 32.0.0
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 05-03-28 08:50:12 GMT EAGLE5 32.0.0
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.

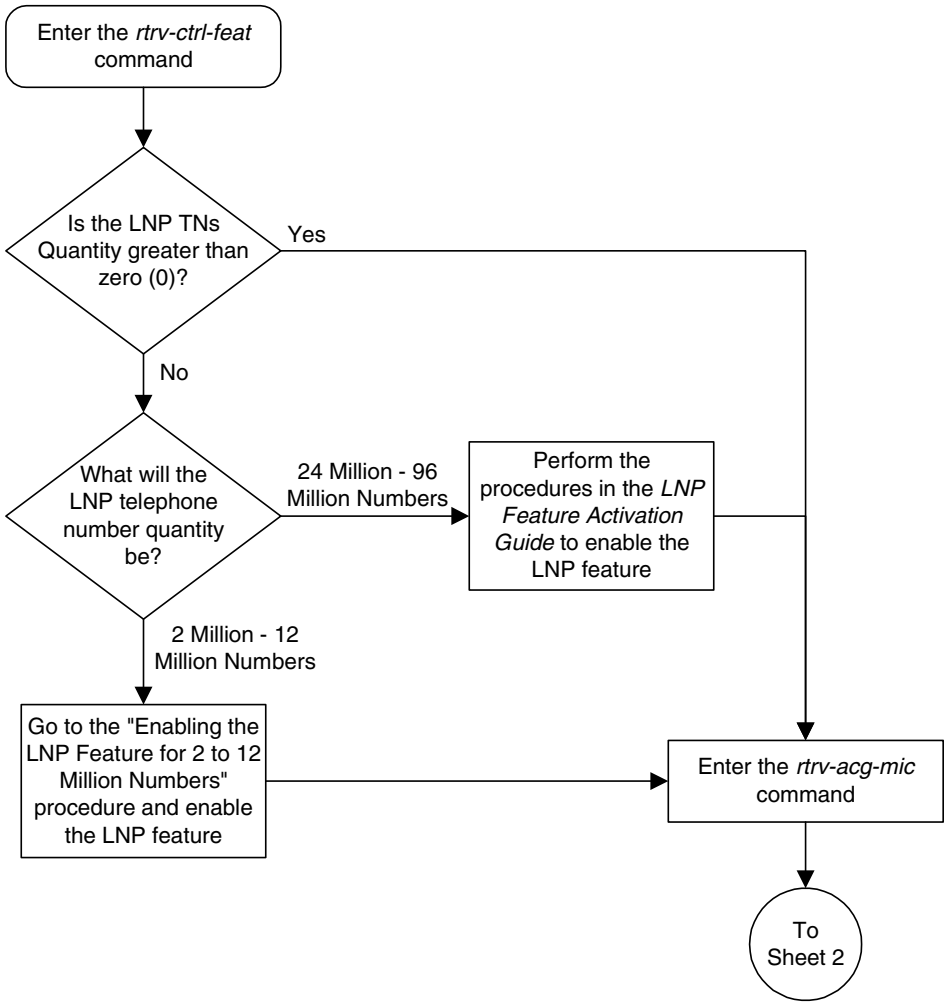
```
rlghncxa03w 05-03-28 08:50:12 GMT EAGLE5 32.0.0
TYPE=SD
DGTS         SERV  INTVL  AINTVL  DRTN
4237431234   IN    6      -       5

ACG MIC table is (7 of 256) 3% full of type SD
RTRV-ACG-MIC: MASP A - COMPLTD
```

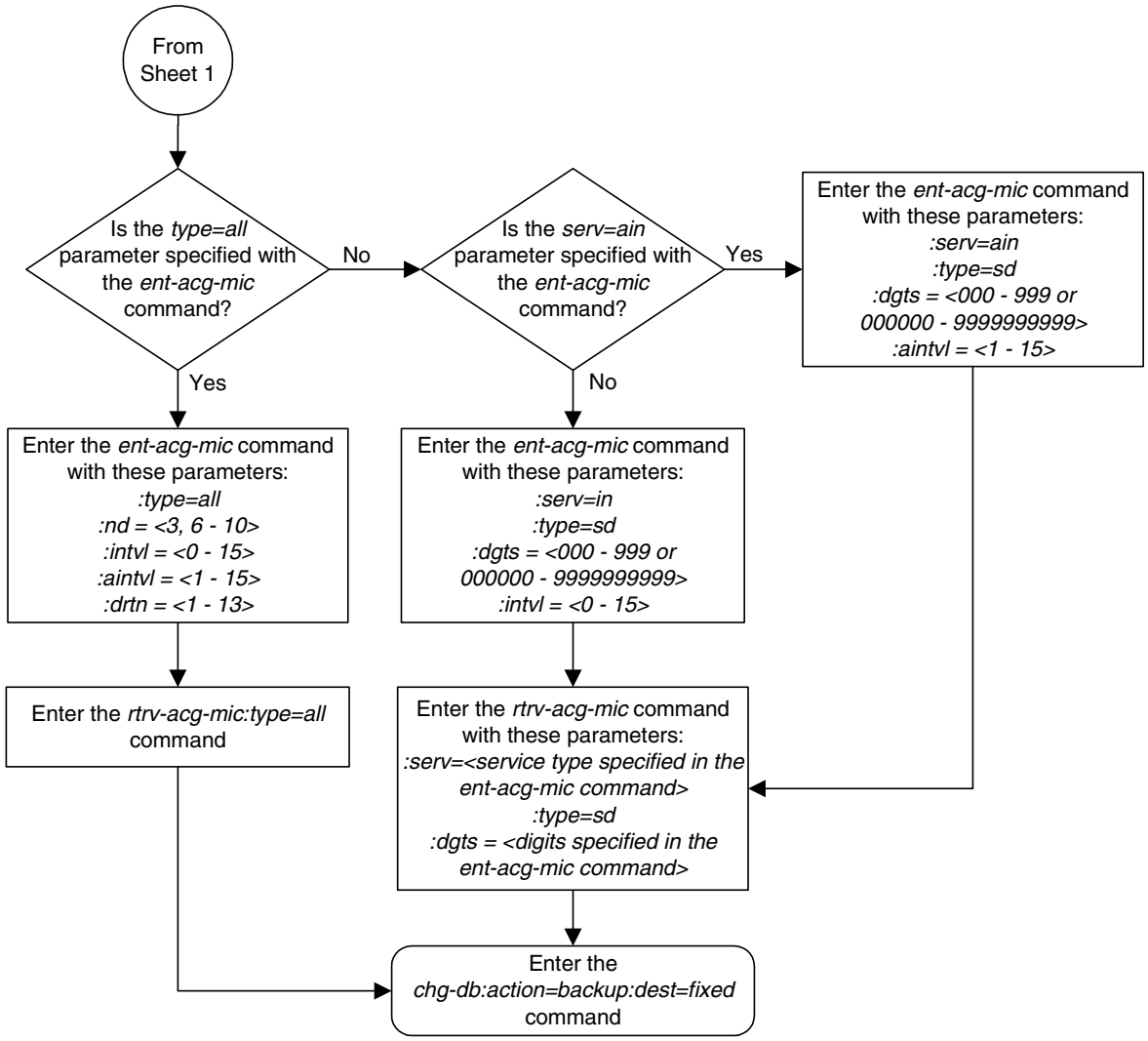
5. Backup the new changes using the **chg-db:action=backup:dest=fixed** command. The following messages should appear, the active Maintenance and Administration Subsystem Processor (MASP) appears first.

```
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.
```

Flowchart 4-4. Adding an ACG Manually Initiated Control (Sheet 1 of 2)



Flowchart 4-4. Adding an ACG Manually Initiated Control (Sheet 2 of 2)



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 05-03-28 08:50:12 GMT EAGLE5 32.0.0
TYPE=ALL
ND   INTVL  AINTVL  DRTN
6    8      7       8

TYPE=SD
DGTS         SERV  INTVL  AINTVL  DRTN
4237431234   IN    6      -       5
704461       AIN   -      8       7
910584       AIN   -      8       7
919460       IN    6      -       7
9194602132   AIN   -      7       8
9194602132   IN    4      -       8
919461       IN    6      -       7

ACG MIC table is (7 of 256) 3% full of type SD
RTRV-ACG-MIC: MASP A - COMPLTD
```

2. Remove the ACG manually initiated controls from the database using the **dlt-acg-mic** command. For this example, enter these commands.

   dlt-acg-mic:type=all

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

   ```
   rlghncxa03w 05-03-28 08:50:12 GMT EAGLE5 32.0.0
   DLT-ACG-MIC: MASP A - COMPLTD
   ```

   dlt-acg-mic:type=sd:serv=in:dgts=919460

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

   ```
   rlghncxa03w 05-03-28 08:50:12 GMT EAGLE5 32.0.0
   ACG MIC table is (6 of 256) 2% full of type SD
   DLT-ACG-MIC: MASP A - COMPLTD
   ```

3. Verify the changes using the **rtrv-acg-mic** command with either the **type=all** parameter, or the parameters and values specified with the **type=sd** parameter in step 2. 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 05-03-28 08:50:12 GMT EAGLE5 32.0.0
   TYPE=ALL
   ND  INTVL  AINTVL  DRTN
   ```

   rtrv-acg-mic:type=sd:serv=in:dgts=919460

   The following is an example of the possible output.

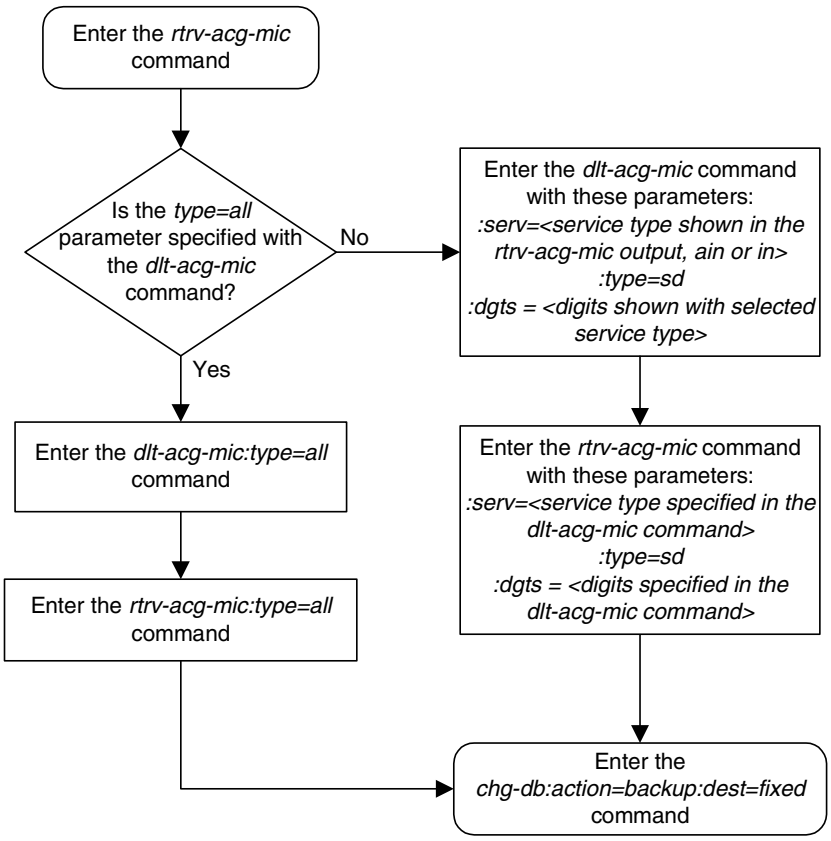
   ```
   rlghncxa03w 05-03-28 08:50:12 GMT EAGLE5 32.0.0
   TYPE=SD
   DGTS         SERV  INTVL  AINTVL  DRTN


   ACG MIC table is (6 of 256) 2% full of type SD
   RTRV-ACG-MIC: MASP A - COMPLTD
   ```

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

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

Flowchart 4-5. Removing an ACG Manually Initiated Control



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 05-03-28 08:50:12 GMT EAGLE5 32.0.0
TYPE=ALL
ND  INTVL  AINTVL  DRTN
6   8      7       8

TYPE=SD
DGTS         SERV  INTVL  AINTVL  DRTN
4237431234   IN    6      -       5
704461       AIN   -      8       7
910584       AIN   -      8       7
919460       IN    6      -       7
9194602132   AIN   -      7       8
9194602132   IN    4      -       8
919461       IN    6      -       7

ACG MIC table is (7 of 256) 3% full of type SD
RTRV-ACG-MIC: MASP A - COMPLTD
```

2. Add the ACG manually initiated controls to the database using the **chg-acg-mic** command. For this example, enter these commands.

chg-acg-mic:type=all:nd=10:intvl=7:aintvl=11:drtn=5

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

```
rlghncxa03w 05-03-28 08:50:12 GMT EAGLE5 32.0.0
CHG-ACG-MIC: MASP A - COMPLTD
```

chg-acg-mic:type=sd:serv=ain:dgts=910584:aintvl=12:drtn=9

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

```
rlghncxa03w 05-03-28 08:50:12 GMT EAGLE5 32.0.0
ACG MIC table is (7 of 256) 3% full of type SD
CHG-ACG-MIC: MASP A - COMPLTD
```

chg-acg-mic:type=sd:serv=in:dgts=4237431234:intvl=7:drtn=7

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

```
rlghncxa03w 05-03-28 08:50:12 GMT EAGLE5 32.0.0
ACG MIC table is (7 of 256) 3% full of type SD
CHG-ACG-MIC: MASP A - COMPLTD
```

3. Verify the changes using the **rtrv-acg-mic** command with either the **type=all** parameter, or the **serv** and **dgts** parameters and values specified with the **type=sd** parameter in step 2. 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 05-03-28 08:50:12 GMT EAGLE5 32.0.0
TYPE=ALL
ND  INTVL  AINTVL  DRTN
10  7      11      5
```

rtrv-acg-mic:type=sd:serv=ain:dgts=910584

```
rlghncxa03w 05-03-28 08:50:12 GMT EAGLE5 32.0.0
TYPE=SD
DGTS         SERV  INTVL  AINTVL  DRTN
910584       AIN   -      12      9

ACG MIC table is (7 of 256) 3% full of type SD

RTRV-ACG-MIC: MASP A - COMPLTD
```

rtrv-acg-mic:type=sd:serv=in:dgts=4237431234

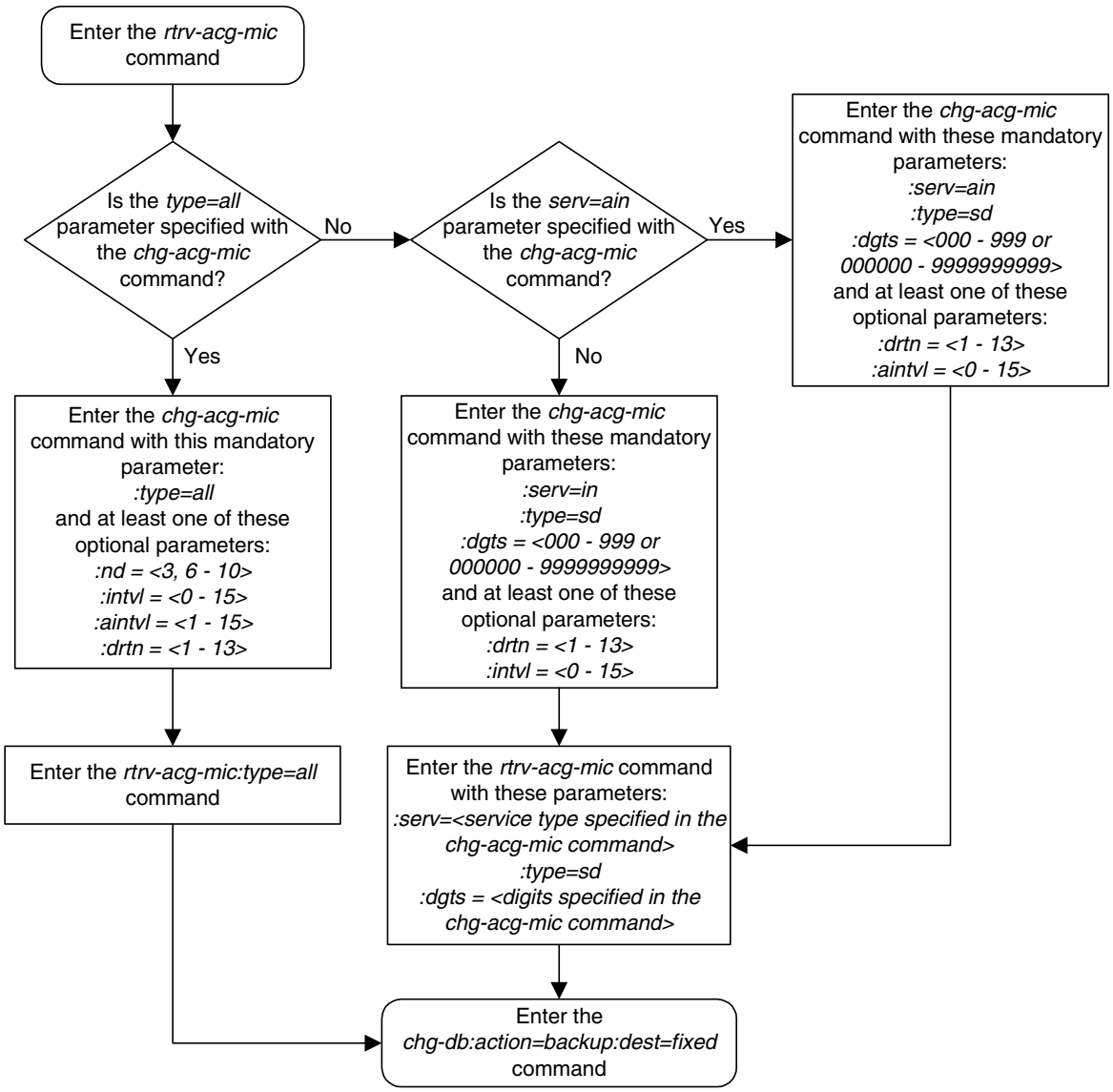
```
rlghncxa03w 05-03-28 08:50:12 GMT EAGLE5 32.0.0
TYPE=SD
DGTS         SERV  INTVL  AINTVL  DRTN
4237431234   IN    7      -       7

ACG MIC table is (7 of 256) 3% full of type SD
RTRV-ACG-MIC: MASP A - COMPLTD
```

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

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

Flowchart 4-6. Changing an ACG Manually Initiated Control



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